October 21, 2025

Michael Roux
10 Flint Street LLC
209 Shafter Street
Islandia, New York 11749

Re: Interim Site Management Plan
5 Flint Street Site
Site No.: C828162B
City of Rochester, Monroe (C)

Dear Mr. Roux:

The New York State Department of Environmental Conservation (Department) has completed a review of the August 15, 2025 revised Interim Site Management Plan (ISMP) for the 5 Flint Street site (Site) located at in the City of Rochester. Based on the information presented in the ISMP, the ISMP is conditionally approved with the clarifications and modifications presented below.

1. The Department understands that as part of the Site preparation activities associated with the demolition of the on-site building and to have sufficient staging/stockpiling area for the demolition material there needs to be clearing of the existing tree stumps and woody vegetation. The Department understands that the following sections of the Excavation Work Plan are applicable to the clearing of the tree stumps woody vegetation along with any additional conditions indicated below.
    - A-4, Soil and Material Staging Methods: All woody material will be staged on the Site in stockpiles.
    - A-5, Materials Excavation and Load-Out.
    - A-6, Materials Transport Off-Site.
    - A-7, Materials Disposal Off-Site.
    - A-8, Soil/Fill Material Reuse On-site: Organic matter (e.g., wood, roots, stumps) or other solid waste derived from clearing and grubbing of the Site may only be reused on-site with written prior approval from the NYSDEC project manager.
    - A-8, Fluids Management.
    - A-13, Community Air Monitoring Plan: The clearing of stumps and woody vegetation is considered by the Department as ground intrusive activities. CAMP monitoring will be implemented during all removal activities.
    - A-15, Dust Control Plan.
    - A-16, Other Nuisances. Rodent and Noise issues.
    - A-17, Site Security and Signage.

2. Section 1.1; General; Page 1: The Department understands that appropriate signage will be posted at the Site. Signage such as but not limited to No Trespassing, Authorized Personnel Only, PPE signage, etc.

3. Section 1.1; General; Page 2; 3rd Paragraph: The Department issued a letter on May 10, 2017 stating the following *"The Departments have no comments at this time. The Report will be approved, disapproved, or modified when the Decision Document is issued."* At this time the Decision Document has not been issued by the Department. The Department will issue a letter either approving, disapproving, and modifying the Remedial Investigation Report (RIR) at the time of Decision Document issuance.

4. Section 2.1; Site Location and Description; Page 5: As per the Department's Site Management Plan (SMP) template a tax map is to be included in the document. The attached tax map will be included in the conditionally approved ISMP.

5. Section 2.2.3; Hydrogeology; Page 6: As per the SMP template, a groundwater contour figure is to be included in the ISMP. To date no groundwater contour has been provided in the RIR or this ISMP. A groundwater contour figure will be provided in the Pre-Design Investigation Report which will be submitted to the Department prior to the submittal of the Remedial Action Work Plan.

6. Section 3.1; General; Page 13: The Department understands that the SMP template language is a part of the conditionally approved ISMP:

   > Since remaining contamination will remain at the site, Institutional Controls (ICs) and Engineering Controls (ECs) will be required to protect human health and the environment. An IC/EC Plan that will describe the procedures for the implementation and management of all IC/ECs at the site will be developed. The IC/EC Plan will be one component of the Site's SMP and is subject to revision by the NYSDEC project manager.

7. Section 3.2; Institutional Controls; Page 13: The Department understands that the Site limited use and development of the Site to restricted residential. The IC section of the ISMP and/or SMP will be updated upon completion of the remedy implementation. In addition, the following language from the SMP template is part of the conditionally approved ISMP:

   > ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

8. Section 3.3; Engineering Controls; Page 13: The Engineering Control (EC) section of the ISMP and/or SMP will be updated upon completion of the remedy implementation.

9. Section 4.3; Soil Reuse and/or Waste Disposal Sampling; Page 14: The Department understands that all wastes generated during the demolition and ground intrusive activities covered under the Site's ISMP will be disposed off-site at a permitted disposal facility.

10. Section 6.2; Green Remediation Evaluation; Page 16: The revised ISMP indicates that the Green Remediation Evaluation was conducted as part of the Remedial Action Work Plan (RAWP). Given that the remedy has not been finalized in the Site's Decision Document and the draft RAWP has not been submitted to the Department, the Department understands that the Green Remediation Evaluation will be completed based on the Site's Decision Document issued by the Department.

    In addition, the Department understands that the following language from the SMP template is part of the conditionally approved ISMP:

    > NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including interim site management phase and site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section provides an environmental footprint analysis of the remedy, as

implemented at the time of this SMP. This section of the SMP also provides a summary of green remediation evaluations to be completed for the site during site management and reported in Periodic Review Reports (PRRs).

11. Section 7.1; Daily Reports; Page 18: The Department understands along with those items listed in the ISMP the following items will be included in the Daily Reports submitted to the Department and NYSDOH project managers: Action Limit Reports, issues encountered, and a figure presenting the locations of the materials staged on the Site.

12. The Department understands that a Section 8.0 titled References will be provided to the Department within 10 days of the date of this letter. The references section, which is part of the SMP template, of the ISMP provides a listing of all site-specific reports used for the preparation of the ISMP.

13. Appendix A; Excavation Work Plan: First paragraph as presented in the revised ISMP, the Department understands that the Site will achieve at a minimum a Track 4 Restricted Residential cleanup. The Department also understands that the conditionally approved ISMP will be implemented at the Site until the issuance of the Certificate of Completion. The Department also understands that the remedial approach for the Site is excavation and in-situ solidification.

14. Appendix A; Excavation Work Plan; Section A-2; Soil Screening and Segregation Methods: In the 1st paragraph of this section, the Department understands that soil screening will be performed during all ground intrusive activities. In the last paragraph of this section, the Department understands that off-site disposal of materials and on-site reuse is provided in Section A-7 and A-8 of Appendix A.

15. Appendix A; Excavation Work Plan; Section A-3.1; Hazardous Building Materials Results and Mitigation; Lead Based Paint Materials: The Department understands that the approximate 350 square foot area of concrete, brick, and concrete block material was remediated for lead-based paint on September 4, 2025 and documented in an e-mail submitted to the Department on September 5, 2025. The Department understands that the lead-based paint material was containerized, characterized, and disposed off-site at a permitted facility in accordance with all applicable local, State, and Federal regulations and as detailed in Section A-7 of the ISMP. The Department understands that the e-mail submittal received by the Department on September 5, 2025 is an appendix of the conditionally approved ISMP documenting the activities completed and results of mitigation activities. See attached e-mail and associated documentation.

16. Appendix A; Excavation Work Plan; Section A-3.2; Additional Sampling of Concrete, Brick, and Concrete Block Building Materials: The Department understands that the additional sampling was completed August 2025 and the analytical results were provided to the Department in an e-mail submittal dated September 19, 2025. The Department understands that the reuse of the sampled concrete, brick, and concrete block material will be in accordance with a Department issued case-specific Beneficial Use Determination (BUD) to be obtained from the Department project manager prior to reuse at the Site.

17. Appendix A; Excavation Work Plan; Section A-3.3; Field Screening and Segregation of Potential Impacted Building Materials: The Department understands that the proposed disposal facility will be a permitted disposal facility.

18. Appendix A; Excavation Work Plan; Section A-3.5; Segregation and Processing of Concrete, Brick, and Concrete Block Building Materials for Potential Reuse: The Department understands

that best efforts to segregate and stockpile of the concrete, brick, and concrete block into individual piles will be undertaken during the demolition process. The Department understands that any additional sampling requirements will be detailed in the case-specific BUD for the demolition material.

19. Appendix A; Excavation Work Plan; Section A-4; Soil and Material Staging Methods: The Department understands that straw bales will be used as needed near catch basins, surface waters, and other discharge points.

    The Department understands that this section is also applicable to the staging and stockpiles of building demolition material such as concrete, rebar, brick, and concrete block. The Department understands that best efforts will be made to have all demolition material stockpiled in accordance with the type of material such as concrete stockpiles, rebar stockpiles, brick stockpiles, and concrete block stockpiles. This will facilitate any additional sampling that may be needed under a case-specific BUD. The Department understands that the demolition material will be staged/stockpiled on geotextile fabric/material of sufficient strength to prevent rips/tears/punctures. The Department understands that demolition stockpiles will be encircled with a berm and/or silt fence.

    The Department understands that staged/stockpiled soil/fill material will be always covered with appropriately anchored tarps. The Department understands that all stockpiles of material will be inspected as detailed in this section.

20. Appendix A; Excavation Work Plan; Section A-5; Materials Excavation and Load-Out: The Department understands that a QEP, NYS PE or a qualified person who is a direct report to the PE will be on-site for all ground intrusive work, excavation, and loadout of excavated material. The Department understands that ground intrusive is equivalent to invasive (term used in SMP template).

21. Appendix A; Excavation Work Plan; Section A-6; Materials Transport Off-Site: Item (c) and the 6th paragraph – The Department understands that there will be no off-site queuing of trucks entering the facility.

22. Appendix A; Excavation Work Plan; Section A-7; Materials Disposal Off-Site: The Department understands that all material excavated and to be removed from the Site will be treated as contaminated and regulated material. Off-site disposal locations for soil and fill material will be identified in the excavation notification. The Department understands actual disposal quantities and associated documentation will be reported to the NYSDEC project manager in the subsequent daily and monthly progress report as defined in Section 7 of the ISMP or the subsequent Periodic Review Report (PRRs). The Department understands that any other C&D debris (e.g., wood materials) not previously specified will be disposed off-Site at Waste Management – High Acres Landfill.

23. Appendix A; Excavation Work Plan; Section A-8; Soil/Fill Material Reuse On-Site: The Department understands that the reuse of any soil/fill material at the Site will receive approval from the NYSDEC project manager prior to reuse at the Site. The last paragraph of this section – The Department understands that soil/fill material will be segregated and staged in accordance with A-2 and A-4 of this ISMP. The Department understands that the analytical results will be compared to the NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances April 2023 guidance values or the current version of the document. The Department understands the anticipated size and location of stockpiles will be provided in the 15-day

notification to the NYSDEC project manager. The Department understands that any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager prior to reuse on the Site.

24. Appendix A; Excavation Work Plan; Section A-9; Cover System and Site Restoration: The Department understands that the backfill material used for the restoration of grades will be in accordance with the Sections of the EWP titled Soil Screening and Segregation and Backfill From Off-Site Sources. The reuse of Site soil/fill material will be in accordance with the Section titled Soil/Fill Materials Reuse On-Site.

25. Appendix A; Excavation Work Plan; Section A-10; Backfill From Off-Site Sources: The Department understands that all backfill material will receive NYSDEC project manager approval prior to import to the Site.

26. Appendix A; Excavation Work Plan; Section A-11; Stormwater Pollution Prevention: The Department understands the following:
    - In the event that large excavations are to be completed the following will be applicable. For large excavations, but less than 1 acre, procedures for stormwater pollution prevention should be specified in the EWP. For construction projects exceeding 1 acre, this is required. A summary of the Stormwater Pollution Prevention Plan that conforms to the requirements of the NYSDEC Division of Water guidelines and NYS regulations should be included here. The plan itself may be included as an Appendix to the EWP.

    The Department understands that straw bales will be used at the Site.

27. Appendix A; Excavation Work Plan; Section A-15; Dust Control Plan: The Department understands that particulate monitoring will be in accordance with the section titled Community Air Monitoring Plan and the associated appendices. The Department understands that dust suppression techniques will be implemented for fugitive and airborne dust observed at the Site or leaving the Site. The Department understands that dust control measures will be implemented to prevent and mitigate all dust emissions and the off-site migration of dust.

28. Appendix A; Excavation Work Plan; Section A-16; Other Nuisances: The Department understands that the NYSDEC project manager will be conferred with regarding any complaints received associated with noise or rodent control.

29. Appendix A; Excavation Work Plan; Section A-17; Site Fencing and Security: The Department understands that Site signage will be maintained by Roux and the contractors. The Department understands that appropriate signage such as but not limited to “No Trespassing” and “Authorized Personnel Only” will be posted around the Site.

30. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 1; Introduction; Page 1: The Department understands that the Quality Assurance Project Plan/Field Sampling Plan (QAPP/FSP) submitted in the ISMP is for the 5 Flint Street Site not 10 Flint Street. The Department understands that the Site number is C828162B and not C828190.

31. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 3; Introduction; Page 3: The Department understands that the Field Team Leader will be provided to the Department prior to the start of field work activities associated with the ISMP.

32. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 4.2; Excavated On-Site Reuse and Offsite Backfill Soil Sampling; Page 6: The Department understands that the number of samples and the analytical parameters will be in accordance with the Site's Excavation Work Plan and any deviation from the sampling frequency and analytical parameters detailed in the EWP will require prior approval from the NYSDEC project manager. The Department understands that the reporting of PFAS and 1,4-dioxane will be in accordance with the Department's current PFAS sampling guidance dated April 2023 or newer.

33. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 5; Field Sampling Procedures; Page 8: The Department understands that there is not a PDI proposed for the 5 Flint Street Site. The reference artifact to the PDI is associated with the C828190 site.

34. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 5.2; Soil Sampling; Page 8: The Department understands that the composite samples referenced will be in accordance with Table 5.4(e)10 of DER-10 and the quadrants/sections of the stockpiled material.

35. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 5.3; Emerging Contaminates Sampling; Page 8: The Department understands that the sampling for emerging contaminants will be in accordance with the Department's current guidance document dated April 2023 or newer.

36. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 5.4; Groundwater Sampling; Page 8: The Department understands that if groundwater sampling is to be completed at the 5 Flint Street Site a groundwater sampling plan will be prepared and submitted to the Department for review and approval as the section provided in the ISMP provides no specific details for conducting groundwater sampling.

37. Appendix M; Quality Assurance Project Plan/Field Sampling Plan for ISMP; Section 7.1; Decontamination; Page 12: The Department understands that all decontamination fluids generated during the implementation of the ISMP will be containerized, characterized, and disposed off-site at a permitted facility. No decontamination fluids or purge or development fluids will be discharge to the surface.

Within fifteen (15) days of the date of this letter and prior to any fieldwork activities, the Applicant must elect in writing (electronic notification is acceptable) one of the following options:

- Option A: Accept the modified work plan;
- Option B: Invoke dispute resolution as set forth in 6 NYCRR Part 35-1.5(b)(2); or
- Option C: Terminate the Brownfield Cleanup Agreement in accordance with 6 NYCRR Part 375-3.5.

If the Applicant chooses to accept Option A then this letter becomes part of the approved Interim Site Management Plan dated August 2025. Also, if Option A is chosen then a copy of the approved Interim Site Management Plan along with this letter attached must be placed in the document repository within 1 week of accepting Option A and prior to any fieldwork activities. Please provide notification to the Department that the Interim Site Management Plan and a copy of this letter have been placed in the document repository (electronic notification is acceptable).

NYSDEC seeks to resolve outstanding differences in a mutually agreeable manner which addresses the requirements of the Brownfield Cleanup Agreement, Part 375, and all applicable laws, regulations, and

guidance. If you or your technical team have any questions or concerns regarding this request, please contact me via email at charlotte.theobald@dec.ny.gov or at 585-226-5354. If your legal team have any questions or concerns regarding this request, please feel free to contact Deborah Gorman via e-mail at Deborah.Gorman@dec.ny.gov or at 518-402-9525 and Kyle Pero at kyle.pero@dec.ny.gov.

Sincerely,



Charlotte B. Theobald
Assistant Engineer

ec:
Noelle Clark (Roux Environmental Engineering & Geology, D.P.C.)
Ian Reed (Roux Associates, Inc.)
Eric Runstrom (Roux Associates, Inc.)
Michael Hecker (Hodgson Russ LLP)
Justin Deming (NYSDOH)
Julia Kenney (NYSDOH)
Christopher Budd (NYSDOH)
Starr O'Neil (MCHD)
Dr. Velez De Brown (MCHD)
Kyle Pero (NYSDEC)
Deborah Gorman (NYSDEC)
David Pratt (NYSDEC)
Michael Ormanoski (NYSDEC)

5 Flint Street Tax Map



October 10,

This map is intended for general reference only.

The City of Rochester makes no representation
as to the accuracy or fitness of the data presented.

City of Rochester, NY

City of Rochester

From:	Eric Runstrom
To:	Theobald, Charlotte B (DEC)
Cc:	Ian Reed; Noelle Clarke; Williams, Scott F (DEC); Forbes, Jane
Subject:	Daily Report for Lead-Paint Removal at 5 Flint Street in Rochester, NY (9/3/25)
Date:	Thursday, September 4, 2025 2:13:13 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png September 03 2025 10 Flint Street - Lead Abatement Photographic Log.pdf 2025.09.03_Site Map.pdf

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Hi Charlotte,

This email serves as a daily report for lead-paint removal/abatement conducted on 9/3/25 at 5 Flint Street in Rochester, NY (BCP Site Number C828162B). Work activities on 9/3 included:

- Conduct removal/abatement of lead-paint in Site building.

Attached is a photo log and site map documenting the work activities. We will continue to provide daily report on progress during this tree clearing SOW. Please let me know if you have any questions, etc. on this daily report.

Thank you,

Eric Runstrom | Senior Geologist / Project Manager | Roux Associates, Inc.
200 Summit Drive, Suite 500, Burlington, MA 01803
Main: (781) 569-4000 | Direct: (781) 569-4031 | Mobile: (413) 548-6350
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From:	Eric Runstrom
To:	Theobald, Charlotte B (DEC)
Cc:	Ian Reed; Noelle Clarke; Williams, Scott F (DEC); Forbes, Jane
Subject:	Daily Report for Lead-Paint Removal at 5 Flint Street in Rochester, NY (9/4/25)
Date:	Friday, September 5, 2025 5:10:15 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png September 04 2025 10 Flint Street - Lead Abatement Photographic Log.pdf 2025.09.04 Site Map.pdf P25-2549 Roux Inc. - 5 Flint St - XRF.pdf

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Hi Charlotte,

This email serves as a daily report for lead-paint removal/abatement conducted on 9/4/25 at 5 Flint Street in Rochester, NY (BCP Site Number C828162B). Work activities on 9/4 included:

- Conduct removal/abatement of lead-paint in Site building.
- Conduct 3rd party visual clearance and XRF screening of the lead-paint removal/abatement area.
- Break down contaminants and demobilize.

Attached is a photo log and site map documenting the work activities. I have also attached the 3rd party report of the XRF screening results for the lead-paint removal/abatement area. Lead-paint removal/abatement has been completed per this scope-of-work. Please let me know if you have any questions, etc. on this daily report.

Thank you,

Eric Runstrom | Senior Geologist / Project Manager | Roux Associates, Inc.
200 Summit Drive, Suite 500, Burlington, MA 01803
Main: (781) 569-4000 | Direct: (781) 569-4031 | Mobile: (413) 548-6350
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5 FLINT STREET

MONROE COUNTY

ROCHESTER, NEW YORK

INTERIM SITE MANAGEMENT PLAN

NYSDEC Site Number: C828162B

USEPA ID # Not Applicable

Prepared for:

5 Flint Street LLC

209 Shafter St, Islandia, NY 11749

Prepared by:

Roux Associates, Inc.

200 Summit Drive, Suite 500, Burlington, MA

(781) 569-4000

Roux Environmental Engineering and Geology, D.P.C.

209 Shafter Street, Islandia, NY

(631) 232-2600

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

AUGUST 2025

CERTIFICATION STATEMENT

I Noelle Clarke, certify that I am currently a NYS registered professional engineer and that this Interim Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

Noelle Clarke_____ NYS PROFESSIONAL ENGINEER # 072491

8/15/2025
_____DATE



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5 FLINT STREET

MONROE COUNTY

ROCHESTER, NEW YORK

INTERIM SITE MANAGEMENT PLAN

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LIST OF ACRONYMS

ACRONYM	DEFINITION
AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
COR	City of Rochester
CP	Commissioner Policy
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
FSP	Field Sampling Plan
GHG	Greenhouse Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOL	New York State Department of Labor
NYCRR	New York Codes, Rules and Regulations
O&M	Operation and Maintenance
OM&M	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
P.E. or PE	Professional Engineer
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PRP	Potentially Responsible Party

PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

EXECUTIVE SUMMARY

The following section provides a brief summary of the controls to be implemented at 5 Flint Street, Rochester, New York (the Site), as well as the inspections, monitoring, maintenance and reporting activities required by this Interim Site Management Plan (ISMP). This section will be revised with additional Institutional Controls and Engineering Controls that may be implemented after the remedial action is complete.

Site Identification: C828162B 5 Flint Street, Rochester, NY 14608

Institutional Controls:	1. The anticipated future use of the Site is for commercial /multi-family restricted residential mixed use. Refer to the revised Brownfield Cleanup Program (BCP) application, submitted to NYSDEC on July 10, 2024, for additional details.
	2. An Environmental Easement approved by NYSDEC, which renders the Site a Controlled Property, will be filed and recorded with the Monroe County Office of the City Register.
Engineering Controls:	1. Excavation Work Plan and Demolition Work Plan (additional engineering controls will be identified in the final certified SMP [certified SMP] following completion of the remedial action)

Inspections:	Frequency
Daily Field Logs	Daily
Monitoring:	
Community Air Monitoring	Daily
Maintenance:	
TBD	TBD
Reporting:	
Daily Reports	Daily
Monthly Progress Reports	10th of every month until the Certificate of Completion is issued.

Further descriptions of the above requirements are provided in detail in the latter sections of this ISMP.

1.0 INTRODUCTION

1.1 General

This Interim Site Management Plan (ISMP) is a required element of the remedial program for the 5 Flint Street Site located in Rochester, New York (hereinafter referred to as the "Site"; see **Figure 1)**. The Site is currently pending acceptance into the New York State (NYS) Brownfield Cleanup Program (BCP or Program), as Site No. C828162B, which is administered by New York State Department of Environmental Conservation (NYSDEC or Department).

This ISMP has been developed to address the following activities that will occur prior to implementation of the remedial action as defined in the forthcoming Remedial Action Work Plan (RAWP):

- Controlled demolition of the abandoned three-story concrete block and brick building on the northeast portion of the Site;
- Segregation, processing (e.g., removal of rebar, and sizing of concrete for staging/stockpiling and/or disposal), and off-Site disposal of construction and demolition materials (C&D);
- Ground intrusive excavations and soil management associated with utility decommissioning and capping of utilities (if required); and,
- Import of stone to improve access roads on-Site (if required).

The scope-of-work covered under this ISMP is detailed in the Excavation Work Plan (**Appendix A),** Sessler's Demolition Work Plan (**Appendix B**), and is supported by Permits and/or Permit Applications (**Appendix C);** Hazardous Building Material Surveys (**Appendix D**); Asbestos Abatement Documentation (**Appendix E**); Waste Characterization Sampling (**Appendix F**); scrap metal exemption C7 Notification to Generators (**Appendix G**); Health And Safety Plan (**Appendix H**), and Community Air Monitoring Plan (**Appendix I**). Appendix A incorporates applicable sections of NYSDEC's Division of Environmental Remediation (DER 10) Technical Guidance for Site Investigation and Remediation (May 2010), specifically Section 5.1(f).

As discussed in Sessler's updated Demolition Work Plan, the proposed building demolition under this ISMP does not include the removal of the existing building foundation. Foundation removal is anticipated to be completed during future Site-wide remedial activities. Details related to foundation removal will be provided in the forthcoming RAWP for the Site.

Perimeter fencing will be installed around the work area to prevent unauthorized access. Additional fencing will be used to delineate heavy equipment and demolition exclusion zones. Details of Site fencing and security are further discussed in Section A-17 of Appendix A.

Following completion of the remedy, which will be described in NYSDEC's-approved Decision Document and the RAWP, this ISMP will be updated to reflect the current template and will become the Site's certified SMP.

This ISMP was prepared by Roux Associates, Inc. and Roux Environmental Engineering and Geology, D.P.C. (collectively referred to as "Roux") [1] on behalf of 5 Flint Street LLC ("5 Flint" or the "Remedial Party"), in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 03, 2010, and the current version of the NYSDEC SMP template and NYSDEC guidance.

5 Flint is in the process of entering into a Brownfield Cleanup Agreement (BCA) with the NYSDEC to remediate the Site. A figure showing the Site location and boundaries is provided in **Figure 2**.

The Site was entered into the NYSDEC BCP in June 2010 by One Flint Street, LLC (One Flint) along with the adjacent property, 15 Flint Street, and was assigned BCP site No. C828162. In October 2016, Ravi Engineering & Land Surveying, P.C. (Ravi) submitted a Remedial Investigation Report under BCP site No. C828162, which NYSDEC acknowledged as accepted and complete in a May 10, 2017, letter to One Flint. In March 2021, Dixon Rollins, P.E. submitted a Remedial Alternative Analysis Report (RAAR), on behalf of One Flint, for the 5 and 15 Flint Street BCP site (No. C828162), which was disapproved by NYSDEC in a letter to One Flint, dated September 30, 2021. The Brownfield Cleanup Agreement with One Flint was terminated by the NYSDEC; therefore, One Flint is not participating in the BCP for 5 and 15 Street. On August 31, 2023, Exxon Mobil Corporation (ExxonMobil) purchased the Site.

5 Flint submitted a BCP Application and RAAR on May 15, 2024 and revised the BCP Application and RAAR on July 10, 2024. The NYSDEC determined the BCP Application to be complete in a letter to the Requestor, dated August 13, 2024 and provided a letter of response to the RAAR, dated November 20, 2024, requesting a revised RAAR addressing the Department's concerns, comments and issues. The Requestor submitted a revised RAAR to the NYSDEC on February 24, 2025 (Revised RAAR) ,at which time NYSDEC assigned BCP Site number C828162B. A Remedial Action Work Plan (RAWP) is currently being prepared for the Site.

Although the redevelopment plan for the Site is not finalized, a Track 4 restricted residential cleanup is anticipated. The redevelopment plan will be consistent with the City of Rochester (COR) master development plan for the Vacuum Oil Brownfield Opportunity Area (BOA) and will comply with the Site's use restrictions. The BOA redevelopment plan includes multi-family residential, commercial/retail, and industrial facilities through a phased implementation. A proposed Site plan, depicting development parcels including the 5 Flint Street parcel, is provided in the BOA.

Reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the site is provided in **Appendix J** of this ISMP.

Although an Environmental Easement with metes and bounds is not available at the time of this submittal, it will be provided at a later time in **Appendix K**.

[1] Roux Environmental Engineering and Geology, D.P.C., a New York State authorized design professional corporation, will conduct engineering work at the Site in accordance with all applicable New York State laws and regulations governing the practice of engineering, including the provisions of the New York State Education Law and the Rules of the Board of Regents and the Commissioner of Education.

1.2 Revisions and Alterations

Revisions and alterations to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC project manager can also make changes to the ISMP or request revisions from the remedial party. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. All approved alterations must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a New York State Professional Engineer. In accordance with the Environmental Easement for the site, the NYSDEC project manager will provide a notice of any approved changes to the ISMP and append these notices to the ISMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

1. 60-day advance notice of any proposed changes in site use that are required under the terms of the upcoming BCA, 6 NYCRR Part 375 and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. Notice within 48 hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
5. Notice within 48 hours of any non-routine maintenance activities.
6. Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC project manager within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this ISMP will include the following notifications:

8. At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the upcoming BCA, and all approved work plans and reports, including this ISMP.
9. Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC project manager.

The following table includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in **Appendix J**.

Notifications*

Name	**Contact Information**	**Required Notification****
Charlotte Theobald, NYSDEC Project Manager	(585) 226-5354 (Office) (585) 420-6558 (mobile) charlotte.theobald@dec.ny.gov	All Notifications
David Pratt, P.E. NYSDEC Regional Remediation Engineer Division of Environmental Remediation	(585) 226-5449 david.pratt@dec.ny.gov	All Notifications
Kelly Lewandowski NYSDEC Professional Engineer 2, Site Control Section	(518) 402-9569 kelly.lewandowski@dec.ny.gov	Notifications 1 and 8
Christopher Budd, NYSDOH Project Manager	(518) 402-1769 (Office) christopher.budd@health.ny.gov	Notifications 4, 6, and 7

* Note: Notifications are subject to change and will be updated as necessary.

** Note: Numbers in this column reference the numbered bullets in the notification list in this section.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The site is located in the CORs, Monroe County, New York and is identified as Section 121 Block 77-1-10 and Lot 001 on the COR map (See **Figure 1** – Site Location Map) available online through COR's Property Information Application.[2] The site is an approximately 1.59-acre area and is bounded by unused COR-owned parcels except for 940 Exchange Street to the north and 102 Violetta Street to the east (see **Figure 2** – Site Layout Map). The boundaries of the site will be more fully described in reserved **Appendix K** – Environmental Easement. The owner(s) of the site parcel(s) at the time of issuance of this ISMP is/are:

Exxon Mobil Corporation

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: undeveloped land, with the exception of an abandoned three-story block and brick building on the northeast end of the Site. The Site is currently zoned as R-3 High-Density Residential and is currently vacant.[3]

The Site is surrounded by COR-owned parcels, which are primarily undeveloped, apart from an asphalt-paved bike/pedestrian path that runs through 102 Violetta Street (to the east/southeast) and the very southwestern end of 13 Cottage Street (to the southwest). The remaining portions of 13 Cottage Street to the southwest, and 10 Flint Street to the west/northwest are currently undeveloped.

2.2.2 Geology

The Lithology at the Site is primarily fill material, including bricks, slag, cinders, gravel, wood, and miscellaneous debris, generally found between 0 and 6 feet below ground surface (bgs). Native soils consisting of sand and silt with varying amounts of clay are found between 0 and approximately 17-feet bgs.

Bedrock was encountered at the Site during previous investigations at depths ranging from approximately 12 to 17 ft bgs. According to The New York State Department of Transportation (NYSDOT) Geology of New York State Geotechnical Design Manual, the Site, which is located in the Ontario Lowlands, is underlain by stratified beds of shales, sandstones, limestone, and dolostone. The bedrock generally dips to the southwest at a low angle.

A geologic cross section is shown in **Figure 3,** and site specific boring logs are provided in **Appendix L.**

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[2] The COR's Property Information Application provides public access to general information for properties within COR's boundaries, including assessment and property tax information. https://experience.arcgis.com/experience/3167c6ae1cbd4861be6749a52553ed8e

[3] 5 Flint Street LLC is aware that, as part of the COR's Zoning Alignment Project (ZAP), the zoning in the area will be changed to FMU (flexible mixed-use) once the ZAP is complete. In addition, the COR will be imposing the Environmental Protection Overlay District (O-EP) in the area so that future development will be limited to restricted-residential requirements.

2.2.3 Hydrogeology

Depth to groundwater at the Site ranges from approximately 3 ft bgs to approximately 11 ft bgs. Groundwater in the vicinity of the Site appears to flow in two converging directions. In the area northwest of the Site (e.g., the 15 Flint Street property), groundwater flows southeast towards the Site and the Genesee River, as described in the 2016 Ravi Remedial Investigation Report. In contrast, the June 2023 Remedial Alternatives Analysis Report prepared by Ramboll Americas Engineering Solutions, Inc. (Ramboll) on behalf of the COR (2023 COR RAAR) states: "Groundwater flow direction and elevations suggest that the groundwater is fed by the river water on the south end of the site and flows northward." The 2023 COR RAAR also indicates: "On the northern side of the Site the gradient is relatively flat and more than 5 ft lower than the river level. The groundwater elevations in overburden wells at or near the river are also more than 5 ft lower than the river level. This large difference suggests that there is some limitation in the hydraulic connection between the river and the overburden groundwater in this area of the site. As discussed in the [November 2019 RI Report prepared by O'Brien & Gere Engineers, Inc.] the existing segment of the [West River Wall (WRW)] that borders the Site extends to bedrock and is limiting the hydraulic connection between the Site groundwater and the river."[4]

Additionally, the CORis currently designing modifications to the WRW of the Genesee River, bordering the eastern boundary of the facility footprint, as part of a rehabilitation program. These modifications will result in lowering the top of the wall to allow for river water to enter the western portion of the facility footprint. According to Appendix B of the 2023 COR RAAR, "it is concluded that the WRW modifications will not result in changes to the groundwater flow or the nature and extent of impacts at the Site."[5]

Groundwater monitoring well construction logs from previous Site investigations have been included in **Appendix L**. A site-wide groundwater gauging event is being proposed in the forthcoming RAWP as part of the Pre-Design Investigation (PDI) to help inform activities such as dewatering during the remedial action. A groundwater contour elevation map and groundwater elevation table will be provided once complete.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Contaminant concentrations are included in **Tables 1** and **2**.

1999 – 2000 NYSDEC Subsurface Investigation

In 1999-2000, the NYSDEC conducted a subsurface investigation at the Site and nearby properties and presented the results in a Site Investigation Report dated March 2001. During the investigation, the following activities were performed at the Site: installing and sampling four passive soil gas survey points (A-3, B-3, C-3, and D-3) and two monitoring wells (MW-1 and MW-

[4] The "Site" or "site" used in this excerpt from the 2023 COR RAAR is the COR-owned property adjacent to, and not including the 5 Flint Street property.

[5] August 2008. Phase I Environmental Site Assessment 5 Flint Street City of Rochester, Monroe County, New York. Stantec Consulting Services Inc. (Stantec).

2)[6], excavating four test pits (TP-1, TP-2, TP-3, and TP-4), and collecting two surface soil samples (SS-1 and SS-2) and eight subsurface soil samples (MW-1 (8-10), MW-1 (16-18), MW-2 (6-8), MW-2 (10-12), TP-1 (3-5), TP-1 (7-8), TP-2 (5), TP-3 (8-9), and TP-4 (5)). The full March 2001 NYSDEC Site Investigation Report was provided as Appendix A of the revised Remedial Alternatives Analysis Report (RAAR), submitted to NYSDEC on February 24, 2025.

The results of this investigation indicated "widespread petroleum-related contamination (SVOCs [Semi Volatile Organic Compounds] and BTEX [benzene/toluene/ethylbenzene/xylenes]) in the surface soil, subsurface soil, and groundwater. To a lesser extent, chlorinated VOCs, metals, and pesticides were detected in concentrations that exceeded New York State (NYS) standards." The results of this investigation indicated that "site contamination was not the result of disposal of a consequential amount of hazardous waste." Based on these results, NYSDEC decided not to include the facility in the NYS Listing of Inactive Hazardous Waste Disposal Sites.

For convenience of review, Site data generated during the 1999-2000 NYSDEC subsurface investigation are summarized on **Tables 1 and 2**.

2008 Roux Subsurface Investigation

Roux directed a subsurface investigation at the Site and nearby properties between June 16 and July 2, 2008. During the investigation, ten soil borings were advanced at the Site, six of which were completed as monitoring wells. The investigation activities are described in detail in the Roux Subsurface Investigation Summary Report, dated January 12, 2009, which was previously submitted to NYSDEC and was provided as Appendix B of the revised RAAR, submitted to NYSDEC on February 24, 2025. The following sections summarize the Roux 2008 subsurface investigation activities and results for the Site (5 Flint Street) only. For convenience of review, Site data generated during the 2008 subsurface investigation are summarized on **Tables 1 and 2**.

2008 Roux – Soil

Ten soil borings were advanced at the Site: SB-008, SB-009, SB-010, SB-015, SB-016, SB-017, SB-020, SB-021, SB-046, and SB-061.[7] Fill materials consisting of ash and coal ash, concrete, brick, coal, construction debris, other debris, and pipe were encountered throughout the Site. Separate phase hydrocarbons (SPH) were not noted in any of the Site soil borings; though, soil staining was observed in one soil boring (SB-020). VOC vapors were monitored with a photoionization detector (PID); headspace PID readings ranged from non-detect to 2,948 parts per million (ppm) (SB-021) in on-Site borings.

A total of 25 soil samples from the Site were submitted for laboratory analysis. Analytical results for these samples are summarized below:

[6] MW-1 and MW-2 installed by NYSDEC are hereinafter referred to as DEC MW-1 and DEC MW-2, respectively, in this Report and on figures and tables attached to this Report to avoid confusion with monitoring wells MW-1 and MW-2 installed by Ravi.

[7] Note that shallow refusal was encountered at some of the 2008 Roux boring locations due to the presence of concrete, brick, or other fill debris. Subsequent boring attempts at the same location due to shallow refusal were given a letter designation (e.g., SB-016A, SB-016B, etc.). For ease of visualization, the location IDs of subsequent boring attempts for a given location are not shown on figures attached to this Report; instead, the original location ID (e.g., SB-016) is displayed.

- 14 VOCs were detected at concentrations at or above the laboratory reporting limits and two VOCs (1,2,4-Trimethylbenzene and Total Xylenes) exceeded the NYSDEC RRSCOs in one sample (SB-046B);
- 19 SVOCs were detected at concentrations at or above the laboratory reporting limits and 8 SVOCs exceeded the NYSDEC RRSCOs;
- 12 Priority Pollutant (PP)-13 total metals were detected at concentrations at or above the laboratory reporting limits and three PP-13 total metals exceeded the NYSDEC RRSCOs (arsenic, lead, and mercury);
- There were no detections of polychlorinated biphenyls (PCBs) at concentrations at or above the laboratory reporting limits in the samples collected from the Site;
- Five pesticides were detected at concentrations at or above the laboratory reporting limits, none of which exceeded the NYSDEC RRSCOs; and
- Two soil samples collected and analyzed for total petroleum hydrocarbon (TPH) fingerprinting (from SB-020 and SB-021) exhibited a match for diesel fuel and gasoline.

2008 Roux – Groundwater

A total of six groundwater samples were collected from the six monitoring wells installed at the Site by Roux. Analytical results are summarized below:

- 25 VOCs were detected at concentrations at or above the laboratory reporting limits, and 18 VOCs exceeded the applicable NYSDEC Technical Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (AWQSGV);
- 21 SVOCs were detected at concentrations at or above the laboratory reporting limits, and 12 SVOCs exceeded the applicable NYSDEC TOGS AWQSGV;
- 12 PP-13 dissolved metals were detected at concentrations at or above the laboratory reporting limits and three PP-13 dissolved metals (arsenic, lead, and thallium) exceeded the applicable NYSDEC TOGS AWQSGV;
- There were no detections of PCBs or pesticides at concentrations at or above the laboratory reporting limits in the samples collected from the Site; and
- One groundwater sample collected and analyzed for TPH fingerprinting (from SB-020) exhibited a match for gasoline.

2014 - 2015 Ravi Remedial Investigation

Ravi conducted a remedial investigation at the Site and nearby properties between 2014 and 2015 in accordance with the Remedial Investigation Work Plan (RIWP) dated January 2012. During the investigation at the Site, two test pits were excavated, nine soil borings were advanced, six of which were completed as overburden monitoring wells, and one bedrock monitoring well was installed. The investigation activities are described in detail in the Ravi Remedial Investigation Report, dated October 7, 2016, which was previously submitted to NYSDEC and was provided as Appendix C of the revised RAAR, submitted to NYSDEC on February 24, 2025. The following sections summarize the Ravi 2014 – 2015 remedial investigation activities and results for the Site (5 Flint Street) only. For convenience of review, Site data generated during the Ravi 2014 – 2015 subsurface investigation are presented on **Tables 1 and 2**.

2014 - 2015 Ravi – Soil

Two test pits were excavated, and nine soil borings were advanced, at the Site: TP-04, TP-05, SB-01, SB-02, SB-03, SB-04, SB-05, SB-06, MW-02, MW-09, and MW-010. Fill materials consisting of brick, ash, concrete, and/or construction debris were encountered at most locations. SPH was not noted in any of the Site test pits and soil borings; though, soil staining was observed in SB-01 and SB-06. VOC vapors were monitored with a PID; headspace PID readings ranged from non-detect to 2,500 ppm (SB-02) in Site test pits and soil borings.

A total of 14 soil samples were collected from the Site and submitted for laboratory analysis.[8] Analytical results for these samples are summarized below:

- 13 VOCs were detected at concentrations at or above the laboratory reporting limits; no samples contained VOCs that exceeded NYSDEC RRSCOs;
- 17 SVOCs were detected at concentrations at or above the laboratory reporting limits; seven SVOCs (benzo (a) anthracene, benzo (a) pyrene, benzo (b) fluoranthene, benzo (k) fluoranthene, chrysene, dibenz (a,h) anthracene, and indeno (1,2,3-cd) pyrene) were detected in exceedance of NYSDEC RRSCOs;
- 13 metals were detected at concentrations at or above the laboratory reporting limits; two metals (mercury and arsenic) were detected in exceedance of NYSDEC RRSCOs;
- There were no detections of PCBs at concentrations at or above the laboratory reporting limits in the samples collected from the Site; and
- 12 pesticides were detected at concentrations at or above the laboratory reporting limits; no samples contained pesticides that exceeded the NYSDEC RRSCOs.

2014 - 2015 Ravi – Groundwater

Seven monitoring wells were installed at the Site as part of this investigation. Six of the wells were installed in overburden (MW-01 at SB-01, MW-02, MW-03 at SB-03, MW-04 at SB-04, MW-09,[9] and MW-10), and one well was installed in bedrock well (BW-01). A total of 13 groundwater samples were collected from nine Site wells (the seven wells installed during this investigation, plus DEC MW-1 and DEC MW-2) over two sampling events and were submitted for laboratory analysis. Analytical results from these sampling events are summarized below:

- 19 VOCs were detected at concentrations at or above the laboratory reporting limits; 11 VOCs were detected in exceedance of the NYSDEC TOGS AWQSGV;
- Five SVOCs were detected at concentrations at or above the laboratory reporting limit; two SVOCs (Chrysene and Pyrene) were detected in exceedance of the NYSDEC TOGS AWQSGV. Both exceedances were from the MW-03 groundwater sample collected on November 19, 2015;
- 14 metals were detected at concentrations at or above the laboratory reporting limits; seven metals (aluminum, arsenic, iron, magnesium, manganese, selenium, and sodium) were detected in exceedance of the NYSDEC TOGS AWQSGV;
- There were no detections of PCBs at concentrations at or above the laboratory reporting limits in the samples collected from the Site; and

[8] Analytical soil samples were not collected from MW-02, MW-09, or MW-010.

[9] Although not explicitly stated in the 2016 Ravi Remedial Investigation Report, sample MW-09D is likely a duplicate sample of MW-09, as both were collected on the same day, and the results are discussed as one sample in the text of that report.

- Seven pesticides were detected at concentrations at or above the laboratory reporting limits; four pesticides (alpha-BHC, beta-BHC, delta-BHC, and heptachlor epoxide) were detected in exceedance of the NYSDEC TOGS AWQSGV.

Groundwater elevation data from the 2014-2015 Ravi investigation were used to model horizontal groundwater flow for the Site and nearby 15 Flint Street property. Based on these data, groundwater in the vicinity of the Site was estimated to flow southeast, towards the Genesee River.

Additionally, monitoring well gauging during the 2014-2015 Ravi investigation indicated grossly contaminated media (GCM),[10] in the form of measurable LNAPL, was present in one Site well, MW-03, at a thickness of 0.025 inches. Field observations of groundwater during the 2014-2015 Ravi investigation activities (e.g., soil borings, developing and/or sampling monitoring wells, etc.) indicated a sheen was present in the following Site wells: DEC MW-1, MW-01, MW-02, MW-04, and MW-09.

Roux 2017 Subsurface Investigation

Following completion of the 2016 RI by Ravi, Roux conducted a subsurface investigation at the Site and nearby properties in June 2017. The June 2017 scope-of-work was presented to NYSDEC via email, and all work was conducted in accordance with the procedures outlined in the approved 2012 RIWP. During the investigation, four soil borings were advanced at the Site, and six existing Site monitoring wells were sampled. The following sections summarize the Roux 2017 subsurface investigation activities and results for the Site (5 Flint Street) only. For convenience of review, Site data generated during the 2017 subsurface investigation are presented on **Tables 1 and 2.** Analytical laboratory reports and soil borings from the 2017 subsurface investigation were provided as Appendix D of the revised RAAR, submitted to NYSDEC on February 24, 2025**.**

2017 Roux – Soil

Between June 27 and 28, 2017, TREC Environmental, under the direction of Roux, completed a total of four soil borings at the Site (RXSB-06, RXSB-07, RXSB-08, and RXSB-09).[11] Roux collected a total of nine soil samples for laboratory analysis. Soil analytical results are summarized below:

- 20 VOCs were detected at concentrations at or above the laboratory reporting limits, one VOC (1,2,4-Trimethylbenzene) exceeded the NYSDEC RRSCO;
- 23 metals were detected at concentrations at or above the laboratory reporting limits; no metals were detected in exceedance of the NYSDEC RRSCOs;
- There were no detections of PCBs at concentrations at or above the laboratory reporting limits in the samples collected from the Site; and
- There were no detections of pesticides at concentrations at or above the laboratory reporting limits in the samples collected from the Site.

[10] Grossly contaminated media (GCM) is defined in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 3, 2010, as “soil, sediment, surface water or groundwater which contains sources or substantial quantities of mobile contamination in the form of LNAPL that is identifiable either visually, through strong odor, by elevated contaminant vapor levels or is otherwise readily detectable without laboratory analysis.”

[11] Note that multiple soil analytical samples collected at the same boring location during the Roux 2017 investigation were given a letter designation at the end of the location ID (e.g., for location RXSB-06, sample “RXSB-06A” was collected from 0 -2 ft bgs and sample “RXSB-06B” was collected from 10 – 12 ft bgs, etc.).

2017 Roux – Groundwater

Roux collected groundwater samples for laboratory analysis from six existing Site wells on June 29, 2017: BW-01, MW-01, MW-02, MW-04, MW-09, and MW-10.[12] Analytical results are summarized below:

- 17 VOCs were detected at concentrations at or above the laboratory reporting limits, seven VOCs were detected in exceedances of the NYSDEC TOGS AWQSGV;
- 17 metals were detected at concentrations at or above the laboratory reporting limits, three metals (iron, manganese, and magnesium) were detected in exceedances of the NYSDEC TOGS AWQSGV; and
- There were no detections of PCBs at concentrations at or above the laboratory reporting limits in the samples collected from the Site.

Leader 2020 Emerging Contaminants Sampling

At the request of NYSDEC, on July 30, 2020, Leader Professional Services, Inc. (Leader) completed groundwater sampling at the Site and the nearby 15 Flint Street property for the following emerging contaminants: per- and polyfluorinated substances (PFAS)[13] and 1,4-Dioxane. Specifically, Leader sampled one well located on the 5 Flint Street Site (MW-04). According to Leader's 2020 Emerging Contaminant Groundwater Report (provided as Appendix E of the revised RAAR submitted to NYSDEC on February 24, 2025), results from sampling MW-04 indicate the following:

- Perfluorooctane sulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) were detected at concentrations of 2.1 ng/L and 0.074 ng/L, respectively. These results are below the groundwater quality guidance in effect at the time of 10.0 ng/L.
- 1,4-Dioxane was detected at a concentration of 3.2 µg/L, which exceeds the New York State adopted maximum contaminant concentration (MCL) in effect at the time of 1.0 µg/L.

Results from the 2020 Leader sampling event for MW-04 are presented on **Table 2.**

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site will be identified in the Site's Decision Document. It is proposed the following RAOs are applicable to the Site:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.

[12] Note the following example format used for groundwater sample IDs during the Roux 2017 investigation: a groundwater sample collected from MW-04 was labeled as "RX-MW4-01".

[13] Details of the analytical method used and specific PFAS compounds analyzed can be found in Leader's 2020 Emerging Contaminant Groundwater Report (Appendix E of the July 2024 RAAR).

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Surface Water

Although there are no surface waters or sediments on the Site, RAOs for this media will be implemented to address off-Site surface water migration during remedial activities.

RAOs for Public Health Protection

- Prevent surface water contamination which may result in fish advisories.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

2.5 Remaining Contamination

This section is reserved for future discussions regarding remaining contamination at the Site. This section will be updated accordingly in the certified SMP when relevant data become available to provide a sufficient summary for those conducting future excavations or development at the site.

2.5.1 Soil

This section is reserved for future discussions of on-Site soil conditions, as applicable, after completion of the remedy.

2.5.2 Groundwater

This section is reserved for future discussions of groundwater conditions, as applicable, both on-Site and off-Site, after completion of the remedy.

2.5.3 Soil Vapor

This section is reserved for future discussions of soil vapor conditions, as applicable, regarding the potential for soil vapor intrusion conditions, both on-Site and off-Site, after completion of the remedy.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

This section describes the Engineering Controls to be implemented during the building demolition and possible excavation activities related to subsurface utility decommissioning. Other Institutional Controls (ICs) and Engineering Controls (ECs) are not currently in place, as the Site has not yet undergone remediation. This section will be updated, upon completion of the remedy, to outline the procedures for implementing and maintaining the necessary ICs and ECs to protect human health and the environment.

3.2 Institutional Controls

A series of ICs will be required by the RAWP or Decision Document to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the site to the anticipated future uses only, i.e., commercial/multi-family restricted residential mixed use. Adherence to these ICs on the site will be required by the Environmental Easement which will be filed and recorded with the Monroe County Office of the COR Register once the remedial action has been completed.

This section of the future certified SMP will be updated to include applicable information.

3.3 Engineering Controls

An Excavation Work Plan, included in **Appendix A**, details the proper handling of contaminated and uncontaminated materials during implementation of building demolition and ground intrusive activities related to subsurface utility decommissioning. **Appendix A** will be updated, as required, following completion of the remedy. Details regarding building demolition activities are included in Sessler's Demolition Work Plan in **Appendix B**, and is supported by Permits and/or Permit Applications (**Appendix C);** Hazardous Building Material Surveys (**Appendix D**); Asbestos Abatement Documentation (**Appendix E**); Waste Characterization Sampling (**Appendix F**); scrap metal exemption C7 Notification to Generators (**Appendix G**); Health And Safety Plan (**Appendix H**), and Community Air Monitoring Plan (**Appendix I**)**.** This section will be updated to include applicable information in the certified SMP.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This section currently applies to the sampling of concrete, brick and concrete block building materials generated as part of the building demolition to assist with the determination for the end use of these materials, the potential sampling of soil for reuse or off-Site disposal purposes and off-Site disposal of C&D debris. A Monitoring and Sampling Plan that describes the measures for evaluating the overall performance and effectiveness of the remedy is not currently available as the Site has not yet undergone remediation. This Monitoring and Sampling Plan section will be updated once relevant data is collected and verified.

Details regarding the sampling procedures and analytical methods for all samples collected as part of building materials sampling or ground intrusive activities covered under this ISMP, are included in the Quality Assurance Project Plan (QAPP) provided in **Appendix M.** The QAPP will also be updated to reflect the changes to the Monitoring and Sampling Plan.

Reporting requirements are provided in Section 7.0 of this ISMP.

4.2 Concrete, Brick and Concrete Block Building Materials Sampling

Details regarding the sampling of brick and concrete block building materials generated as part of the building demolition are provided in the Excavation Work Plan (Appendix A).

4.3 Soil Reuse and/or Waste Disposal Sampling

The remedial party will properly dispose of all wastes generated during building demolition and ground intrusive activities covered under this ISMP at off-site disposal facilities according to local, state and federal laws and regulations. Waste characterization samples will be collected and analyzed for parameters that may be required by the landfill and/or recycling facilities to comply with their permit conditions, or as required by the DEC. Possible wastes generated at this Site include: C&D debris, such as recognizable brick and concrete (contaminated and uncontaminated), drywall, plaster, framing lumber, doors, railings, metal piping and rebar, miscellaneous trash, and soil associated with subsurface utility decommissioning. Waste handling is described in **Appendix A –** Excavation Work Plan.

4.4 Monitoring and Sampling Protocol

All sampling activities covered under this ISMP, and future remedial activities will be recorded in a field book and associated sampling logs, as provided in **Appendix N** – Site Management Forms.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This section is reserved for future remedial mechanical systems, such as groundwater treatment systems, sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment, if required.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding. A Climate Change Vulnerability Assessment will be included in the forthcoming RAWP.

This section is reserved for a vulnerability assessment that will be provided in the certified SMP and will evaluate the vulnerability of the Site and/or IC's and EC's upon implementation of the remedy to severe storms/weather events and associated flooding. This section will also identify vulnerability assessment updates that will be conducted for the Site in Periodic Review Reports (PRRs).

6.2 Green Remediation Evaluation

A Green Remediation Evaluation was conducted as part of RAWP for the Site. This section is reserved for future discussions of environmental footprint analysis of the remedy, in accordance with NYSDEC DER-31, Green Remediation, after completion of the remedy.

6.3 Remedial System Optimization

A Remedial System Optimization (RSO) study will be conducted any time that the NYSDEC project manager or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

The RSO study will focus on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames. Green remediation technology and principals are to be considered when performing the RSO.

7.0. REPORTING REQUIREMENTS

7.1 Daily Reports

Activities covered under this ISMP will be recorded in Daily Reports, included as **Appendix N**, that will be submitted to NYSDEC Project Manager by noon of each day following the reporting period (i.e., day prior) and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported to and exported from the Site;
- A figure/map presenting the location of Site activities;
- A figure presenting the locations of the CAMP monitoring stations;
- A summary of CAMP findings, including exceedances and corrective actions implemented;
- Photographs of site activities;
- A figure presenting the locations of the demolition dust control controls;
- A summary of any and all complaints with relevant details (names, phone numbers), and responses provided; and
- An explanation of notable Site conditions.

Daily Reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the approved plans, or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the approved plans will be addressed directly to NYSDEC Project Manager via personal communication.

Daily Reports will include a description of daily activities keyed to a map for the Site that identifies work areas. These reports will include a summary of CAMP results, odor and dust excursions and corrective actions, and all complaints received from the public.

The NYSDEC assigned project number will appear on all reports.

7.2 Monthly Progress Reports

Site activities completed during the reporting period will be documented in the Site's monthly progress reports. Monthly progress reports are due on the 10th day of each month until the Certificate of Completion has been issued. The reports will be submitted to NYSDEC and NYSDOH Project Manager.

7.3 Certification of Institutional and Engineering Controls

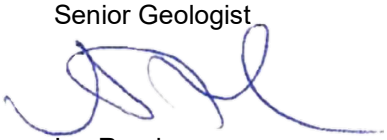
Section reserved for future Certification of ICs and ECs to be included in the PRR.

Respectfully submitted,

ROUX ASSOCIATES, INC.



Eric Runstrom
Senior Geologist



Ian Reed
Vice President, Principal Hydrogeologist

ROUX ENVIRONMENTAL ENGINEERING AND GEOLOGY, D.P.C.



Noelle M. Clarke, PE
Principal Engineer

TABLES

1. Summary of Soil Analytical Data (Detections Only)
2. Summary of Groundwater Analytical Data (Detections Only)
3. Soil Cleanup Objectives

Table 1 - Summary of Soil Analytical Data (Detections Only)
BCP Site No. C828162B
5 Flint Street, Rochester, New York

Sample ID / Sample Depth (ft bgs) / Lab Sample ID / Sample Date	NYSDEC Unrestricted SCO mg/kg	NYSDEC PGWSCO mg/kg	NYSDEC Restricted Residential SCO mg/kg	SS-1 0-0.2 9912L959-009 12/7/1999	SS-2 0-0.2 9912L959-011 12/7/1999	TP-1 3-5 9912L973-001 12/8/1999	TP-1 7-8 9912L973-002 12/8/1999	TP-2 5 9912L959-003 12/8/1999	TP-3 8-9 9912L959-004 12/8/1999	TP-4 5 9912L959-005 12/8/1999	DEC MW-1 8-10 0002L425-003 & 0002L425-004 2/8/2000	DEC MW-1 16-18 0002L425-005 2/9/2000	DEC MW-2 6-8 0002L425-001 2/8/2000	DEC MW-2 10-12 0002L425-002 2/8/2000	SB-008 0-1 M74535-14 6/18/2008	SB-008 4-6 M74740-3 6/23/2008	SB-009 0-1 M74535-15 6/18/2008	SB-009 8-10 M74740-4 6/23/2008	SB-010A 0-1 M74739-3 6/23/2008	SB-010A 6-8 M74740-5 6/24/2008	SB-015A 0-1 M74906-1 6/27/2008	SB-015A 4-6 M75017-1 7/2/2008	SB-016 0-1 M74873-5 7/1/2008	SB-016C 8-9 M75017-2 7/2/2008	SB-016C Dupe 8-9 M75017-2 7/2/2008	SB-017A 0-1 M74739-2 6/23/2008	SB-017A 10-12 M74740-6 6/24/2008	SB-020 0-1 M74739-1 6/23/2008	SB-020 4-8 M74740-7 6/24/2008	SB-020 8-10 M74740-8 6/24/2008	SB-021 0-1 M74739-4 6/24/2008	SB-021 6-8 M74740-9 6/24/2008	SB-021 10-12 M74740-10 6/24/2008	SB-046B 0-1 M74739-5 6/24/2008	SB-046B Dupe 0-1 M74739-6 6/24/2008	SB-046B 6-7.5 M74858-1 6/25/2008	SB-061A 0-1 M74861-1 6/25/2008
TOTAL PETROLEUM HYDROCARBONS (mg/kg)																																						
Total Petroleum Hydrocarbons (mg/kg)	NS	NS	NS	—	—	—	—	—	—	—	1140	166	474	22.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CYANIDE (mg/Kg)																																						
Cyanide	27	40	27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
METALS (mg/Kg)																																						
Aluminum	NS	NS	NS	**6770**	**7000**	**6340**	**9120**	**20100**	**7560**	**12000**	**6140**	—	**8100**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Antimony	NS	NS	NS	—	**1.2 J**	—	—	—	—	—	—	—	—	—	4.1 U	—	2.1 U	2.4 U	2.3 U	2.3 U	2.4 U	—	**0.39 J**	2.4 U	2.4 U	2.4 U	**0.44 J**	2.2 U	2.2 U	—	2.3 U	2.3 U	—	2.3 U	2.2 U	2.2 U	2 U
Arsenic	13	16	16	**4.6**	60.7	**9.0**	**10.4**	16.1	**4.7**	**5.3**	**7.2**	—	**4.7**	—	14.8	—	**8.5**	**4**	15.1	**6.5**	13.4	—	22.9	**7.8**	**6.4**	18.5	**5.9**	**5.3**	—	**4.3**	**11.2**	—	**6.7**	15.9	16.1	**4.6**	**7.5**
Barium	350	820	400	**51.0**	366	**89.5**	**29 J**	828	**86.1**	**98.8**	**43.9 J**	—	**47 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Beryllium	7.2	47	72	**0.34 J**	**0.63 J**	**0.54 J**	**0.52 J**	**2.2**	**0.42 J**	**0.69 J**	**0.28 J**	—	**0.46 J**	—	**1.3**	—	**0.34 J**	**0.42 J**	**0.59**	**0.61**	**0.38 J**	—	**0.35 J**	**0.6**	**0.6**	**0.6**	**0.46**	**0.29 J**	—	**0.72**	**0.34 J**	—	**0.58**	**0.77**	**0.77**	**0.49**	**0.23 J**
Cadmium	2.5	7.5	4.3	**0.34 J**	**2.3**	—	**0.56 J**	**2.4**	**0.47 J**	**0.31 J**	**0.65 J**	—	—	—	**1.3**	—	**0.52**	0.48 U	**0.22 J**	0.45 U	**2.2**	—	**0.42 J**	0.48 U	0.48 U	**1.5**	0.45 U	**0.4 J**	—	0.45 U	**0.53**	—	0.46 U	**0.23 J**	**0.27 J**	0.43 U	**0.27 J**
Calcium	NS	NS	NS	**46500**	**167000**	**3150**	**1850**	**85100**	**15400**	**3880**	**1870**	—	**1280**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chromium	30	NS	180	**10.1**	**14.1**	**9.4**	**9.8**	47.9	**11.1**	**16.3**	**19.9**	—	**11.5**	—	**12.2**	—	**9.1**	**13**	**7.8**	**14.8**	**14.5**	—	**13.4**	**15.3**	**15.2**	**10.2**	**10.3**	**7.9**	—	**14**	**13.8**	—	**12.9**	**18.2**	**19.7**	**11.4**	**5.7**
Cobalt	NS	NS	NS	**4.7 J**	**4.9 J**	**5.8 J**	**5.4 J**	**4.1 J**	**5.5 J**	**11.5**	**4.6 J**	—	**7.6 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Copper	50	1720	270	**17.9**	**44.1**	**28.0**	143	**45.8**	**21.8**	**13.5**	**17.2**	—	**13.7**	—	134	—	**25.8**	**17.6**	**28.7**	**15.1**	**34.3**	—	**32**	**16.9**	**18.4**	**36.6**	**14.4**	**23.3**	—	**14.2**	**39.6**	—	**17.2**	**32.8**	**32**	**15.8**	**20.6**
Iron	NS	NS	NS	**14900**	**17400**	**19300**	**17700**	**20200**	**16700**	**23900**	**15900**	—	**18100**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lead	63	450	400	152	119	**29.8**	**9.1**	3480	**47.2**	**14.8**	**12.1**	—	**9.6**	—	379	—	169	**8.1**	88	**8.7**	471	—	**53.1**	**10.2**	**11.5**	575	**11.1**	325	—	**10.2**	343	—	**10.1**	**43.5**	**41.1**	**13.6**	97.5
Magnesium	NS	NS	NS	**27200**	**30600**	**2250**	**2410**	**35800**	**5900**	**3790**	**2130**	—	**2640**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Manganese	1600	2000	2000	**440**	**1500**	**108**	**87.3**	3480	**346**	**780**	**85.4**	—	**222**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mercury	0.18	0.73	0.81	**0.12**	0.67	4	—	1.1	**0.12**	**0.03 J**	**0.09**	—	—	—	0.99	—	**0.59**	**0.025 J**	**0.6**	**0.023 J**	**4.4**	—	**0.26**	**0.022 J**	**0.029 J**	**0.37**	0.039 U	**0.56**	—	**0.027 J**	**0.29**	—	**0.024 J**	**0.6**	**0.76**	**0.046**	**0.31**
Nickel	30	130	310	**10.1**	**23.6**	**14.9**	**17.3**	**35.6**	**14.0**	**22.8**	**14.5**	—	**20.0**	—	**16**	—	**13.4**	**21.5**	**13.7**	**23.2**	**15.3**	—	**17.2**	**26.1**	**25.2**	**12.2**	**18.8**	**7.6**	—	**21.6**	**13.1**	—	**23.1**	**13.1**	**13.6**	**21**	**12.4**
Potassium	NS	NS	NS	**1000 J**	**2240**	**930 J**	**1040 J**	**2540**	**1020 J**	**1170**	**473 J**	—	**865 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Selenium	3.9	4	180	—	7.4	**1.3**	**1.6**	**2.6**	**1.3 J**	**0.99 J**	**2.0**	—	**1.5**	—	4.1 U	—	2.1 U	2.4 U	2.3 U	2.3 U	**1 J**	—	2.4 U	2.4 U	2.4 U	**1.4 J**	2.2 U	2.2 U	—	2.3 U	2.3 U	—	2.3 U	**0.7 J**	**0.79 J**	2.2 U	2 U
Silver	2	8.3	180		**0.36 J**			**0.24 J**							**0.34 J**	—	**0.17 J**	0.6 U	**0.11 J**	0.56 U	**0.48 J**	—	**0.27 J**	**0.094 J**	0.6 U	**0.92**	0.56 U	**0.24 J**	—	0.57 U	**0.32 J**	—	**0.076 J**	**0.092 J**	0.56 U	**0.13 J**	**0.19 J**
Sodium	NS	NS	NS	**118 J**	**497 J**	**75.4 J**	**67.7 J**	**714 J**	**88.5 J**	**56.5 J**	**52.3 J**	—	**97.7 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	4.1 U	—	2.1 U	2.4 U	2.3 U	2.3 U	2.4 U	—	2.4 U	2.4 U	2.4 U	2 U	2.2 U	2.2 U	—	2.3 U	2.3 U	—	2.3 U	2.2 U	2.2 U	2.2 U	2 U
Vanadium	NS	NS	NS	**16.6**	**28.6**	**16.2**	**15.7**	**23.2**	**15.5**	**20.1**	**32.0**	—	**13.9**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Zinc	109	2480	10000	**103**	183	139	160	663	196	**79.4**	**62.9**	—	**47.5**	—	729	—	257	**55.2**	174	**72.2**	688	—	122	**58.9**	**58.4**	410	**54.6**	191	—	**49.7**	212	—	**54.9**	**87.9**	**87.9**	**53.6**	**92**
PESTICIDES (mg/kg)																																						
Aldrin	0.005	0.19	0.097	—	—	—	**0.0026**	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.02	0.48	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Beta BHC (Beta Hexachlorocyclohexane)	0.036	0.09	0.36	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Chlordane	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.092 U	—	0.078 U	0.077 U	0.072 U	0.082 U	0.08 U	—	0.094 U	0.077 U	0.078 U	0.089 U	0.079 U	0.072 U	—	0.077 U	**0.263**	—	0.077 U	0.075 U	0.076 U	0.078 U	0.067 U
cis-Chlordane	0.094	2.9	4.2	**0.21**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Delta BHC (Delta Hexachlorocyclohexane)	0.04	0.25	100	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Dieldrin	0.005	0.1	0.2	**0.074**	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	**0.1**	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Endosulfan Sulfate	2.4	1000	24	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Endrin	0.014	0.06	11	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Endrin Aldehyde	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Endrin Ketone	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gamma Bhc (Lindane)	0.1	0.1	1.3	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Heptachlor	0.042	0.38	2.1	**0.03**	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Heptachlor Epoxide	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
Methoxychlor	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	0.008 U	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
P,P'-DDD	0.0033	14	13	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	0.0072 U	—	0.0077 U	**0.0163**	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
P,P'-DDE	0.0033	17	8.9	—	—	—	—	—	—	—	—	—	—	—	**0.0129**	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	**0.004 J**	—	0.0077 U	**0.0112**	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
P,P'-DDT	0.0033	136	7.9	—	—	—	—	—	—	—	—	—	—	—	0.0092 U	—	0.0078 U	0.0077 U	0.0072 U	0.0082 U	0.008 U	—	0.0094 U	0.0077 U	0.0078 U	0.0089 U	0.0079 U	**0.0079**	—	0.0077 U	**0.047**	—	0.0077 U	0.0075 U	0.0076 U	0.0078 U	0.0067 U
trans-Chlordane	NS	NS	NS	**0.17**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SEMI-VOLATILE ORGANIC COMPOUNDS (mg/kg)																																						
2-Methylnaphthalene	NS	NS	NS	**0.098 J**	—	**1.5 J**	**6.4 J**	**110**	**0.67 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acenaphthene	20	98	100	**0.78 J**	**3.7 J**	—	—	170	**1.7 J**	—	—	—	—	—	**0.122 J**	1.6 U	**1.58**	1.5 U	1.4 U	0.3 U	**9.76**	**2.78**	**4.71**	0.29 U	0.3 U	**3.31**	0.29 U	0.28 U	**0.209 J**	**0.0605 J**	**0.931**	0.31 U	0.28 U	**1.15**	**0.654**	0.29 U	0.26 U
Acenaphthylene	100	107	100	—	—	—	—	—	**0.31 J**	—	—	—	—	—	**0.136 J**	—	**1.18**	1.5 U	1.4 U	0.3 U	**5.81**	—	**0.96**	0.29 U	0.3 U	**0.922 J**	0.29 U	0.28 U	—	**0.043 J**	**0.168 J**	—	0.28 U	**0.239 J**	**0.191 J**	0.29 U	**0.0641 J**
Anthracene	100	1000	100	**1.6 J**	**12 J**	—	—	510	**4.7 J**	—	—	—	—	—	**0.402**	1.6 U	**5.73**	1.5 U	**0.295 J**	0.3 U	**26.7**	**9.47**	**12.6**	0.29 U	0.3 U	**8.81**	0.29 U	**0.0359 J**	**0.305**	0.3 U	**2.49**	0.31 U	0.28 U	**2.5**	**1.57**	0.29 U	**0.0941 J**
Benzo(a)anthracene	1	1	1	**3.3**	**28**	—	—	760	**10**	**0.065 J**	—	—	—	—	**1.13**	1.6 U	**15.8**	1.5 U	**0.707 J**	0.3 U	**59.1**	**26.7**	**25.1**	0.29 U	**0.0373 J**	**21.3**	0.29 U	**0.0719 J**	**0.862**	0.3 U	**4.28**	0.31 U	0.28 U	**4.01**	**3.31**	0.29 U	**0.199 J**
Benzo(a)pyrene	1	22	1	**3.1**	**23**	—	—	530	**8.1**	**0.054 J**	—	—	—	—	**1.14**	1.6 U	**14**	1.5 U	**0.627 J**	0.3 U	**49.3**	**16.7**	**18.9**	0.29 U	0.3 U	**17.9**	0.29 U	**0.0623 J**	**0.67**	0.3 U	**3.71**	0.31 U	0.28 U	**3.65**	**2.44**	0.29 U	**0.228 J**
Benzo(a)fluoranthene	1	1.7	1	**2.7**	**29 J**	—	—	480	**7**	**0.055 J**	—	—	—	—	**1.19**	1.6 U	**14.1**	1.5 U	**0.636 J**	0.3 U	**51.2**	**17.5**	**19.2**	0.29 U	0.3 U	**17.8**	0.29 U	**0.0699 J**	**0.568**	0.3 U	**3.72**	0.31 U	0.28 U	**4.28**	**2.61**	0.29 U	**0.314**
Benzo(g,h,i)perylene	100	1000	100	**1.9**	**15 J**	—	—	280	**4.2 J**	**0.043 J**	—	—	—	—	**0.731**	1.6 U	**8.37**	1.5 U	**0.416 J**	0.3 U	**34.1**	**7.53**	**6.77**	0.29 U	0.3 U	**11.3**	0.29 U	**0.0873 J**	**0.317**	0.3 U	**2.56**	0.31 U	0.28 U	**1.68**	**0.999**	0.29 U	**0.206 J**
Benzo(k)fluoranthene	0.8	1.7	3.9	**2.6**	**22 J**	—	—	470	**6.9**	**0.059 J**	—	—	—	—	**0.743**	1.6 U	**6.2**	1.5 U	**0.434 J**	0.3 U	**34.4**	**7.19**	**6.19**	0.29 U	0.3 U	**14.6**	0.29 U	0.28 U	**0.559**	0.3 U	**2.28**	0.31 U	0.28 U	**1.91**	**1.31**	0.29 U	**0.216 J**
Benzyl butyl phthalate	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.34 U	—	**0.0886 J**	1.5 U	1.4 U	0.3 U	2.9 U	—	0.35 U	0.29 U	0.3 U	1.7 U	0.29 U	**0.285**	—	0.3 U	0.29 U	—	0.28 U	0.29 U	0.29 U	0.29 U	0.26 U
bis(2-Ethylhexyl) phthalate	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	**0.214 J**	—	**0.179 J**	1.5 U	1.4 U	0.3 U	2.9 U	—	**0.18 J**	0.29 U	0.3 U	1.7 U	0.29 U	0.28 U	—	0.3 U	**0.219 J**	—	0.28 U	0.29 U	0.29 U	0.29 U	0.26 U
Carbazole	NS	NS	NS	**0.85 J**	**4 J**	—	—	**170**	**2.5 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Carbon Disulfide	NS	NS	NS	—	—	—	—	—	**0.002 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	1	1	3.9	**3.3**	**30**	**0.39 J**	—	**710**	**11**	**0.072 J**	—	—	—	—	**1.22**	1.6 U	**14.9**	1.5 U	**0.77 J**	0.3 U	**56.2**	**19.2**	**23.4**	0.29 U	**0.0405 J**	**21.8**	0.29 U	**0.135 J**	**0.854**	0.3 U	**4.43**	0.31 U	0.28 U	**5.14**	**3.64**	0.29 U	**0.261**
Dibenz(a,h)anthracene	0.33	1000	0.33	**0.61 J**	**5.7 J**	—	—	**100**	**1.4 J**	—	—	—	—	—	**0.278 J**	1.6 U	**2.98**	1.5 U	1.4 U	0.3 U	**13.2**	**4.12**	**4.03**	0.29 U	0.3 U	**4.71**	0.29 U	0.28 U	**0.158 J**	0.3 U	**0.958**	0.31 U	0.28 U	**0.738**	**0.461**	0.29 U	**0.0754 J**
Dibenzofuran	7	210	59	**0.42 J**	**2.3 J**	—	—	220	**1.5 J**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Di-n-butyl Phthalate	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.34 U	—	0.29 U	1.5 U	**0.18 J**	0.3 U	**0.394 J**	—	0.35 U	0.29 U	0.3 U	**0.25 J**	0.29 U	**0.0374 J**	—	0.3 U	0.29 U	—	0.28 U	0.29 U	0.29 U	0.29 U	0.26 U
Fluoranthene	100	1000	100	**9.7**	**63**	**0.5 J**	—	1500	**24**	**0.13 J**	—	—	—	—	**2.49**	1.6 U	**34.3**	1.5 U	**1.45**	0.3 U	168	**41.6**	**48.1**	0.29 U	0.3 U	**45.8**	0.29 U	**0.114 J**	**1.66**	0.3 U	**11.4**	0.31 U	0.28 U	**10.6**	**7.24**	0.29 U	**0.27**
Fluorene	30	386	100	**0.73 J**	**3.9 J**	—	—	360	**2.4 J**	—	—	—	—	—	**0.164 J**	1.6 U	**2.61**	1.5 U	1.4 U	0.3 U	**13.7**	**4.87**	**6.12**	0.29 U	0.3 U	**4.45**	0.29 U	**0.228 J**	**0.294 J**	0.3 U	**1.09**	0.31 U	0.28 U	**1.16**	**0.649**	0.29 U	**0.26 U**
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	**1.7 J**	**14 J**	—	—	280	**3.9 J**	**0.035 J**	—	—	—	—	**0.659**	1.6 U	**7.67**	1.5 U	**0.409 J**	0.3 U	**32.3**	**9.72**	**9.15**	0.29 U	0.3 U	**13.1**	0.29 U	**0.0691 J**	**0.348**	0.3 U	**2.42**	0.31 U	0.28 U	**1.8**	**1.11**	0.29 U	**0.234 J**
Naphthalene	12	12	100	**0.26 J**	**2.4 J**	—	—	320	**2.3 J**	—	—	—	—	—	**0.0988 J**	1.6 U	**0.771**	1.5 U	1.4 U	0.3 U	**9.43**	**3.46**	**3.16**	0.29 U	0.3 U	**2.31**	0.29 U	0.28 U	**0.615**	**0.133 J**	**0.331**	**0.0443 J**	0.28 U	**0.63**	**0.348**	**0.591**	**0.0603 J**
Pentachlorophenol	0.8	0.8	6.7	—	—	—	—	—	—	—	—	—	—	—	0.69 U	—	0.58 U	**3 J**	2.9 U	0.6 U	5.9 U	—	0.7 U	0.58 U	0.59 U	3.4 U	0.58 U	0.56 U	—	0.59 U	**0.235 J**	—	0.57 U	0.58 U	0.58 U	0.58 U	0.51 U
Phenanthrene	100	1000	100	**7.3**	**46**	**1.3 J**	**1.5 J**	1600	**25**	**0.099 J**	—	—	—	**0.029 J**	**1.7**	**0.37 J**	**23.5**	1.5 U	**1.35 J**	0.3 U	**92.2**	**36.3**	**47.9**	0.29 U	**0.15 J**	**38.3**	**0.204 J**	**0.0392 J**	**1.39**	**0.153 J**	**8.56**	0.31 U	**0.101 J**	**8.71**	**5.76**	**0.387**	**0.166 J**
Pyrene	100	1000	100	**7.2**	**47**	**0.67 J**	—	960	**20**	**0.11 J**	—	—	—	—	**2.06**	1.6 U	**25.6**	1.5 U	**1.37 J**	0.3 U	**99.5**	**36.4**	**44.7**	0.29 U	**0.0774 J**	**38.8**	0.29 U	**0.165 J**	**1.06**	0.3 U	**9.64**	0.31 U	0.28 U	**8.56**	**5.94**	0.29 U	**0.306**
VOLATILE ORGANIC COMPOUNDS (mg/kg)																																						
1,1,1-Trichloroethane	0.68	0.68	100	—	—	—	—	—	—	—	—	—	—	—	0.21 U	—	0.15 U	0.15 U	0.16 U	0.19 U	0.15 U	—	0.2 U	0.15 U	0.15 U	0.24 U	0.23 U	0.12 U	—	0.12 U	0.16 U	—	0.78 U	0.18 U	0.18 U	0.61 U	0.13 U
1,1-Dichloroethane	0.27	0.27	26	—	—	—	—	—	**0.008 J**	—	—	—	—	—	0.21 U	—	0.15 U	0.15 U	0.16 U	0.19 U	0.15 U	—	0.2 U	0.15 U	0.15 U	0.24 U	0.23 U	0.12 U	—	0.12 U	0.16 U	—	0.78 U	0.18 U	0.18 U	0.61 U	0.13 U
1,2,4-Trimethylbenzene	3.6	3.6	52	—	—	—	—	—	—	—	—	—	—	—	0.53 U	0.42 U	0.37 U	**3.33**	0.4 U	0.48 U	0.36 U	0.41 U	0.5 U	0.38 U	**0.149 J**	0.59 U	**5.74**	0.31 U	**42.7**	**2.19**	0.4 U	**0.173 J**	1.9 U	**0.0401 J**	0.45 U	**67.5**	0.31 U
1,2-Dichloroethene, Total	NS	NS	NS	—	—	—	—	—	**0.006**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1,3,5-Trimethylbenzene	8.4	8.4	52	—	—	—	—	—	—	—	—	—	—	—	0.53 U	0.42 U	0.37 U	0.37 U	0.4 U	0.48 U	0.36 U	0.41 U	0.5 U	0.38 U	**0.0423 J**	0.59 U	**1.56**	0.31 U	**24.4**	**1.19**	0.4 U	**0.0327 J**	1.9 U	**0.0224 J**	0.45 U	**38.1**	0.31 U
Acetone	0.05	0.05	100	—	—	**0.41 JB**	**0.29 JB**	—	**0.098 B**	—	—	—	—	—	0.53 U	—	0.37 U	0.37 U	0.4 U	0.48 U	0.36 U	—	0.5 U	0.38 U	0.38 U	0.59 U	0.58 U	0.31 U	—	0.29 U	0.4 U	—	1.9 U	0.45 U	0.45 U	1.5 U	0.31 U
Benzene	0.06	0.06	4.8	—	—	—	—	—	—	—	—	—	—	—	0.053 U	0.042 U	0.037 U	0.037 U	0.04 U	0.048 U	0.036 U	0.041 U	0.05 U	0.038 U	0.038 U	0.059 U	0.058 U	0.031 U	0.38 U	0.029 U	0.04 U	0.041 U	0.19 U	0.045 U	0.045 U	0.15 U	0.031 U
Bromomethane	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.21 U	—	0.15 U	0.15 U	0.16 U	0.19 U	0.15 U	—	0.2 U	0.15 U	0.15 U	0.24 U	0.23 U	0.12 U	—	0.12 U	0.16 U	—	0.78 U	0.18 U	0.18 U	0.61 U	0.13 U
Carbon Disulfide	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.53 U	—	0.37 U	0.37 U	0.4 U	0.48 U	0.36 U	—	0.5 U	0.38 U	0.38 U	0.59 U	0.58 U	0.31 U	—	0.29 U	0.4 U	—	1.9 U	0.45 U	0.45 U	1.5 U	0.31 U
Chlorobenzene	1.1	1.1	100	—	—	—	—	—	—	—	—	—	—	—	0.21 U	—	0.15 U	**0.215**	0.16 U	0.19 U	0.15 U	—	0.2 U	0.15 U	0.15 U	0.24 U	0.23 U	0.12 U	—	0.12 U	0.16 U	—	0.78 U	0.18 U	0.18 U	0.61 U	0.13 U
Chloroethane	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	0.53 U	—	0.37 U	0.37 U	0.4 U	0.48 U	0.36 U	—	0.5 U	0.38 U	0.38 U	0.59 U	0.58 U	0.31 U	—	0.29 U	0.4 U	—	1.9 U	0.45 U	0.45 U	1.5 U	0.31 U
Chloroform	0.37	0.37	49	—	—	—	—	—	—	—	—	—	—	—	0.21 U	—	0.15 U	0.15 U	0.16 U	0.19 U	**0.882 J**	—

Table 1 - Summary of Soil Analytical Data (Detections Only)
5 Flint Street, Rochester, New York

Sample ID		NYSDEC Unrestricted SCO	NYSDEC PGWSCO	NYSDEC Restricted Residential SCO	SB-061A	SB-061A	SB-01-S	SB-01-D	SB-02-S	SB-02-D	SB-03-S	SB-03-D	SB-04-S	SB-04-D	SB-05-S	SB-05-D	SB-06-S	SB-06-D	TP-04	TP-05	RXSB-06A	RXSB-06B	RXSB-07A	RXSB-07B	RXSB-08A	RXSB-08B	RXSB-08C	RXSB-09A	RXSB-09B
Sample Depth (ft bgs)					2-4	4-6	0-1	8-10	0-1	7-8	0-1	12	0-1	9-10	0-1	7-8	0-1	4-6	7-10	10	0-2	10-12	0-1	8-10	0-1	6-7.5	11-12.4	0-1	4-5.5
Lab Sample ID					M74861-2	M74858-2	144507-01	144507-02	144538-01	144538-02	144538-03	144538-04	144507-03	144507-04	144538-05	144538-06	144491-03	144491-04	144445-01	144445-02	L1722162-01	L1722162-02	L1722162-03	L1722162-04	L1722162-05	L1722162-06	L1722162-07	L1722162-08	L1722162-09
Sample Date					6/25/2008	6/25/2008	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/14/2014	10/8/2014	10/8/2014	6/28/2017	6/28/2017	6/28/2017	6/28/2017	6/28/2017	6/28/2017	6/28/2017	6/28/2017	6/28/2017
TOTAL PETROLEUM HYDROCARBONS (mg/kg)																													
Total Petroleum Hydrocarbons (mg/kg)	NS	NS	NS		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
CYANIDE (mg/Kg)																													
Cyanide	27	40	27		—	—	**0.639**	0.406 U	0.54 U	0.448 U	0.632 U	0.577 U	0.585 U	0.357 U	**0.359 J**	0.561 U	**6.03**	**0.347 J**	0.61 U	**8.6**	—	—	—	—	—	—	—	—	—	—
METALS (mg/Kg)																													
Aluminum	NS	NS	NS		—	—	**7650**	**13300**	**8400**	**6550**	**2590**	**5060**	**11900**	**6030**	**4730**	**5530**	**11800**	**7840**	**8740**	**6980**	**4100**	**9150**	**6320**	**7370**	**5120**	**6710**	**6700**	**3480**	**5230**
Antimony	NS	NS	NS		2.4 U	2.2 U	7.94 U	7.86 U	6.95 U	7.2 U	9.5 U	7.35 U	7.78 U	6.78 U	7.45 U	8.02 U	7.44 U	7.66 U	7.35 U	8.78 U	**0.206 J**	**0.225 J**	**0.706**	**0.258 J**	**0.203 J**	**0.199 J**	**0.184 J**	**0.338 J**	**0.202 J**
Arsenic	13	16	16		**6.2**	**3.4**	**8.99**	**7.39**	**1.35**	**6.9**	19.1	**5.5**	**2.12**	**3.8**	**6.82**	**5.96**	23.9	**5.3**	**5.41**	**10.9**	**8.22**	**9.43**	**11.1**	**8.36**	**7.82**	**9.85**	**8.64**	**8.68**	**4.27**
Barium	350	820	400		—	—	**122**	**50.8**	**41.7**	**34.6**	**109**	**21.3**	**105**	**24.8**	**63**	**34.5**	**183**	**38.8**	**38**	**86.7**	**48.6**	**101**	**101**	**53.5**	**41**	**56.9**	**61.9**	**44.5**	**47.0**
Beryllium	7.2	47	72		**0.3 J**	**0.55**	**0.436 J**	**0.63 J**	**0.438 J**	**0.408 J**	**0.996**	**0.612 U**	**0.575 J**	**0.34 J**	**0.51 J**	**0.668 U**	**0.858**	**0.477 J**	**0.478 J**	**0.732 U**	**0.234**	**0.512**	**0.487**	**0.462**	**0.279**	**0.383**	**0.374**	**0.319**	**0.336**
Cadmium	2.5	7.5	4.3		0.48 U	0.45 U	**1.21**	0.655 U	0.579 U	0.6 U	0.791 U	0.612 U	0.647 U	0.565 U	0.621 U	0.668 U	0.62 U	0.639 U	0.612 U	0.732 U	**0.216**	**0.161**	**0.087**	**0.124**	**0.236**	**0.255**	**0.176**	**0.114**	**0.221**
Calcium	NS	NS	NS		—	—	**33100**	**1290**	**4960**	**1390**	**7560**	**1330**	**50200**	**1090**	**18800**	**2000**	**21300**	**1800**	**1930**	**3620**	**111000**	**2370**	**2450**	**1110**	**9040**	**3420**	**3200**	**53900**	**19000**
Chromium	30	NS	180		**4.4**	**14.4**	**17.9**	**17.2**	**13.9**	**10.8**	**8.26**	**9.45**	**24.4**	**8.45**	**12.7**	**9.6**	**15.1**	**11.2**	**14.9**	**13.5**	**9.82**	**16.0**	**12.3**	**12.9**	**11.6**	**12.4**	**13.2**	**10.3**	**10.3**
Cobalt	NS	NS	NS		—	—	**5.72 J**	**11**	**7.18**	**6.81**	**8.96**	**6.26**	**5.92 J**	**7.17**	**8.49**	**7.3 D**	**6.47**	**9.15**	**7.44**	**5.04 J**	**5.45**	**11.9**	**7.51**	**8.51**	**7.51**	**12.9**	**9.17**	**4.57**	**5.57**
Copper	50	1720	270		**23.1**	**12.4**	**37.5**	**10.5**	**12.2**	**15.3**	**37.5**	**10**	**28.8**	**13.3**	**19.2**	**14**	**25.3**	**11.9**	**14.3**	**15.5**	**9.8**	**10300**	**25100**	**18700**	**21800**	**14800**	**29400**	**20000**	**11300**	**13500**
Iron	NS	NS	NS		—	—	**17700**	**23000**	**15900**	**17100**	**14600**	**16500**	**18600**	**12900**	**10100**	**20700**	**14900**	**17400**	**18000**	**14500**	**10300**	**25100**	**18700**	**21800**	**14800**	**29400**	**20000**	**11300**	**13500**
Lead	63	450	400		**17.4**	**5.8**	276	**8.76**	**8.34**	**9.1**	**17.6**	**7.82**	**35.6**	**7.01**	**32.5**	**6.24**	**53.4**	**8.4**	**10.2**	**25.8**	**24.5**	**13.0**	149	**14.1**	**18.1**	**13.1**	**20.9**	**43.0**	**16.7**
Magnesium	NS	NS	NS		—	—	**9730**	**3380**	**3380**	**2170**	**1180**	**1990**	**19200**	**2020**	**5310**	**1820 M**	**2740**	**2470**	**2930**	**1780**	**25300**	**3530**	**2260**	**2550**	**5210**	**2640**	**2620**	**20800**	**7520**
Manganese	1600	2000	2000		—	—	**437**	**241**	**655**	**202**	**63**	**153**	**273**	**133 M**	**129**	**328 DM**	**179**	**124**	**391**	**88.3**	**339**	**710**	**122**	**256**	**174**	**1300**	**494**	**291**	**350**
Mercury	0.18	0.73	0.81	0.38	**0.025 J**	**1.19**	**0.0223**	**0.0362**	0.0239 U	**0.0198 J**	0.0209 U	0.478	0.0224 U	**0.161**	**0.0135 J**	9.82	**0.022**	**0.0179 J**	**0.046**	**0.017**	**0.023**	0.349	**0.017**	**0.048**	**0.008 J**	**0.023**	0.238	0.287
Nickel	30	130	310		**8.9**	**20.8**	**16.2**	**19.2**	**13.8**	**17.3**	**18.9**	**15**	**14.3**	**16**	**14.4**	**16.6**	**15.3**	**18.8**	**19.8**	**10.4**	**12.6**	**26.2**	**16.0**	**21.3**	**18.2**	**24.5**	**20.9**	**9.25**	**11.6**
Potassium	NS	NS	NS		—	—	**1450**	**1030**	**1570**	**657**	**377 J**	**741**	**1540**	**824**	**884**	**668**	**862**	**1110**	**1040**	**1180**	**569**	**385**	**551**	**388**	**420**	**312**	**490**	**596**	**531**
Selenium	3.9	4	180		**1.3 J**	**2.2**	**1.64**	**3.9**	**2.71**	**3.61**	7.54	4.26	**1.37**	**1.86**	**1.17 J**	4.73	**2.24**	**3.59**	**3.43**	**2.79**	**0.957**	**1.95**	**2.01**	**2.06**	**1.40**	**1.82**	**1.61**	**1.91**	**1.40**
Silver	2	8.3	180		0.59 U	**0.086 J**	1.32 U	1.31 U	1.16 U	1.2 U	1.58 U	1.22 U	1.29 U	1.13 U	1.24 U	1.34 U	1.24 U	1.28 U	1.22 U	1.46 U	**0.055 J**	**0.037 J**	**0.040 J**	**0.02 J**	**0.036 J**	**0.027 J**	**0.029 J**	**0.045 J**	**0.02 J**
Sodium	NS	NS	NS		—	—	**262 J**	327 U	289 U	300 U	**247 J**	306 U	**356**	282 U	**262 J**	334 U	**1290**	319 U	306 U	366 U	**219**	**67.4**	**47.1**	**31.2 J**	**46.6**	**43.3**	**27.2 J**	**192**	**137**
Thallium	NS	NS	NS		2.4 U	2.2 U	3.31 U	3.27 U	2.89 U	3 U	3.96 U	3.06 U	3.23 U	2.82 U	3.1 U	3.34 U	3.1 U	3.19 U	**1.57 J**	3.66 U	**0.09**	**0.125**	**0.174**	**0.103**	**0.092**	**0.127**	**0.093**	**0.117**	**0.085**
Vanadium	NS	NS	NS		—	—	**23.1**	**23.5**	**21.9**	**13.3**	**33.8**	**13.3**	**23.6**	**11.3**	**17.1**	**12.4**	**28.9**	**15**	**16.8**	**15.6**	**12.5**	**18.1**	**20.0**	**17.0**	**14.2**	**14.8**	**15.7**	**14.7**	**17.8**
Zinc	109	2480	10000		**57.6**	**49.8**	366	**54.1**	**58.7**	**42.6**	**108**	**40.5**	131	**42.4**	143	**38.4**	**125**	**44.8**	**52.5**	361	**56.6**	**56.5**	146	**50.9**	161	**51.9**	**55.8**	**55.6**	**86.2**
PESTICIDES (mg/kg)																													
Aldrin	0.005	0.19	0.097		0.0089 U	0.0078 U	0.0176 JP	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02	0.02	0.48		0.0089 U	0.0078 U	0.0359 P	**0.00185 J**	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Beta BHC (Beta Hexachlorocyclohexane)	0.036	0.09	0.36		0.0089 U	0.0078 U	0.018 U	0.00341 U	—	—	—	—	**0.00455**	—	—	—	0.00356 U	0.00335 U	0.00352 U	**0.0843 P**	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Chlordane	NS	NS	NS		0.089 U	0.078 U	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0714 U	0.0766 U	0.0412 U	0.0798 U	0.081 U	0.0768 U	0.0803 U	0.394 U	0.418 U
cis-Chlordane	0.094	2.9	4.2		—	—	**0.0878 P**	**0.00181 JP**	—	—	—	—	**0.00368 JP**	—	—	—	0.00356 U	0.00335 U	0.00352 U	**0.0121**	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	0.25	100		0.0089 U	0.0078 U	**0.00989 JP**	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Dieldrin	0.005	0.1	0.2		0.0089 U	0.0078 U	0.018 U	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Endosulfan Sulfate	2.4	1000	24		0.0089 U	0.0078 U	**0.0758 P**	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Endrin	0.014	0.06	11		0.0089 U	0.0078 U	0.0776 P	**0.00245 J**	—	—	—	—	**0.00263 J**	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Endrin Aldehyde	NS	NS	NS		0.0089 U	0.0078 U	**0.021 P**	0.00341 U	—	—	—	—	0.00393 U	—	—	—	**0.00197 J**	0.00335 U	0.00352 U	0.00413 U	0.00427 U	0.00458 U	0.00246 U	0.00477 U	0.00484 U	0.00459 U	0.0048 U	0.0235 U	0.025 U
Endrin Ketone	NS	NS	NS		—	—	**0.125**	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Gamma Bhc (Lindane)	0.1	0.1	1.3		0.0089 U	0.0078 U	0.018 U	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	**0.0276**	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Heptachlor	0.042	0.38	2.1		0.0089 U	0.0078 U	0.018 U	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	**0.0179 P**	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
Heptachlor Epoxide	NS	NS	NS		0.0089 U	0.0078 U	**0.0167 J**	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00284 U	0.00305 U	0.00164 U	0.00318 U	0.00323 U	0.00306 U	0.0032 U	0.0157 U	0.0166 U
Methoxychlor	NS	NS	NS		0.0089 U	0.0078 U	**0.097 P**	**0.00176 JP**	—	—	—	—	**0.00379 JP**	—	—	—	**0.00185 JP**	0.00335 U	0.00352 U	**0.00447 P**	0.0142 U	0.0153 U	0.00822 U	0.0159 U	0.0161 U	0.0153 U	0.016 U	0.0784 U	0.0833 U
P,P'-DDD	0.0033	14	13		0.0089 U	0.0078 U	0.037 P	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
P,P'-DDE	0.0033	17	8.9		0.0089 U	0.0078 U	0.018 U	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	**0.00436 P**	0.00142 U	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
P,P'-DDT	0.0033	136	7.9		0.0089 U	0.0078 U	0.018 U	0.00341 U	—	—	—	—	0.00393 U	—	—	—	**0.00184 J**	0.00335 U	0.00352 U	0.00413 U	0.00142 U	0.00153 U	0.00822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
trans-Chlordane	NS	NS	NS		—	—	**0.0648**	0.00341 U	—	—	—	—	0.00393 U	—	—	—	0.00356 U	0.00335 U	0.00352 U	**0.0045 P**	**0.00254 IP**	0.00153 U	0.000822 U	0.00159 U	0.00161 U	0.00153 U	0.0016 U	0.00784 U	0.00833 U
SEMI-VOLATILE ORGANIC COMPOUNDS (mg/kg)																													
2-Methylnaphthalene	NS	NS	NS		—	—	**22.2 J**	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Acenaphthene	20	98	100	0.34 U	0.29 U	29.4 J	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Acenaphthylene	100	107	100	0.34 U	0.29 U	**40.1**	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Anthracene	100	1000	100	0.34 U	0.29 U	126	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Benzo(a)anthracene	1	1	1	0.34 U	0.29 U	203	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	**0.354 J**	0.349 U	3.54 U	0.341 U	**0.442**	0.341 U	0.339 U	**0.247 J**	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	1	22	1	0.34 U	0.29 U	160	0.337 U	0.335 U	0.347 U	2.18 J	0.344 U	**0.308 J**	0.349 U	3.54 U	0.341 U	**0.548**	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Benzo(a)fluoranthene	1	1.7	1	0.34 U	0.29 U	186	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	**0.3 J**	0.349 U	3.54 U	0.341 U	**0.477**	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	100	1000	100	0.34 U	0.29 U	**86.9**	0.337 U	0.335 U	0.347 U	**2.94 J**	0.344 U	**0.202 J**	0.349 U	3.54 U	0.341 U	**0.509**	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Benzo(k)fluoranthene	0.8	1.7	3.9	0.34 U	0.29 U	92.8	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	**0.229 J**	0.349 U	3.54 U	0.341 U	**0.472**	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Benzyl butyl phthalate	NS	NS	NS	0.34 U	0.29 U	35.4 U	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
bis(2-Ethylhexyl) phthalate	NS	NS	NS	**0.0482 J**	**0.345**	35.4 U	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	**0.224 J**	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Carbazole	NS	NS	NS	—	—	**41.1**	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Carbon Disulfide	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	1	1	3.9	0.34 U	0.29 U	199	0.337 U	0.335 U	0.347 U	6.2	0.344 U	**0.443**	0.349 U	3.27 J	0.341 U	**0.659**	0.341 U	0.339 U	**0.306 J**	—	—	—	—	—	—	—	—	—	—
Dibenz(a,h)anthracene	0.33	1000	0.33	0.34 U	0.29 U	32.8 J	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Dibenzofuran	7	210	59		—	—	48.2	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Di-n-butyl Phthalate	NS	NS	NS	0.34 U	0.29 U	35.4 U	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Fluoranthene	100	1000	100	0.34 U	0.29 U	484	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	**0.708**	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	**0.518**	—	—	—	—	—	—	—	—	—	—
Fluorene	30	386	100	0.34 U	0.29 U	83.6	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	**0.488**	—	—	—	—	—	—	—	—	—	—
Indeno(1,2,3-cd)pyrene	0.5	8.2	0.5	0.34 U	0.29 U	113	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	**0.248 J**	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Naphthalene	12	12	100	0.34 U	0.29 U	42.9	0.337 U	0.335 U	0.347 U	4.02 U	0.344 U	0.387 U	0.349 U	3.54 U	0.341 U	0.359 U	0.341 U	0.339 U	0.41 U	—	—	—	—	—	—	—	—	—	—
Pentachlorophenol	0.8	0.8	6.7	0.68 U	0.59 U	70.7 U	0.673 U	0.671 U	0.695 U	8.04 U	0.688 U	0.775 U	0.697 U	7.07 U	0.682 U	0.718 U	0.682 U	0.678 U	0.82 U	—	—	—	—	—	—	—	—	—	—
Phenanthrene	100	1000	100	0.34 U	**0.0701 J**	490	0.337 U	0.335 U	**0.193 J**	4.02 U	0.344 U	**0.76**	0.349 U	3.54 U	0.341 U	**0.606**	0.341 U	0.339 U	**1.63**	—	—	—	—	—	—	—	—	—	—
Pyrene	100	1000	100	0.34 U	0.29 U	361	0.337 U	0.335 U	0.347 U	**3.24 J**	0.344 U	**0.714**	0.349 U	**3.17 J**	0.341 U	**0.859**	0.341 U	0.339 U	**0.384 J**	—	—	—	—	—	—	—	—	—	—
VOLATILE ORGANIC COMPOUNDS (mg/kg)																													
1,1,1-Trichloroethane	0.68	0.68	100	0.18 U	0.12 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	**0.00496 J**	0.00496 U	0.0413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	0.121 UJL	0.0011 U	0.12 U	**0.018**	0.12 U	0.83 U	0.63 U	0.69 U	0.075 U	0.063 U
1,1-Dichloroethane	0.27	0.27	26	**0.184**	0.12 U	0.0508 UJL	**0.00342 JL**	0.00438 U	0.00473 U	**0.00377 J**	0.00496 U	**0.00394 JL**	0.00481 UJL	**0.00474 J**	0.00415 U	**0.0021 JL**	0.0587 UJL	0.00457 UJL	0.121 UJL	0.0016 U	0.19 U	**0.0076**	0.18 U	1.2 U	0.95 U	1 U	**0.023 J**	0.094 U
1,2,4-Trimethylbenzene	3.6	3.6	52	**0.174 J**	**0.964**	**0.14 JL**	0.00465 UJL	0.00438 U	0.00473 U	**0.00708**	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	5.89 JL	0.0055 U	**1.6**	0.0064 U	**0.12 J**	52	20	140	**0.054 J**	**0.028 J**
1,2-Dichloroethene, Total	NS	NS	NS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.0011 U	0.12 U	**0.0018**	0.12 U	0.83 U	0.63 U	0.69 U	0.075 U	0.063 U
1,3,5-Trimethylbenzene	8.4	8.4	52	0.46 U	**0.149 J**	**0.0629 JL**	0.00465 UJL	0.00438 U	0.00473 U	**0.00457 J**	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	**0.0695 JL**	0.0055 U	0.62 U	0.0064 U	0.61 U	20	10	**1.1 J**	**0.016 J**	**0.017 J**
Acetone	0.05	0.05	100	0.46 U	0.29 U	0.254 U	**0.0469 JL**	**0.0438**	0.0566	0.0281 U	0.0248 U	0.173 JL	**0.02 JL**	0.238	**0.049**	0.0209 UJL	0.294 U	0.0229 UJL	0.365 JL	0.04 U	4.5 U	**0.009 J**	4.4 U	30 U	23 U	25 U	2.7 U	2.3 U
Benzene	0.06	0.06	4.8	0.046 U	0.029 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	0.00561 U	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	0.121 UJL	0.0011 U	0.12 U	0.0013 U	0.12 U	0.46 J	0.26 J	0.69 U	**0.019 J**	0.063 U
Bromomethane	NS	NS	NS	0.18 U	0.12 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	0.00561 U	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	0.121 UJL	0.0022 U	0.25 U	0.0026 U	0.24 U	1.7 U	1.3 U	1.4 U	0.15 U	**0.046 J**
Carbon Disulfide	NS	NS	NS	0.46 U	0.29 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	**0.00606**	0.00496 U	0.00413 UJL	0.00481 UJL	**0.0112**	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	0.121 UJL	0.0011 U	1.2 U	**0.0025 J**	1.2 U	**1.8 J**	**1.4 J**	6.9 U	0.75 U	**0.13 J**
Chlorobenzene	1.1	1.1	100	0.18 U	0.12 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	0.00561 U	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	0.121 UJL	0.0011 U	0.12 U	0.0013 U	0.12 U	0.83 U	0.63 U	0.69 U	0.075 U	0.063 U
Chloroethane	NS	NS	NS	0.46 U	0.29 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	0.00561 U	0.00496 U	0.00413 UJL	**0.00381 JL**	**0.00605**	0.00415 U	0.00417 UJL	0.0587 UJL	**0.0197 JL**	0.121 UJL	0.0022 U	0.25 U	0.0026 U	0.24 U	1.7 U	1.3 U	1.4 U	0.15 U	0.13 U
Chloroform	0.37	0.37	49	0.18 U	0.12 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	0.00561 U	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	0.121 UJL	0.0016 U	0.19 U	0.0019 U	0.18 U	1.2 U	0.95 U	1 U	0.11 U	0.094 U
Cis-1,2-Dichloroethene	0.25	0.25	100	0.18 U	0.12 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	0.00561 U	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	**0.00555 JL**	0.121 UJL	0.0011 U	0.12 U	**0.0018**	0.12 U	0.83 U	0.63 U	0.69 U	0.075 U	0.063 U
Cyclohexane	NS	NS	NS	—	—	0.254 UJL	0.0233 UJL	0.0219 U	0.0236 U	0.0281 U	0.0248 U	0.0206 UJL	0.024 UJL	0.025 U	0.0208 U	0.0209 UJL	**0.355 JL**	0.0229 UJL	0.605 UJL	—	—	—	—	—	—	—	—	—	—
Cyclohexane, methyl-	NS	NS	NS	—	—	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	**0.228**	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	**1.54**	0.00457 UJL	**2.66 JL**	—	—	—	—	—	—	—	—	—	—
Ethylbenzene	1	1	41	0.18 U	0.12 U	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	**0.00431 J**	0.00496 U	0.00413 UJL	0.00481 UJL	0.00501 U	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	0.121 UJL	**0.0012**	0.12 U	0.0013 U	0.12 U	0.83 U	0.63 U	0.69 U	**0.028 J**	0.063 U
Isopropylbenzene	NS	NS	NS	**0.0865 J**	**0.15 J**	0.0508 UJL	0.00465 UJL	0.00438 U	0.00473 U	**0.00675**	0.00496 U	0.00413 UJL	0.00481 UJL	**0.0101**	0.00415 U	0.00417 UJL	0.0587 UJL	0.00457 UJL	**0.536 JL**	0.0011 U	0.12 U

Table 2 - Summary of Groundwater Analytical Data (Detections Only)
BCP Site No. C828162B
5 Flint Street, Rochester, New York

Well ID	NYSDEC GA AWQSGV µg/l	BW-01			DEC MW-1		DEC MW-2		MW-01		MW-02		MW-03	MW-04					MW-09			MW-10		SB-009	SB-015	SB-016	SB-017	SB-020	SB-046
Sample ID		BW-01	BW-01	RX-BW01-01	DEC MW-1	DEC MW-1	DEC MW-2	DEC MW-2	MW-01	RXMW-01-01	MW-02	RXMW-02-01	MW-03	MW-04	MW-04	RX-MW4-01	MW-04		MW-09	MW-09D	RX-MW09-01	MW-10	RXMW-10-01	SB-009	SB-015A	SB-016C	SB-017A	SB-020	SB-046B
Lab Sample ID		152238-01	154937-01	L1721958-09	0002L553-002	152266-02	0002L553-003	152311-01	152366-01	L1721958-06	152266-01	L1721958-07	152340-02	152366-02	154937-04	L1721958-01	R2006768-003		152238-02	152238-03	L1721958-08	152311-02	L1721958-05	M75205-4	M75205-6	M75205-5	M75205-7	M75205-8	M75205-9
Sample Date		6/4/2015	11/18/2015	6/29/2017	2/23/2000	6/5/2015	2/23/2000	6/9/2015	6/11/2015	6/29/2017	6/5/2015	6/29/2017	6/10/2015	6/11/2015	11/19/2015	6/27/2017	7/30/2020		6/4/2015	6/4/2015	6/29/2017	6/9/2015	6/29/2017	7/9/2008	7/9/2008	7/9/2008	7/9/2008	7/9/2008	7/9/2008
METALS (µg/l)																													
Aluminum	NS	**518**	**1080**	10 U	**7380 N**	200 U	**4210 N**	200 U	200 U	**10.4**	**1080**	10 U	200 U	200 U	200 U	**7.7 J**	—		200 U	200 U	**4.05 J**	**484**	10 U	—	—	—	—	—	—
Antimony	3	60 U'	60 U'	4 U'	—	60 U'	—	60 U'	60 U'	**0.43 J**	60 U'	4 U'	60 U'	60 U'	60 U'	**0.54 J**	—		60 U'	60 U'	4 U'	60 U'	4 U'	6 U'	**1.5 B**	6 U'	6 U'	**2.2 B**	**1.3 B**
Arsenic	25	10 U	10 U	**0.43 J**	**7.6 B**	**21.8**	**17**	**25.6**	**12.6**	**10.03**	**13.8**	**7.87**	**22.4**	**20**	**6.8 J**	**8.44**	—		10 U	**7.2 J**	**12.12**	**24.5**	**5.65**	**1.4 B**	**2.7 B**	**22.9**	**51.8**	**53.8**	**45**
Barium	1000	**86 J**	**66.9 J**	**41.12**	**202**	**192**	**246**	**178**	**105**	**93.97**	**135**	**88.47**	**147**	**176**	**89.2 J**	**154.4**	—		**87.2 J**	**88.6 J**	**86.3**	**149**	**147.2**	—	—	—	—	—	—
Beryllium	3	5 U'	5 U'	0.3 U	**0.68 B**	5 U'	**0.44 B**	5 U'	5 U'	0.3 U	5 U'	0.3 U	5 U'	5 U'	5 U'	0.3 U	—		5 U'	5 U'	0.3 U	5 U'	0.3 U	4 U'	4 U'	4 U'	**0.9 B**	4 U'	4 U'
Cadmium	5	5 U	5 U	0.2 U	—	5 U	**0.87 B**	5 U	5 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U	0.2 U	—		5 U	5 U	0.2 U	5 U	0.2 U	4 U	4 U	4 U	**1.2 B**	4 U	**0.4 B**
Calcium	NS	**101000**	**95900**	**65900**	**212000**	**285000**	**158000**	**182000**	**357000**	**267000**	**248000**	**264000**	**218000**	**150000**	**127000**	**182000**	—		**188000**	**199000**	**208000**	**186000**	**193000**	—	—	—	—	—	—
Chromium	50	10 U	10 U	**0.22 J**	**10 B**	10 U	**7.6 B**	10 U	10 U	**1.77**	10 U	**0.34 J**	10 U	**20.4**	10 U	**0.36 J**	—		10 U	10 U	**0.36 J**	10 U	**0.49 J**	10 U	10 U	**2 B**	**25.6**	10 U	**2.5 B**
Cobalt	NS	50 U	50 U	0.5 U	**6.3 B**	50 U	**4.4 B**	50 U	50 U	**2.8**	50 U	**1.24**	50 U	50 U	50 U	**0.89**	—		50 U	50 U	**2.9**	50 U	**0.75**	—	—	—	—	—	—
Copper	200	25 U	25 U	1 U	**15.2 B**	25 U	**19.4 B**	25 U	25 U	**0.72 J**	25 U	**0.45 J**	25 U	25 U	25 U	**0.48 J**	—		25 U	25 U	**0.66 J**	25 U	1 U	**2.7 B**	25 U	**4.1 B**	**34.1**	25 U	**4.2 B**
Iron	300	**13100**	**4820**	**2740**	**21700**	**43700**	**18700**	**8890**	**3990**	**9260**	**7520**	**8530**	**9190**	**11600**	**2780**	**13100**	—		**4040**	**4390**	**9480**	**14300**	**8160**	—	—	—	—	—	—
Lead	25	10 U	10 U	1 U	**11.1**	10 U	**15.9**	10 U	10 U	1 U	10 U	1 U	10 U	10 U	10 U	**0.76 J**	—		10 U	10 U	1 U	10 U	1 U	5 U	5 U	**3.7 B**	**123**	5 U	**2.5 B**
Magnesium	35000	**62400**	**57000**	—	**76200**	**57000**	**50500**	**59300**	**125000**	—	**56800**	—	**50900**	**32500**	**29200**	**44700**	—		**60700**	**62200**	—	**60000**	—	—	—	—	—	—	—
Manganese	300	**50.2**	**52.8**	**119.2**	**1130 N**	**1320**	**1730 N**	**1990**	**1020**	**1276**	**1160**	**861.4**	**682**	**561**	**115**	**578.3**	—		**1430**	**1380**	**1755**	**4020**	**4242**	—	—	—	—	—	—
Mercury	0.7	0.2 U	0.2 U	0.05 U	—	0.2 U	—	0.2 U	0.2 U	0.05 U	0.2 U	0.05 U	0.2 U	0.2 U	0.2 U	**0.101 J**	0.05 U		0.2 U	0.2 U	0.2 U	**0.17 B**	**0.043 B**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	100	40 U	40 U	2 U	**19.4 B**	40 U	**13.1 B**	40 U	40 U	**4.96**	40 U	**1.71 J**	40 U	40 U	40 U	**1.14 J**	—		40 U	40 U	**2.91**	40 U	**0.8 J**	**3.6 B**	**2.2 B**	**4.5 B**	**46.1**	**2.4 B**	**4.8 B**
Potassium	NS	**2430 J**	**2420 J**	**4090**	**5090 E**	**18500**	**6480 E**	**3760**	**4380**	**3160**	**3210**	**2840**	**29400**	**12100**	**9710**	**11800**	—		**4160**	**4170**	**4140**	**3150**	**2820**	—	—	—	—	—	—
Selenium	10	**5.23 J**	10 U	5 U	—	**17.9**	—	**7.48 J**	**11.4**	5 U	**7.3 J**	5 U	**8.96 J**	**6.52 J**	**8.31 J**	5 U	—		10 U	10 U	5 U	10 U	5 U	10 U	**2.6 B**	10 U	10 U	**2.2 B**	10 U
Sodium	20000	**78100**	**71300**	**63300**	**23600**	**18800**	**10800**	**18600**	**20600**	**15400**	**17500**	**15700**	**88100**	**21900**	**18000**	**18900**	—		**26100**	**25200**	**17600**	**20400**	**14000**	—	—	—	—	—	—
Thallium	0.5	25 U'	25 U'	0.5 U	—	25 U'	—	25 U'	25 U'	0.5 U	25 U'	0.5 U	25 U'	25 U'	25 U'	0.5 U	—		25 U'	25 U'	0.5 U	25 U'	0.5 U	**1.7 B**	10 U'	10 U'	10 U'	10 U'	10 U'
Vanadium	NS	25 U	25 U	5 U	**12 B**	25 U	**8.5 B**	25 U	25 U	5 U	25 U	5 U	25 U	25 U	25 U	**1.76 J**	—		25 U	25 U	5 U	25 U	5 U	—	—	—	—	—	—
Zinc	2000	60 U	60 U	10 U	**149 E**	60 U	**263 E**	60 U	60 U	10 U	60 U	10 U	60 U	60 U	**55.6 J**	**12.1**	—		60 U	60 U	**13.1**	60 U	10 U	**28.6**	**8.5 B**	**39.9**	**229**	**11.5 B**	**20.1**
PERFLOURINATED COMPOUNDS (µg/l)																													
Perfluorobutanoic Acid (PFBA)	NS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	**0.0016 J**		—	—	—	—	—	—	—	—	—	—	—
Perfluorohexanesulfonic Acid (PFHxS)	NS	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	**0.0014 J**		—	—	—	—	—	—	—	—	—	—	—
Perfluorooctanesulfonic Acid (PFOS)	0.0027	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	**0.0021**		—	—	—	—	—	—	—	—	—	—	—
Perfluorooctanoic acid (PFOA)	0.0067	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	**0.00074 J**		—	—	—	—	—	—	—	—	—	—	—
PESTICIDES (µg/l)																													
Alpha BHC (Alpha Hexachlorocyclohexane)	0.01	0.1 U'	0.02 U'	—	—	0.1 U'	—	0.1 U'	0.1 U'	—	**0.0574 J**	—	**0.0607 J**	—	0.02 U'	—	—		0.1 U'	0.1 U'	—	—	—	0.053 U'	0.053 U'	0.054 U'	0.053 U'	0.063 U'	0.053 U'
Beta BHC (Beta Hexachlorocyclohexane)	0.04	0.1 U'	0.02 U'	—	—	**0.126**	—	**0.0512 J**	0.1 U'	—	0.1 U'	—	0.1 U'	—	0.02 U'	—	—		0.1 U'	0.1 U'	—	—	—	0.053 U'	0.053 U'	0.054 U'	0.053 U'	0.063 U'	0.053 U'
Beta Endosulfan	NS	0.1 U	0.04 U	—	—	0.1 U	—	0.1 U	0.1 U	—	0.1 U	—	**0.0517 J**	—	0.04 U	—	—		0.1 U	0.1 U	—	—	—	0.053 U	0.053 U	0.054 U	0.053 U	0.063 U	0.053 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	0.1 U'	0.02 U'	—	—	**0.0706 J**	—	0.1 U'	**0.0512 J**	—	**0.0747 J**	—	**0.0681 J**	—	0.02 U'	—	—		**0.106**	**0.0655 J**	—	—	—	0.053 U'	0.053 U'	0.054 U'	0.053 U'	0.063 U'	0.053 U'
Heptachlor Epoxide	0.03	0.1 U'	0.02 U'	—	—	0.1 U'	—	0.1 U'	**0.0908 J**	—	0.1 U'	—	0.1 U'	—	0.02 U'	—	—		0.1 U'	0.1 U'	—	—	—	0.053 U'	0.053 U'	0.054 U'	0.053 U'	0.063 U'	0.053 U'
Methoxychlor	35	0.1 U	0.2 U	—	—	0.1 U	—	**0.0592 J**	0.1 U	—	0.1 U	—	0.1 U	—	0.2 U	—	—		0.1 U	0.1 U	—	—	—	0.053 U	0.053 U	0.054 U	0.053 U	0.063 U	0.053 U
P,P'-DDD	0.3	0.1 U	0.04 U	—	—	**0.0661 J**	—	0.1 U	0.1 U	—	**0.0635 J**	—	0.1 U	—	0.04 U	—	—		**0.0622 J**	**0.0698 J**	—	—	—	0.053 U	0.053 U	0.054 U	0.053 U	0.063 U	0.053 U
SEMI-VOLATILE ORGANIC COMPOUNDS SIMS (µg/l)																													
1,4-dioxane	0.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	**3.2**		—	—	—	—	—	—	—	—	—	—	—
SEMI-VOLATILE ORGANIC COMPOUNDS (µg/l)																													
2,4-Dimethylphenol	50	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	11 U	10 U	10 U	11 U	**12.9**	**14.2**
3&4-Methylphenol	NS	10 U	10 U	—	—	**8.78 J**	**0.8 J**	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	—	—	—	—	—	—
Acenaphthene	20	10 U	10 U	—	—	10 U	**0.6 J**	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	**8.7**	5.3 U	5.3 U	5 U
Acenaphthylene	20	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	**2.2 J**	5.3 U	5.3 U	5 U
Anthracene	50	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	**21.4**	**1.1 J**	5.3 U	5 U
Benzo(a)anthracene	0.002	10 U'	10 U'	—	—	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	**1.3 J**	**3.1 J**	**45.7**	**4.3 J**	5.3 U'	5 U'
Benzo(a)pyrene	ND	10 U'	10 U'	—	—	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	**1.2 J**	**2.8 J**	**36.8**	**3.9 J**	5.3 U'	5 U'
Benzo(a)fluoranthene	0.002	10 U'	10 U'	—	—	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	**1.3 J**	**2.9 J**	**33.1**	**4.5 J**	5.3 U'	5 U'
Benzo(g,h,i)perylene	NS	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	**1.8 J**	**22.7**	**2.8 J**	5.3 U	5 U
Benzo(k)fluoranthene	0.002	10 U'	10 U'	—	—	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	5.3 U'	**1.9 J**	**29**	**2.6 J**	5.3 U'	5 U'
bis(2-Ethylhexyl) phthalate	5	10 U'	10 U'	—	—	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	**111**	**28.4**	**60.4**	**10.5**	**15.4**	**6.1**
Caprolactam	NS	10 U	**5.82 J**	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	**32.8**	—	—		10 U	10 U	—	10 U	—	—	—	—	—	—	—
Carbazole	NS	10 U	10 U	—	—	10 U	**0.9 J**	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	—	—	—	—	—	—
Chrysene	0.002	10 U'	10 U'	—	—	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	**1.2 J**	**3 J**	**43.1**	**4.7 J**	5.3 U'	5 U'
Dibenz(a,h)anthracene	NS	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	**8.4**	**1.3 J**	5.3 U	5 U
Dibenzofuran	NS	10 U	10 U	—	—	**0.6 J**	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	—	—	—	—	—	—
Diethyl Phthalate	50	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	5.2 U	5.3 U	5.3 U	**2.2 J**
Di-n-butyl phthalate	50	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	5.2 U	**0.57 J**	5.3 U	5 U
Di-n-octylphthalate	NS	10 U	10 U	—	—	10 U	**0.8 J**	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	5.2 U	5.3 U	5.3 U	5 U
Fluoranthene	50	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	**2.3 J**	**5.8**	**92**	**8.7**	5.3 U	5 U
Fluorene	50	10 U	10 U	—	—	10 U	**0.8 J**	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	5 U	**10.4**	**0.89 J**	**0.87 J**	5 U
Indeno(1,2,3-cd)pyrene	0.002	10 U'	10 U'	—	—	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	5.3 U'	**2.1 J**	**25.9**	**3.1 J**	5.3 U'	5 U'
Naphthalene	10	10 U	10 U	—	—	10 U	**1 J**	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	5.3 U	**0.92 J**	**4.9 J**	**0.72 J**	**10.4**	**20**
Phenanthrene	50	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	**1.4 J**	**2.7 J**	**80.9**	**5.7**	**1.9 J**	**1.9 J**
Phenol	1	10 U'	10 U'	—	**7 J**	10 U'	—	10 U'	10 U'	—	10 U'	—	10 U'	10 U'	10 U'	—	—		10 U'	10 U'	—	10 U'	—	5.3 U'	5 U'	5.2 U'	5.3 U'	5.3 U'	**5.1**
Pyrene	50	10 U	10 U	—	—	10 U	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	**2.2 J**	**5.2**	**79.1**	**7.5**	5.3 U	5 U
TOTAL PETROLEUM HYDROCARBONS (µg/l)																													
Total Petroleum Hydrocarbons	NS	—	—	—	**3700**	—	ND	—	—	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—
VOLATILE ORGANIC COMPOUNDS (µg/l)																													
1,1,1-Trichloroethane	5	—	2 U	0.5 U	—	2 U	—	2 U	**31**	**26**	2 U	0.5 U	2 U	2 U	**1.33 J**	**0.31 J**	—		2 U	2 U	**6.2**	2 U	0.5 U	1 U	**2.4**	1 U	1 U	1 U	1 U
1,1,2-Trichloroethane	1	—	2 U'	0.75 U	**2 J**	2 U'	—	2 U'	2 U'	0.75 U	2 U'	0.75 U	2 U'	2 U'	2 U'	0.75 U	—		2 U'	2 U'	0.75 U	2 U'	0.75 U	1 U	1 U	1 U	1 U	1 U	1 U
1,1-Dichloroethane	5	—	2 U	0.75 U	**7 J**	2 U	**13**	**7.49**	**79.1**	**61**	**1.75 J**	**1**	2 U	**9.83**	**21.1**	**10**	—		**33.2**	**31.5**	**56**	2 U	0.75 U	**1.4**	**11.8**	**2.1**	**0.94 J**	**2.7**	**2.9**
1,1-Dichloroethene	5	—	2 U	0.5 U	—	2 U	—	2 U	2 U	**0.19 J**	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	**0.32 J**	2 U	0.5 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trimethylbenzene	5	—	2 U	**0.5 J**	—	**69.1**	—	2 U	2 U	2.5 U	2 U	2.5 U	2 U	2 U	2 U	2.5 U	—		2 U	2 U	2.5 U	2 U	2.5 U	**4.3 J**	5 U	**1 J**	**78.9**	**313**	**916**
1,2-Dichloroethane	0.6	—	2 U'	0.5 U	—	2 U'	—	2 U'	2 U'	0.5 U	2 U'	0.5 U	2 U'	2 U'	2 U'	0.5 U	—		2 U'	2 U'	**0.27 J**	2 U'	0.5 U	1 U'	1 U'	1 U'	1 U'	1 U'	1 U'
1,2-Dichloroethene, Total	NS	—	—	0.5 U	—	—	—	—	—	**14 J**	—	0.5 U	—	—	—	**0.49 J**	—		—	—	**39**	—	0.5 U	—	—	—	—	—	—
1,3,5-Trimethylbenzene	5	—	2 U	2.5 U	—	**14.9**	—	2 U	2 U	2.5 U	2 U	2.5 U	2 U	2 U	2 U	2.5 U	—		2 U	2 U	2.5 U	2 U	2.5 U	5 U	5 U	5 U	**18.5**	**179**	**378**
2-Hexanone	50	—	5 U	5 U	—	5 U	—	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	—		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	50	—	10 U	5 U	**28 B**	10 U	**14 B**	10 U	10 U	5 U	10 U	5 U	10 U	10 U	10 U	5 U	—		**7.42 J**	**5.82 J**	5 U	10 U	5 U	5 U	5 U	**6.8**	5 U	**12.1**	**62**	5 U
Benzene	1	—	1 U	**0.4 J**	**95**	**21.6**	—	1 U	1 U	0.5 U	0.7 U	0.5 U	1 U	1 U	1 U	0.5 U	—		0.7 U	0.7 U	**0.75**	1 U	0.5 U	0.5 U	0.5 U	**0.54**	0.5 U	**0.23 J**	**13.3**	**397**
Carbon Disulfide	60	—	2 U	5 U	—	2 U	—	2 U	2 U	5 U	2 U	5 U	2 U	2 U	2 U	5 U	—		2 U	2 U	5 U	2 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	—	2 U	0.5 U	—	2 U	—	2 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	0.5 U	2 U	0.5 U	1 U	1 U	1 U	1 U	**1.5**	**0.31 J**
Chloroethane	5	—	2 U	**4.6**	—	2 U	—	2 U	**2.89**	**10**	2 U	1 U	2 U	**4.68**	**4.28**	**15**	—		**5.66**	**4.54**	**36**	2 U	1 U	2 U	2 U	2 U	2 U	2 U	**18.6**
Chloromethane	5	—	2 U	2.5 U	—	2 U	—	2 U	2 U	2.5 U	2 U	2.5 U	2 U	2 U	2 U	2.5 U	—		2 U	2 U	2.5 U	2 U	2.5 U	2 U	2 U	2 U	2 U	2 U	**0.93 J**
Cis-1,2-Dichloroethene	5	—	2 U	0.5 U	—	2 U	—	2 U	**13.4**	**13**	2 U	0.5 U	2 U	2 U	2 U	**0.49 J**	—		**15.7**	**16.1**	**38**	2 U	0.5 U	1 U	**3.8**	1 U	1 U	**0.7 J**	**2.7**
Cyclohexane	NS	—	10 U	—	—	**25.2**	—	10 U	10 U	—	10 U	—	10 U	10 U	10 U	—	—		10 U	10 U	—	10 U	—	—	—	—	—	—	—
Cyclohexane, methyl-	NS	—	2 U	—	—	**13.9**	—	2 U	2 U	—	2 U	—	2 U	2 U	2 U	—	—		2 U	2 U	—	2 U	—	—	—	—	—	—	—
Ethylbenzene	5	—	2 U	0.5 U	**49**	**1.66 J**	—	2 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	0.5 U	2 U	0.5 U	1 U	1 U	1 U	**0.31 J**	**3**	**2350**
Isopropylbenzene	5	—	2 U	0.5 U	—	**3.24**	—	2 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	0.5 U	2 U	0.5 U	5 U	5 U	5 U	5 U	**15.4**	**48.1**
m&p-Xylenes	NS	—	—	**0.33 J**	—	**64.6**	—	—	2 U	1 U	2 U	1 U	—	—	—	1 U	—		2 U	2 U	1 U	—	1 U	—	—	—	—	—	—
Methyl Ethyl Ketone	50	—	10 U	5 U	—	10 U	—	10 U	10 U	5 U	10 U	5 U	**21.2**	10 U	10 U	5 U	—		10 U	10 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	**90.7**	**4.9 J**
Methyl Tert-Butyl Ether	10	—	2 U	**0.19 J**	—	2 U	—	2 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U	1 U	—		2 U	2 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methylcyclohexane	NS	—	2 U	—	—	**13.9**	—	2 U	2 U	—	2 U	—	2 U	2 U	2 U	—	—		2 U	2 U	—	2 U	—	—	—	—	—	—	—
Methylene Chloride	5	—	5 U	3 U	**8 JB**	5 U	**8 JB**	5 U	5 U	3 U	5 U	3 U	5 U	5 U	5 U	3 U	—		5 U	5 U	3 U	5 U	3 U	2 U	2 U	2 U	2 U	2 U	2 U
Naphthalene	10	—	5 U	2.5 U	—	5 U	—	5 U	**3.85 J**	**1.1 J**	5 U	**0.65 J**	5 U	5 U	5 U	**0.52 J**	—		5 U	5 U	**0.64 J**	5 U	2.5 U	**1.6 J**	**3.6 J**	**1.7 J**	**1.4 J**	**13.6**	**40.8**
N-Butylbenzene	5	—	2 U	0.5 U	—	2 U	—	2 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	0.5 U	2 U	0.5 U	5 U	5 U	5 U	**1.7 J**	**14.2**	**22.2**
N-Propylbenzene	5	—	2 U	0.5 U	—	**3.18**	—	2 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	0.5 U	2 U	0.5 U	5 U	5 U	5 U	5 U	**17.9**	**51.4**
o-Xylene	5	—	2 U	1 U	—	**26.1**	—	2 U	2 U	**0.41 J**	2 U	**0.41 J**	2 U	2 U	2 U	1 U	—		2 U	2 U	**0.42 J**	2 U	**0.41 J**	—	—	—	—	—	—
P-Isopropyltoluene	5	—	2 U	0.5 U	—	2 U	—	2 U	2 U	0.5 U	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	0.5 U	2 U	0.5 U	5 U	5 U	5 U	5 U	**8.8**	**14.2**
Sec-Butylbenzene	5	—	2 U	0.5 U	—	2 U	—	2 U	2 U	**0.24 J**	2 U	0.5 U	2 U	2 U	2 U	0.5 U	—		2 U	2 U	**0.4 J**	2 U	0.5 U	5 U	5 U	**0.44 J**	**2 J**	**5.6**	**11**
Tert-Butylbenzene	5	—	2 U	2.5 U	—	2 U	—	2 U	2 U	2.5 U	2 U	2.5 U	2 U	2 U	2 U	2.5 U	—		2 U	2 U	**0.3 J**	2 U	2.5 U	5 U	5 U	5 U	**1.5 J**	**2.5 J**	**2.4 J**
Toluene	5	—	2 U	0.75 U	**4 J**	2 U	—	2 U	2 U	0.75 U	2 U	0.75 U	2 U	2 U	2 U	0.75 U	—		2 U	2 U	0.75 U	2 U	0.75 U	1 U	**0.58 J**	**20.5**	**0.22 J**	**2.8**	**14.4**
Trans-1,2-Dichloroethene	5	—	2 U	0.75 U	—	2 U	—	2 U	2 U	**0.58 J**	2 U	0.75 U	2 U	2 U	2 U	0.75 U	—		2 U	2 U	**1.4**	2 U	0.75 U	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene	5	—	2 U	0.5 U	—	2 U	—	2 U	**14.2**	**14**	2 U	0.5 U	2 U	2 U	2 U	**0.78**	—		**16.4**	**16.4**	**59**	2 U	0.5 U	1 U	**8.9**	1 U	1 U	1 U	1 U
Vinyl Chloride	2	—	2 U	1 U	—	2 U	—	2 U	2 U	**0.12 J**	2 U	1 U	2 U	2 U	2 U	**0.89 J**	—		**4.86**	**4.39**	**21**	2 U	1 U	1 U	1 U	1 U	1 U	1 U	**2.2**
Xylenes, Total	5	—	—	**0.33 J**	**190**	—	—	—	—	**0.41 J**	—	**0.41 J**	—	—	—	1 U	—		—	—	**0.42 J**	—	**0.41 J**	**1.4**	**0.89 J**	**1.5**	**0.53 J**	**321**	**3830**

Notes:
NYSDEC GA AWQSGV = New York State Department of Environmental Conservation Class GA Ambient Water Quality Standards and Guidance Values taken from June 1998 Memorandum, Part 1, Table 1 and any applicable amendments.
µg/l = Micrograms per liter.
Grey shaded concentrations exceed the NYSDEC GA Ambient Water Quality Standards & Guidance Values.
ND = The analyte was not detected in the sample, but a laboratory reporting limit is not provided OR the standard is non detect (i.e., any detection exceeds the standard).
NS = No standard currently established.
Bold = Detected concentration.
— = For data after 2000, indicates sample not analyzed. For 2000 data, indicates either sample not analyzed or analyte not detected above the laboratory reporting limit (data compiled from detection summary table from 2001 NYSDEC Site Investigation Report).
B = Analyte also detected in the laboratory blank.
U = Not detected (value shown is laboratory reporting limit).
U' = Not detected (value shown is reporting limit, which in this case, exceeds the applicable regulatory standard or other criteria referenced herein).
J = Result below the reporting limit but greater than or equal to the method detection limit, and the concentration is an estimated value.
N (NYSDEC metals data only) = Spiked sample recovery not within control limits.
E (NYSDEC metals data only) = The reported value is estimated because of the presence of interference. Note: this is different than the E qualifier used for other methods in the same lab reports, which indicates the compound was detected beyond the calibration range and was subsequently analyz

Table 3 - Track 4 (Excavation and ISS Soil) Cleanup Objectives, Backfill, Cover, and Reuse Criteria.
BCP Site No. C828162B
5 Flint Street, Rochester, New York

Contaminant	CAS Number	Track 4 Soil Cleanup Objectives [a]
Metals (mg/kg)		
Arsenic	7440-38-2	16
Barium	7440-39-3	400
Beryllium	7440-41-7	47
Cadmium	7440-43-9	4.3
Chromium, hexavalent	18540-29-9	19
Chromium, trivalent	16065-83-1	180
Copper	7440-50-8	270
Total Cyanide		27
Lead	7439-92-1	400
Manganes	7439-96-5	2000
Total Mercury		0.73
Nickel	7440-02-0	130
Selenium	7782-49-2	4
Silver	7440-22-4	8.3
Zinc	7440-66-6	2480
PCBs/Pesticides (mg/kg)		
2,4,5-TP Acid (Silvex)	93-72-1	3.8
4,4'-DDE	72-55-9	8.9
4,4'-DDT	50-29-3	7.9
4,4'-DDD	72-54-8	13
Aldrin	309-00-2	0.097
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.09
Chlordane (alpha)	5103-71-9	2.9
delta-BHC	319-86-8	0.25
Dibenzofuran	132-64-9	59
Dieldrin	60-57-1	0.1
Endosulfan I	959-98-8	24
Endosulfan II	33213-65-9	24
Endosulfan sulfate	1031-07-8	24
Endrin	72-20-8	0.06
Heptachlor	76-44-8	0.38
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	1
Semivolatiles (mg/kg)		
Acenaphthene	83-32-9	98
Acenapthylene	208-96-8	100
Anthracene	120-12-7	100
Benz(a)anthracene	56-55-3	1
Benzo(a)pyrene	50-32-8	1
Benzo(b)fluoranthene	205-99-2	1
Benzo(g,h,i)perylene	191-24-2	100
Benzo(k)fluoranthene	207-08-9	1.7
Chrysene	218-01-9	1
Dibenz(a,h)anthracene	53-70-3	0.33
Fluoranthene	206-44-0	100
Fluorene	86-73-7	100
Indeno(1,2,3-cd)pyrene	193-39-5	0.5
m-Cresol	108-39-4	0.33
Naphthalene	91-20-3	12
o-Cresol	95-48-7	0.33
p-Cresol	106-44-5	0.33
Pentachlorophenol	87-86-5	0.8
Phenanthrene	85-01-8	100
Phenol	108-95-2	0.33
Pyrene	129-00-0	100

Table 3 - Track 4 (Excavation and ISS Soil) Cleanup Objectives, Backfill, Cover, and Reuse Criteria.
BCP Site No. C828162B
5 Flint Street, Rochester, New York

Volatiles (mg/kg)		
1,1,1-Trichloroethane	71-55-6	0.68
1,1-Dichloroethane	75-34-3	0.27
1,1-Dichloroethene	75-35-4	0.33
1,2-Dichlorobenzene	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02
cis-1,2-Dichloroethene	156-59-2	0.25
trans-1,2-Dichloroethene	156-60-5	0.19
1,3-Dichlorobenzene	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
Butylbenzene	104-51-8	12
Carbon tetrachloride	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene	100-41-4	1
Hexachlorobenzene	118-74-1	1.2
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n-Propylbenzene	103-65-1	3.9
sec-Butylbenzene	135-98-8	11
tert-Butylbenzene	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5- Trimethylbenzene	108-67-8	8.4
Vinyl chloride	75-01-4	0.02
Xylene (mixed)	1330-20-7	1.6
Perfluorinated Alkyl Acids (Concentrations in ng/g) [b]		
Perfluorooctanesulfonic acid (PFOS)		1
Perfluorooctanoic acid (PFOA)		0.8

Notes

µg/kg - Micrograms per kilogram

mg/kg - Milligrams per kilogram

ng/g - nanogram per gram

NYSDEC - New York State Department of Environmental Conservation

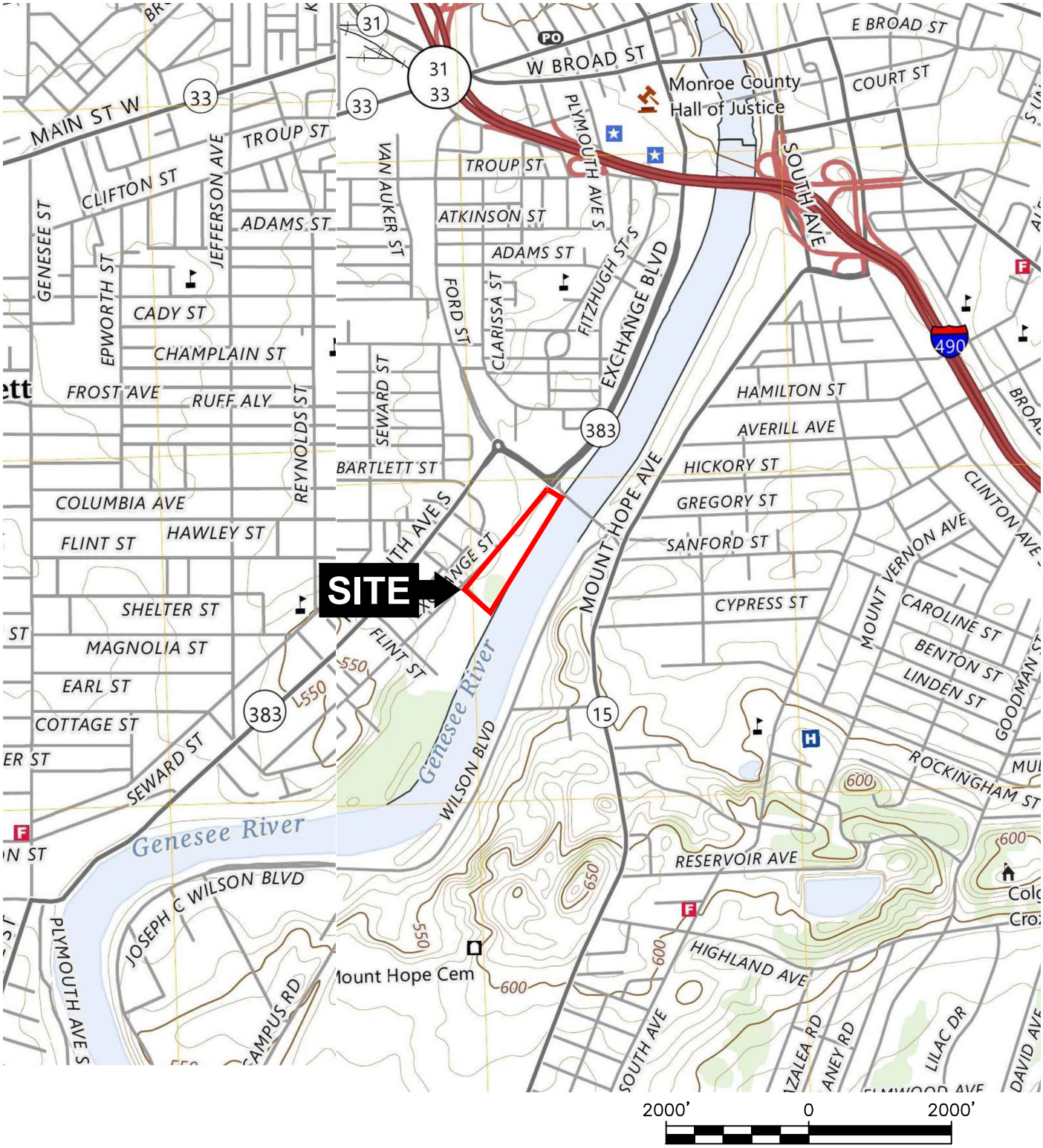
SCOs - Soil Cleanup Objectives

[a] Backfill, soil cover and reuse cleanup objectives for the Track 4 remedy are the lower of the NYSDEC Part 375 Restricted Residential or Protection of Groundwater from Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.

[b] Backfill, soil cover and reuse cleanup objectives for the track 4 remedy are lower of the NYSDEC's part 375 Remedial Programs Restricted Residential or Protection of Groundwater guidance values listed in Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), dated April 2023.

FIGURES

1. Site Location Map
2. Site Layout Map (Sample Locations, Boundaries, Tax Parcels, etc.)
3. Geologic Cross Section
4. Truck Routes
5. Lead Abatement Area (Fig 5a) & Building Materials Sampling Locations (Fig 5a-5e)
6. Site Security and Staging Plan



2000’ 0 2000’

QUADRANGLE LOCATION



N

Title:

SITE LOCATION MAP

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: CC	Date: 6/2/2025
Prepared by: CC	Scale: AS SHOWN
Project Mgr: ER	Project: 4694.0001B000
File: 4694.0001B000.104.01.DWG	

FIGURE 1

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T:\GIS_Projects\4694\0001B\000\MXD\104\4694.0001P000.104.03 - Remedial Investigation Summary.mxd

LEGEND

- NYSDEC SOIL GAS (2001)
- NYSDEC SURFACE SOIL I (2001)
- NYSDEC TEST PIT (2001)
- NYSDEC MONITORING WELL (2001)
- RAVI BEDROCK WELL (2014-2015)
- RAVI SOIL BORING (2014-2015)
- RAVI SOIL BORING/MONITORING WELL (2014-2015)
- RAVI TEST PIT (2014-2015)
- ROUX SOIL BORING (2017)
- ROUX SOIL BORING (2008)
- ROUX SOIL BORING / FORMER MONITORING WELL (2008)
- 5 FLINT STREET PROPERTY BOUNDARY

SOURCES
- AERIAL IMAGERY FROM CITY OF ROCHESTER'S OPEN DATA PORTAL

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

NOTES
- ALL FEATURES SHOWN ARE APPROXIMATE.

- 2008 ROUX SOIL BORING AND MONITORING WELL IDS SHOWN ON THIS FIGURE ARE THE ORIGINAL LOCATION ID (E.G., SB-016). THE IDS FOR SUBSEQUENT BORING ATTEMPTS DUE TO SHALLOW REFUSAL (E.G., SB-016A, SB-016B, ETC.) ARE NOT DISPLAYED ON THIS FIGURE.

- MW-1 AND MW-2 INSTALLED BY NYSDEC ARE DISPLAYED AS DEC MW-1 AND DEC MW-2, RESPECTIVELY, TO AVOID CONFUSION WITH MONITORING WELLS MW-1 AND MW-2 INSTALLED BY RAVI.

100 0 100 FEET

Title:

SITE LAYOUT MAP

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

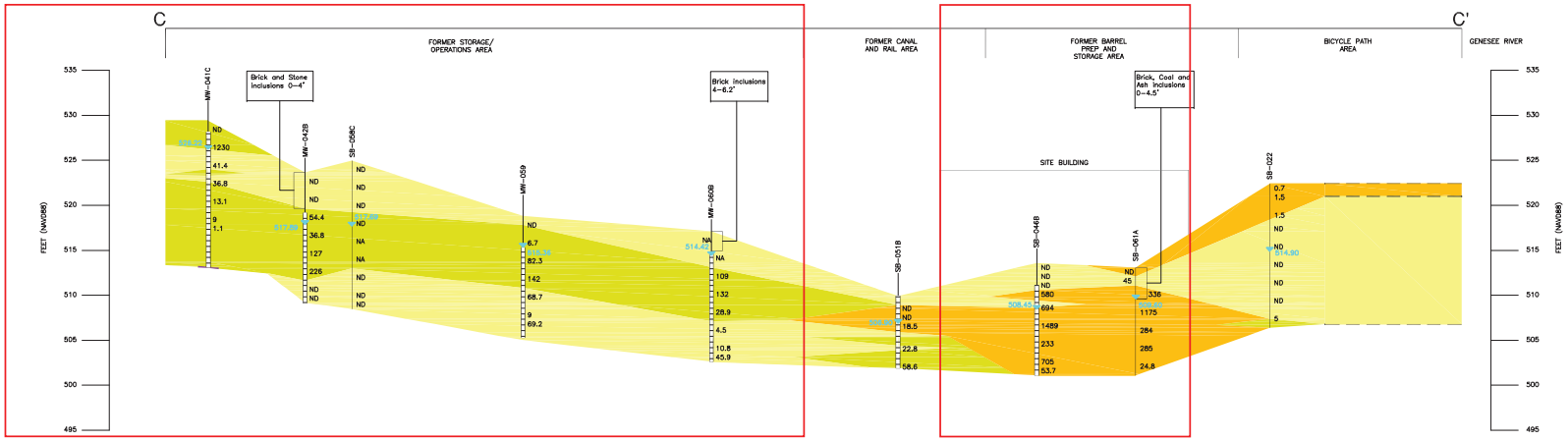
Prepared For:
5 FLINT STREET LLC

ROUX

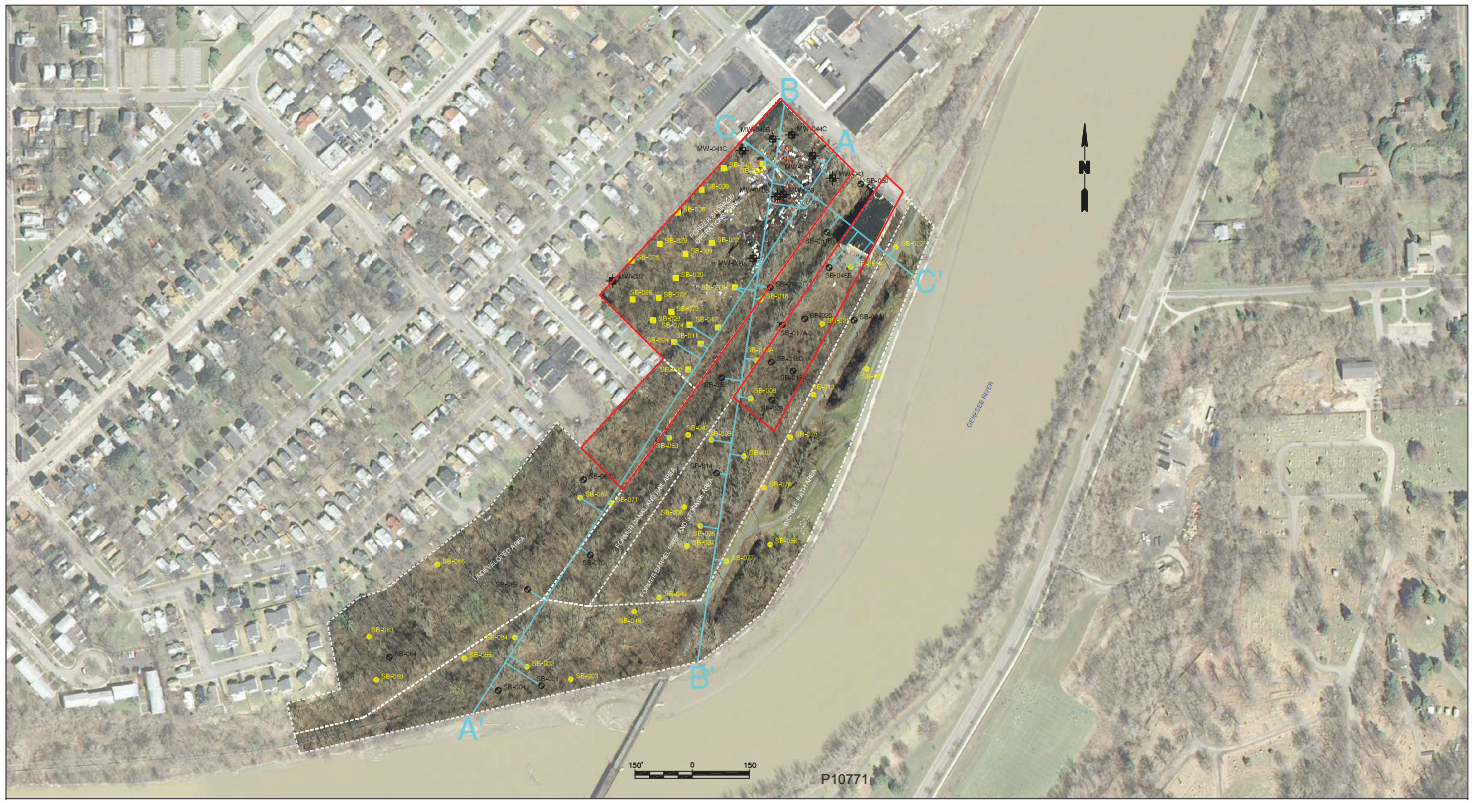
Compiled by: SB	Date: 30JAN25	FIGURE
Prepared by: SB	Scale: AS SHOWN	2
Project Mgr: ER	Project: 4694.0001P000	
File: 4694.0001P000.104.03 - Remedial Investigation		

15 Flint Street Property

5 Flint Street Property



LOCATION OF CROSS SECTION SHOWN BELOW



LEGEND

514.90 WATER TABLE ELEVATION IN FEET NAVD88 AS MEASURED ON JULY 8, 2008 OR OBSERVED IN BORING LOGS

SILT (WITH LITTLE-TO-SOME SAND)

SAND (WITH LITTLE-TO-SOME SILT)

SAND and SILT

GRAVEL/COBBLES

ORGANIC SOIL/PEAT

REFUSAL ENCOUNTERED

36.8 ND NA SOIL HEADSPACE SCREENING CONCENTRATIONS IN PARTS PER MILLION (ppm)
ND = NOT DETECTED
NA = NOT SCREENED

Soil boring completed with temporary well points (Labella)

Soil boring (Labella)

Soil boring completed with temporary well points (GES)

Soil boring (GES)

Site areas

VERTICAL 0' 5'
HORIZONTAL 0' 20'

NOTES:

Geology and boring/temporary well information based on descriptions provided in the Groundwater Environmental and Services, Inc. (GES) and Labella Associates, P.C. (Labella) soil borings and well logs.

Ground surface elevations based on surveys completed by GES and Labella as well as the 1978 USGS 7.5' Quadrangle.

REFERENCES:

2005 Aerial photograph obtained from New York State Geographic Information Systems Clearinghouse website http://www.nysgis.state.ny.us/

Historical features shown in light blue are georeferenced from 1892 and 1926 Sanborn maps.

Title:

GEOLOGIC CROSS SECTION C-C'

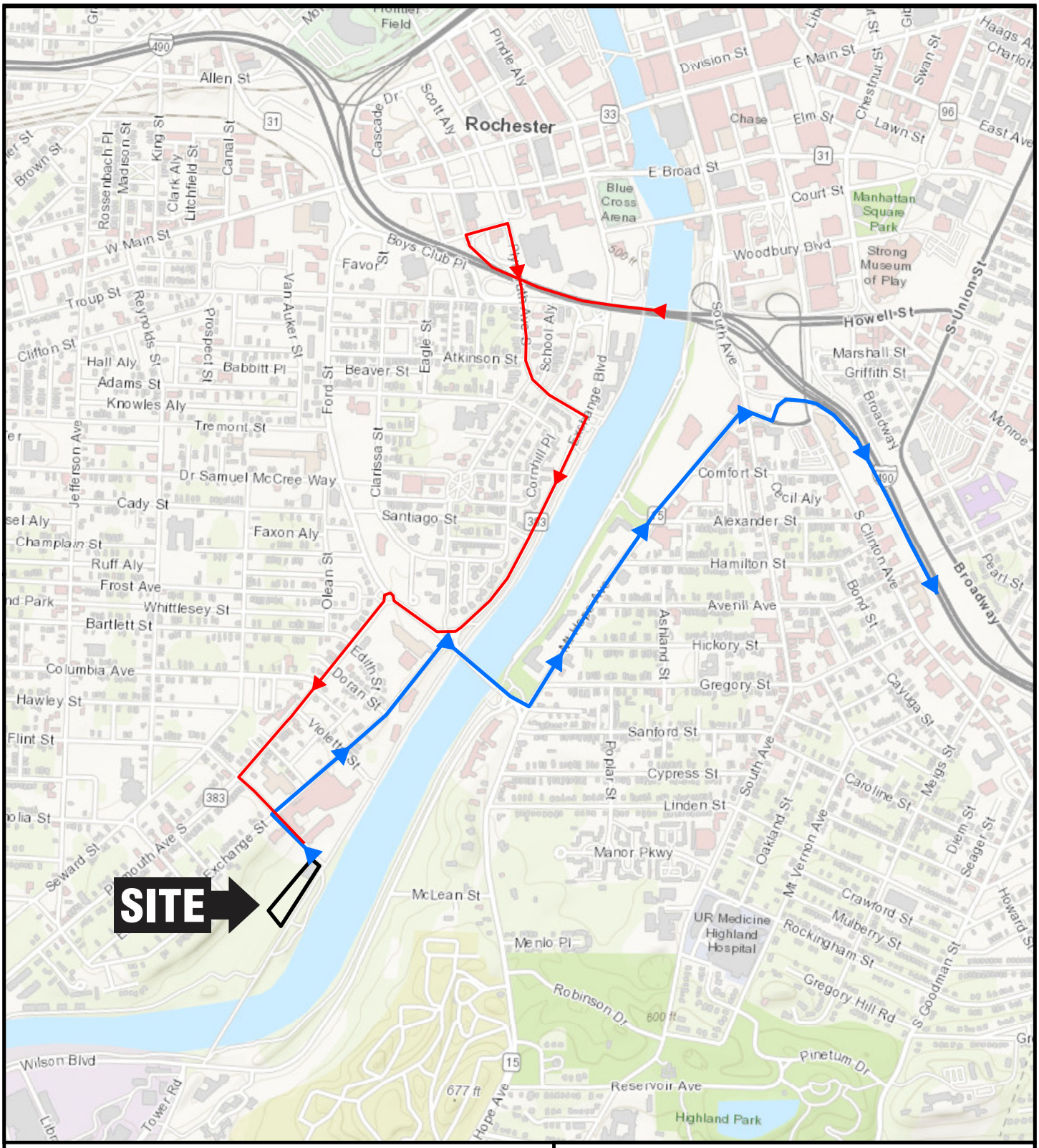
5 FLINT STREET
ROCHESTER, NEW YORK

Prepared For:

5 FLINT STREET LLC

ROUX ASSOCIATES, INC. Environmental Consulting & Management	Compiled by: JW	Date: 12/16/08	FIGURE
	Prepared by: WH	Scale: AS SHOWN	3
	Project Mgr: IR	Office: NA	
	File No: MC8010415	Project: 172180M02	

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DIRECTIONS INBOUND

1. ACCESS I-490 W PITTSFORD FROM NY-31 W/PALMYRA RD/PITTSFORD PALMYRA RD.
2. CONTINUE ON I-490 W TOWARDS SPRING STREET IN ROCHESTER
3. TAKE EXIT 14
4. TURN RIGHT ON S PLYMOUTH AVE, NY-383 S
5. TURN RIGHT ON FORD STREET
6. TAKE SECOND EXIT TOWARD S PLYMOUTH AVE
7. TAKE A LEFT ON FLINT STREET

DIRECTIONS OUTBOUND

HEAD NORTHEAST ON FLINT STREET TOWARDS EXCHANGE STREET
TURN RIGHT ON EXCHANGE STREET
TURN RIGHT ON FORD STREET
TURN LEFT TOWARDS NY-15 NORTH
STAY ON I-490 EAST
TAKE EXIT 26 TOWARD NY-31 E/PALMYRA RD/PITTSFORD PALMYRA RD TOWARD PERINTON HILLS OFFICE PARK.

N

1,000 0 1,000 FEET

Title:

TRUCK ROUTES

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

Prepared for:

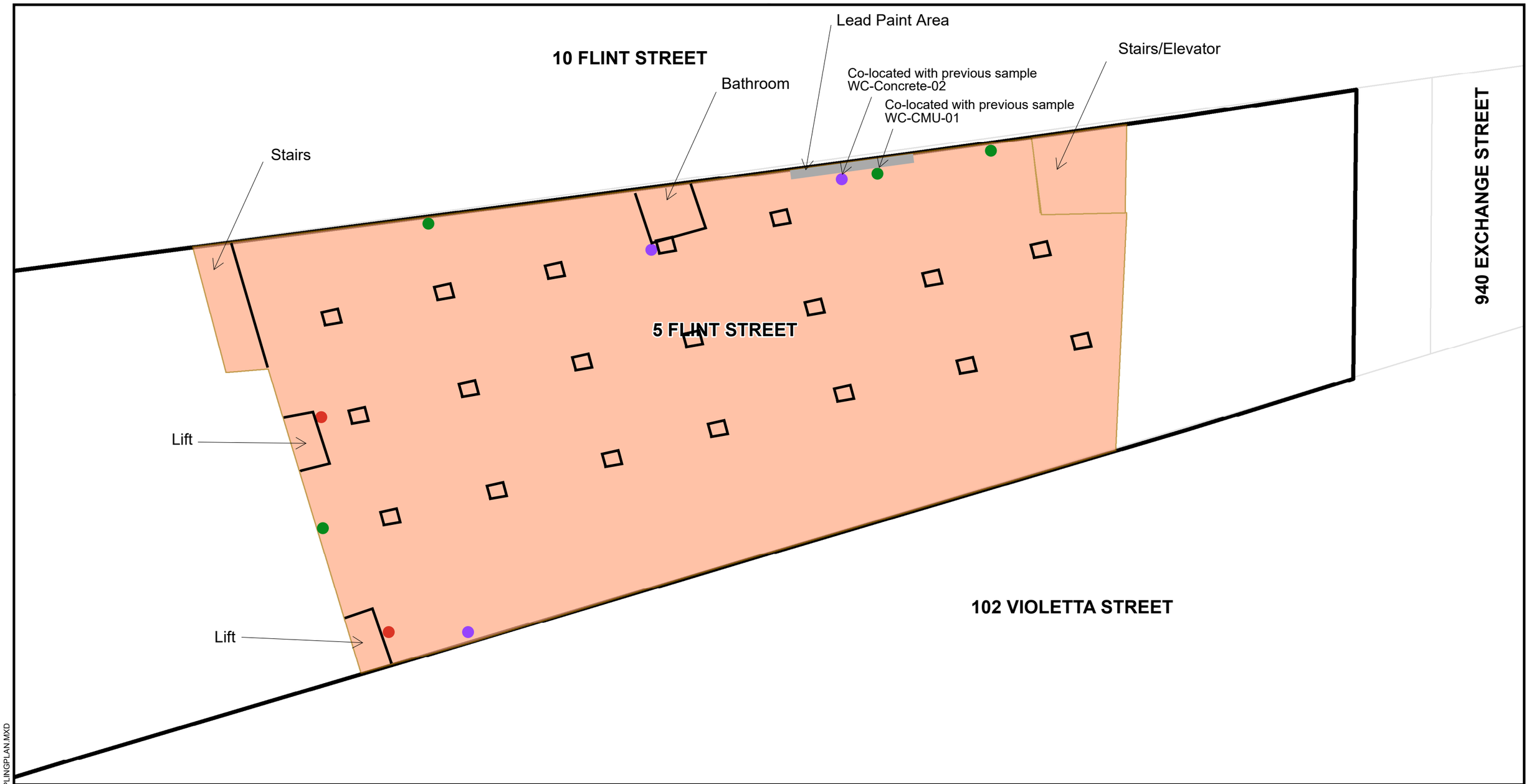
5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 09/05/24
Prepared by: SB	Scale: AS SHOWN
Project Mgr: IR	Project: 4694.0001B000
File: 4694.0001B000.100.010 - Truck Routes .mxd	

FIGURE 4

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LEGEND

- APPROXIMATE PROPERTY BOUNDARIES
- BCP SITE NO. C828162B
- EXISTING BUILDING / IMMEDIATE WORK AREA

- CMU Sample Location
- Reinforced Concrete Sample Location
- Fire Brick Sampling Location

NOTES

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

- ALL FEATURES DEPICTED ARE APPROXIMATE.

N

Title:

Pre Demo Sampling Plan

1st Floor

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

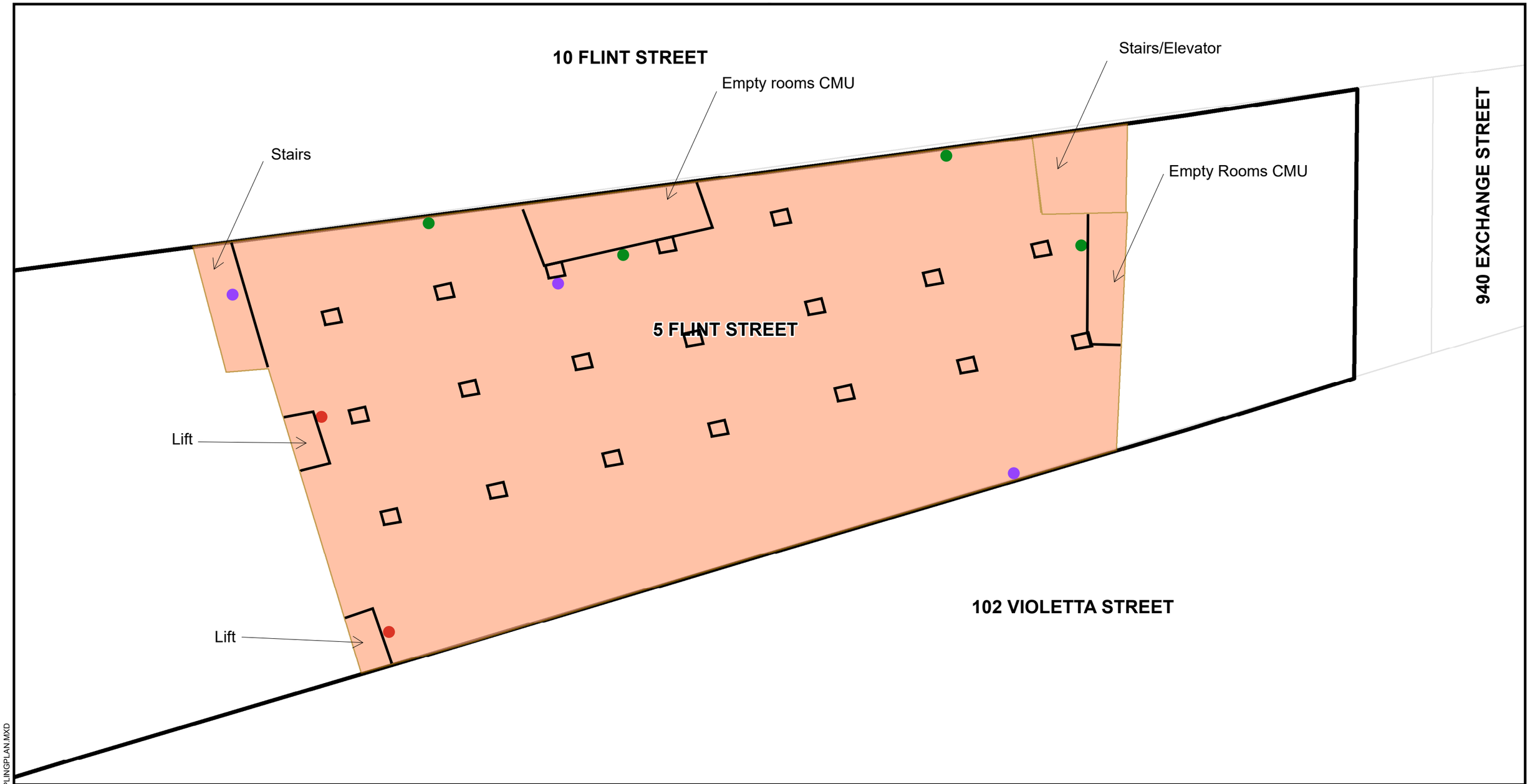
Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 08/13/25	FIGURE
Prepared by: SB	Scale: AS SHOWN	5a
Project Mgr: ER	Project: 4694.0001P000	
File: 20250813_BuildingSamplingPlan.mxd		

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LEGEND

- APPROXIMATE PROPERTY BOUNDARIES
- BCP SITE NO. C828162B
- EXISTING BUILDING / IMMEDIATE WORK AREA

- CMU Sample Location
- Reinforced Concrete Sample Location
- Fire Brick Sampling Location

NOTES

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

- ALL FEATURES DEPICTED ARE APPROXIMATE.

N

Title:

Pre Demo Sampling Plan

2nd Floor

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

Prepared for:
5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 08/13/25	FIGURE
Prepared by: SB	Scale: AS SHOWN	
Project Mgr: ER	Project: 4694.0001P000	5b
File: 20250813_BuildingSamplingPlan.mxd		

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10 FLINT STREET

Stairs/Elevator

Stairs

940 EXCHANGE STREET

5 FLINT STREET

Lift

Lift

102 VIOLETTA STREET

LEGEND

- APPROXIMATE PROPERTY BOUNDARIES
- BCP SITE NO. C828162B
- EXISTING BUILDING / IMMEDIATE WORK AREA

- CMU Sample Location
- Reinforced Concrete Sample Location
- Fire Brick Sampling Location

NOTES

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

- ALL FEATURES DEPICTED ARE APPROXIMATE.

N

Title:

Pre Demo Sampling Plan

3rd Floor

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 08/13/25	FIGURE
Prepared by: SB	Scale: AS SHOWN	5c
Project Mgr: ER	Project: 4694.0001P000	
File: 20250813_BuildingSamplingPlan.mxd		

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10 FLINT STREET

Stairs

Stairs/Elevator Room Structure

940 EXCHANGE STREET

5 FLINT STREET

Empty Room/Structure

102 VIOLETTA STREET

LEGEND

- APPROXIMATE PROPERTY BOUNDARIES
- BCP SITE NO. C828162B
- EXISTING BUILDING / IMMEDIATE WORK AREA

- CMU Sample Location
- Reinforced Concrete Sample Location

NOTES

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

- ALL FEATURES DEPICTED ARE APPROXIMATE.

N

Title:

Pre Demo Sampling Plan

Roof Level

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

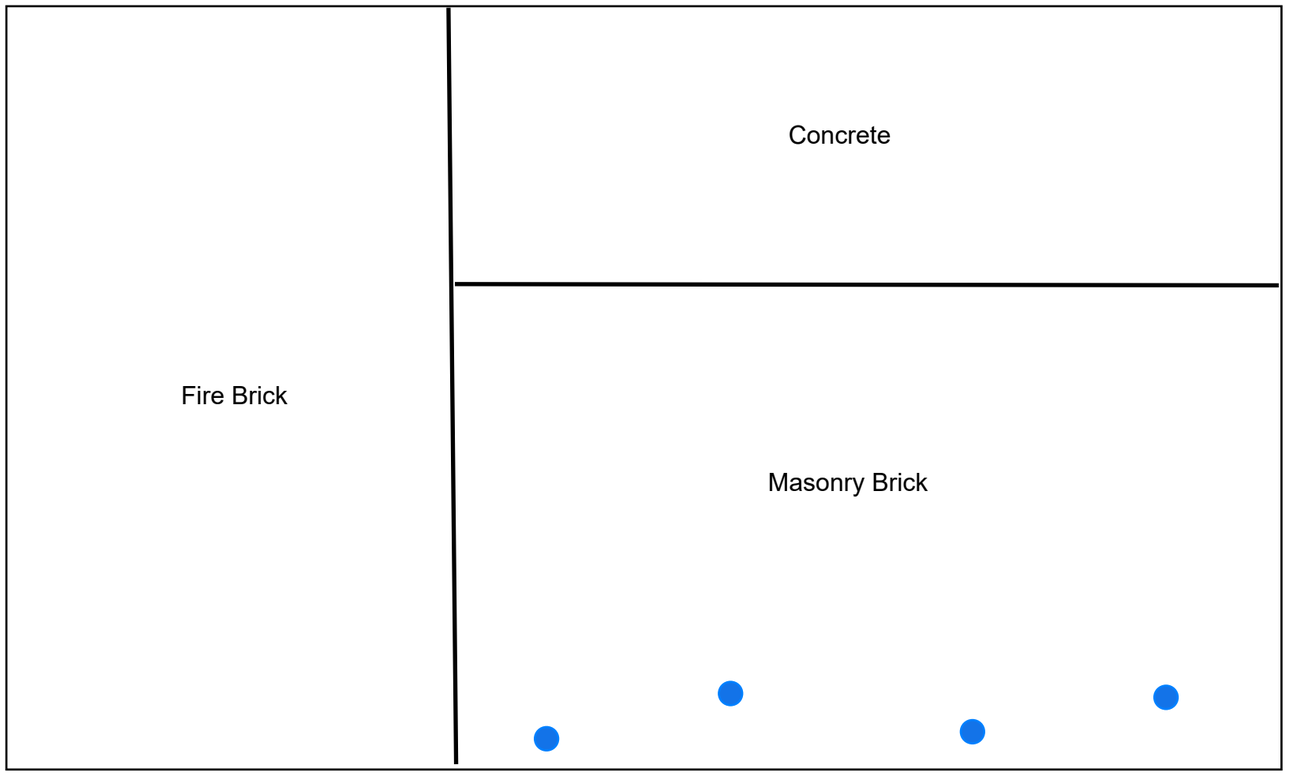
Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 08/13/25	FIGURE
Prepared by: SB	Scale: AS SHOWN	5d
Project Mgr: ER	Project: 4694.0001P000	
File: 20250813_BuildingSamplingPlan.mxd		

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LEGEND

APPROXIMATE PROPERTY BOUNDARIES

BCP SITE NO. C828162B

Masonry Brick Sample Location

NOTES

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

- FIGURE DEPICTS SIDE VIEW OF SOUTHWEST SIDE OF BUILDING

- ALL FEATURES DEPICTED ARE APPROXIMATE.

Title:

Pre Demo Sampling Plan

Side View- South Elevation

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

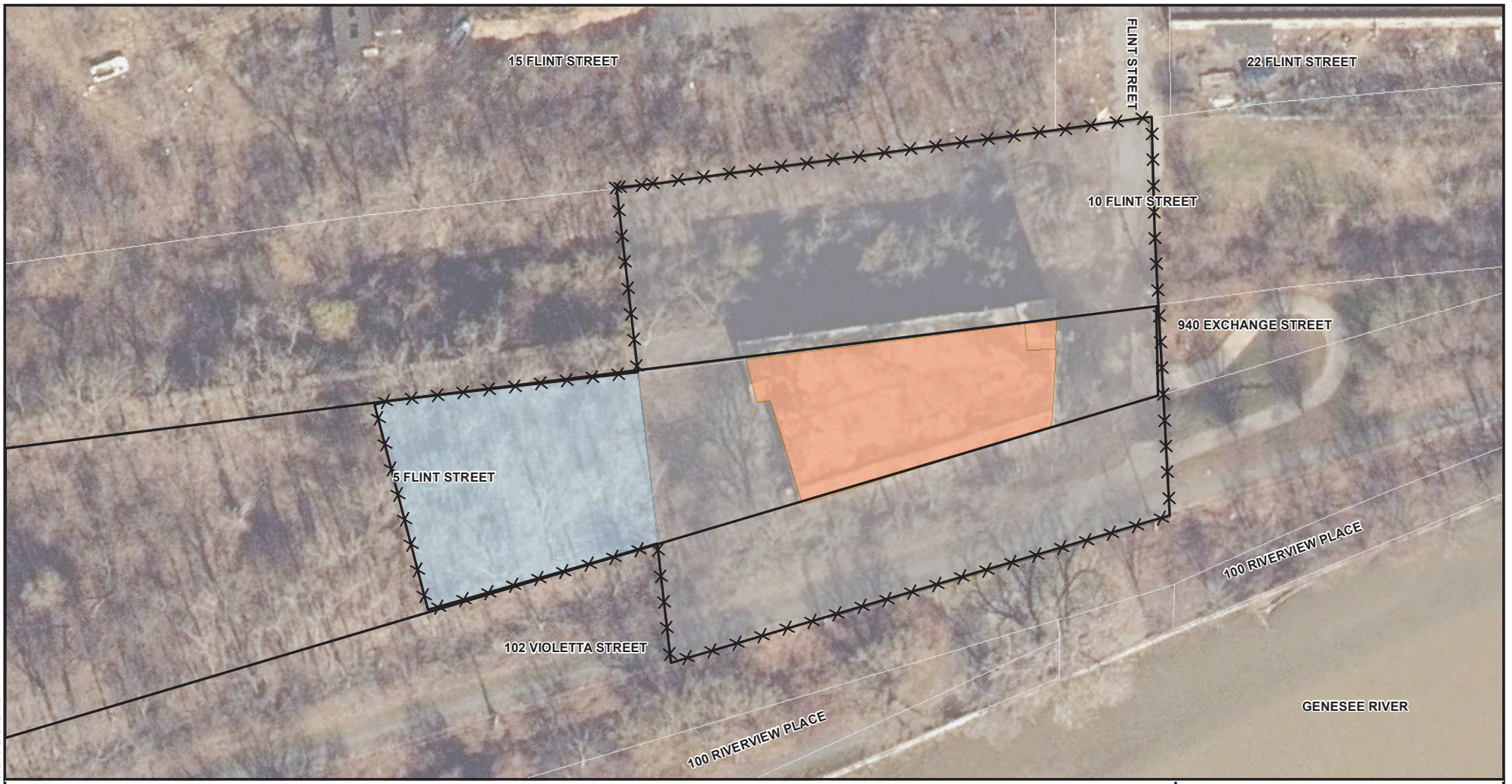
Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 08/13/25	FIGURE
Prepared by: SB	Scale: AS SHOWN	
Project Mgr: ER	Project: 4694.0001P000	5e
File: 20250813_BuildingSamplingPlan.mxd		

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LEGEND

- APPROXIMATE PROPERTY BOUNDARIES
- BCP SITE NO. C828162B
- EXISTING BUILDING / IMMEDIATE WORK AREA
- ACTIVE BUILDING DEMOLITION EXLUSION ZONE
- STOCKPILE STAGING AREA
- WORK AREA PERIMETER FENCING

SOURCES
- AERIAL IMAGE SOURCE: NYS GIS CLEARINGHOUSE (WWW.NYSGIS.STATE.NY.US), 2005 AERIAL.

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

NOTES

- ALL FEATURES DEPICTED ARE APPROXIMATE.

- ALL GENERATED ABATEMENT WASTE WILL BE PLACED ON SITE IN A SECURED CONTAINER PENDING OFF-SITE DISPOSAL.

- TEMPORARY FENCING WILL BE INSTALLED AROUND THE PERIMETER OF THE IMMEDIATE WORK AREA, AT A MINIMUM SET BACK OF 63 FEET OR GREATER AWAY FROM THE BUILDING.

N

50 0 50 FEET

Title:

SITE SECURITY AND STAGING PLAN

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 07/16/25
Prepared by: SB	Scale: AS SHOWN
Project Mgr: ER	Project: 4694.0001P000
File: 20250509_BuildingDemoFencing.mxd	

FIGURE 6

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APPENDICES

A. Excavation Work Plan
B. Demolition Plan
C. Permits and/or Permit Applications
D. Hazardous Building Materials Survey
E. Asbestos Abatement Documentation
F. Waste Characterization Sampling
G. C7 Notification to Generators
H. Health and Safety Plan
I. Community Air Monitoring Plan
J. List of Site Contacts
K. Reserved for Environmental Easement/Notice/Deed Restriction
L. Groundwater Monitoring Well Construction Logs
M. Quality Assurance Project Plan (QAPP)
N. Site Management Forms

APPENDIX A

Excavation Work Plan

APPENDIX A – EXCAVATION WORK PLAN (EWP)

This Excavation Work Plan (EWP) outlines the concrete, brick and concrete block building demolition (building demolition) and possible subsurface utility excavation procedures that are to be implemented prior to initiating Remedial Action Work Plan (RAWP) activities at the Site. As discussed in the Interim Site Management Plan (ISMP), a revised Remedial Alternatives Analysis Report (RAAR) for the Site was submitted to the NYSDEC on February 24, 2025. A RAWP is currently being prepared for a Track 4 remediation approach consisting of excavation and/or in-situ solidification (ISS) and Site Cover System. This EWP was prepared in accordance with NYSDEC SMP Template, dated June 2025, and includes sections of NYSDEC Division of Technical Guidance for Site Investigation and Remediation, May 2010, (DER-10), specifically, Section 5.1(f).

Roux has contracted L.M. Sessler Excavating and Wrecking Inc. (Sessler) to perform the building demolition at the Site. All demolition activities will be executed in compliance with applicable federal, state, and local regulations, as well as the requirements outlined in this ISMP and Sessler's Demolition Work Plan (included in **Appendix B)**.

The demolition scope-of-work includes:

- Controlled demolition of the abandoned three-story concrete, brick and concrete block building on the northeast portion of the Site;
- Segregation, processing (e.g., removal of rebar, and sizing of concrete for staging/stockpiling and/or disposal), and off-Site disposal of construction and demolition materials (C&D);
- Ground intrusive excavations and soil management associated with utility decommissioning and capping of utilities (if required); and
- Import of stone to improve access roads on-Site (if required).

The building slab and subsurface structures, including building foundations, will remain in place and will not be disturbed as part of the scope-of-work proposed under the ISMP.

A-1 NOTIFICATION

At least 15 days prior to the start of any ground intrusive activities or other activity that is anticipated to encounter remaining contamination or breach or alter the Site's cover system, the site owner or their representative will notify the NYSDEC contacts listed in the table below. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in **Appendix J** of the ISMP.

Notifications*

Name	**Contact Information**
Charlotte Theobald, NYSDEC Project Manager	(585) 226-5354 (Office) (585) 420-6558 (mobile) charlotte.theobald@dec.ny.gov
David Pratt, P.E. NYSDEC Regional Remediation Engineer Division of Environmental Remediation	(585) 226-5449 david.pratt@dec.ny.gov

Name	**Contact Information**
Kelly Lewandowski NYSDEC Professional Engineer 2, Site Control Section	(518) 402-9569 kelly.lewandowski@dec.ny.gov
Christopher Budd NYSDOH Project Manager	(518) 402-1769 (Office) christopher.budd@health.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated, any modifications of truck routes, and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work, and submittals (e.g., reports) to the NYSDEC documenting the completed intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP, 29 CFR 1910.120 and 29 CFR 1926 Subpart P;
- A copy of the Health and Safety Plan (HASP), in electronic format, if it differs from the HASP provided in **Appendix H** of the ISMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP. The alteration, restoration and modification of engineering controls must conform with Article 145 Section 7209 of the Education Law regarding the application professional seals and alterations.

A-2 SOIL SCREENING AND SEGREGATION METHODS

Visual, olfactory and photoionization detector (PID) soil screening will be performed during all ground intrusive activities into known or potentially contaminated material. A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will perform the screening. Soil screening will be performed during ground intrusive activities. The ISMP will be revised to include soil screening methods to be performed during excavations prior to and after the issuance of the COC. All soil/fill material from beneath the cover system will be field screened using a photoionization detector (PID) or similar equipment. A screening level of 5 ppm will be used to segregate excavated soil/fill material.

Soils/fill material will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be either reused on-site as soil beneath a cover or used as cover soil.

A-3 DEMOLITION AND DEMOLITION MATERIAL CHARACTERIZATION AND SEGREGATION.

As discussed in Sessler's Demolition Work Plan, the concrete, brick and concrete block building demolition will be conducted in two phases. The first phase will be a "soft strip" interior demolition process performed prior to the second phase which includes the mass demolition and processing (to remove metal rebar) of the concrete, brick and concrete block building. The interior "soft strip" will include removal of non-concrete brick and block building materials (i.e. interior wood, drywall, metal piping, metal doors, metal railings, etc.). The mass demolition phase of the building will be executed using the sequence outlined in Sessler's Demolition Work Plan Section 11.9 Clean Mass Demolition Controls and Procedures (**Appendix B** of the ISMP).

Demolition material will be segregated based on final on-Site reuse or off-Site disposal requirements in accordance with each facility's and DEC's sampling requirements. In support of this process, Paradigm Environmental Services, Inc (Paradigm) completed a comprehensive Hazardous Building Materials Survey (HBMS) at the Site in preparation for demolition material segregation, processing, and disposal (included in **Appendix E** of the ISMP). The following subsections summarize the HBMS, additional laboratory sampling to further characterize the building materials, asbestos abatement completed at the Site, and the management of lead-based paint materials, including the abatement of lead-based paint on concrete, brick and concrete block building materials. In addition, details regarding field screening and segregation of potentially impacted building materials, segregation of metal and other non-concrete, brick and concrete block building materials, and segregation and processing of concrete, brick and concrete block building and associated metal rebar materials are discussed below.

A-3.1 HAZARDOUS BUILDING MATERIALS RESULTS AND MITIGATION

Asbestos:

Paradigm's Pre-Demolition Asbestos Survey, dated January 30, 2025 (included in **Appendix D),** identified approximately 1,777 square feet (sq-ft) of friable asbestos containing material (ACM) and approximately 720 sq-ft of non-friable ACM, as well as 265 linear ft of non-friable ACM and 30 linear ft of friable ACM. Based on these findings, Roux contracted Sessler Environmental Services (Sessler Environmental) to remove all ACM on-Site.

Between May 19, 2025, and July 17, 2025, Sessler abated ACM in accordance with New York State Department of Labor (NYSDOL), the United States Occupational Safety and Health Administration (OSHA) and Untied States Environmental Protection Agency (USEPA) asbestos notifications and requirements. ACM abatement documentation is included in **Appendix E** of the ISMP**.**

Lead-Based Paint Materials:

Paradigm's Limited XRF Lead-Based Paint Inspection, dated January 30, 2025 (included in **Appendix D**), identified the presence of lead-based paint on various substrates, including metal, concrete, concrete block, and wood.

Based on the XRF screening results, Roux collected waste characterization samples from select concrete, concrete block, and wood materials for laboratory analysis of Toxicity Characteristic Leaching Procedure (TCLP) lead and Target Analyte List (TAL) metals. Results from the waste characterization sampling are included in **Appendix F** of the ISMP. Based on these sampling results, building materials containing lead-based paint which are not concrete, brick or concrete block building materials (wood and metal) will be removed during the "soft strip" interior demolition process (prior to performing the mass demolition of the building), with the exception of the third floor metal elevator shaft door, which will be segregated during the mass demolition.

Metal building materials (with and without lead-based paint) will be segregated from non-metal materials removed during the "soft strip" interior demolition process and managed separately for off-Site recycling in accordance with RCRA regulations and permitted recycling facility requirements. As discussed in Section A-7 below, a scrap metal exemption request for scrap metal with lead-based paint (C7 Notification for Generators) was submitted to the Division of Materials Management at the NYSDEC. With this exemption, all scrap metal (with and without lead-based paint) will be recycled.

Based on Paradigm's Limited XRF Lead-Based Paint Inspection, an approximately 350 square-foot area of concrete, brick and concrete block building materials was identified as containing lead-based paint on the 1st floor of the building. The approximate location of this lead-based paint area is shown on **Figure 5a** of the ISMP. This lead-based paint will be abated by Sessler Environmental (Lead Abatement Certification No. LBP-F179613-4) prior to building demolition to remove all lead-based paint from the concrete substrate. Paradigm will conduct a post abatement visual inspection and XRF testing to confirm that all lead-based paint has been removed. Lead-based paint removed from the concrete, brick and concrete block building materials will be containerized and sampled for off-Site disposal per permitted disposal facility requirements.

Non-metal building materials containing lead-based paint removed during the "soft strip" interior demolition will be managed, characterized, and disposed as C&D debris in accordance with RCRA regulations and permitted landfill facility requirements. Further details regarding off-Site disposal or recycling of building materials including materials containing lead-based paint are included in Section A-7.

PCB Sampling Results:

Paradigm's Polychlorinated Biphenyl (PCB) Sample and Analysis, dated January 30, 2025 (included in **Appendix D** of the ISMP**),** did not identify the presence of PCBs in building materials. As a result, PCB abatement of building materials is not required.

A-3.2 ADDITIONAL SAMPLING OF CONCRETE, BRICK AND CONCRETE BLOCK BUILDING MATERIALS

To assist with the determination for the end use of concrete, brick and concrete block building materials generated as part of the building demolition, sampling of each type of these building materials will be conducted prior to demolition. Four distinct types of concrete, brick and concrete block building materials have been identified:

- reinforced concrete (building floors/ceilings, columns, stairs);
- concrete masonry unit (CMU) block walls;
- fire brick (elevator shafts); and
- masonry brick (exterior southwest wall façade).

Representative samples of three of the four types of concrete, brick and concrete block building materials (reinforced concrete, CMU and fire brick) will be sampled at up to four locations on each story of the building, including the structure at the top of the building, if present. The fourth type of concrete, brick and concrete block building material, masonry brick, is only located on the lower portion of the exterior southwest side of the building. As such, representative samples of masonry brick will only be sampled from this area. Approximate sample locations are shown on **Figures 5a through 5e** of the ISMP. Samples of each building material type will be collected in a manner consistent with the Quality Assurance Project Plan/Field Sampling Plan (QAPP/FSP) included as **Appendix G** of the ISMP, and composited by building material type. One composited sample for each of the four building material types will be submitted to an Environmental Laboratory Approval Program (ELAP) laboratory. Chemical testing shall be performed at a minimum for the parameters listed in Table 375-6.8(a) of the latest revision of Part 375. Samples will be analyzed for:

- the full suite of Part 375 parameters (TAL/Part 375 metals including hexavalent chromium; TCL/Part 375 VOCs and SVOCs, TCL/Part 375 pesticides/herbicides, and PCBs);
- total cyanide and Emerging Contaminants.[1]
- TCLP for barium and chromium; and
- ACM.

Additional details and procedures to be followed during concrete, brick and concrete block building material sampling are included in the QAPP/FSP (**Appendix G** of the ISMP).

A-3.3 FIELD SCREENING AND SEGREGATION OF POTENTIAL IMPACTED BUILDING MATERIALS

It should be noted that staining was not noted during the HBMS or during subsequent field visits to the Site. However, since the potential presence of staining or other impacts with petroleum or other hazardous materials can't definitively be ruled out, additional segregation will be completed based on visual, olfactory and PID screening during the demolition work. If any material is identified as being stained with petroleum or other potentially hazardous substances, having an odor

[1] Emerging Contaminants (ECs) list includes 1,4-Dioxane and the 40 Per- and Polyfluoroalkyl Substances (PFAS) which include the 40 compounds listed in the most recent April 2023 NYSDEC guidance Sampling, Analysis, and Assessment of Per-and Polufluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (NYSDEC April 2023 Guidance) is included as an attachment to the QAPP/FSP.

indicative of petroleum or potentially hazardous materials impact or having a PID reading above 5 ppm, that material will be segregated from non-impacted material. The proposed disposal facility will be contacted to determine if any additional sampling or assessment of the potentially impacted material is required prior to disposal. Segregation of materials based on field screening will be noted in the daily report.

A-3.4 SEGREGATION OF NON-CONCRETE, BRICK AND CONCRETE BLOCK BUILDING MATERIALS FOR OFF-SITE DISPOSAL

Bulk clean debris and non-concrete, brick and concrete block building materials (i.e. interior wood, drywall, metal piping, etc.) will be removed during the "soft strip" interior demolition process (prior to performing the mass demolition of the building). Metals will be segregated for off-Site recycling and the remaining C&D material will be disposed off-Site. Details regarding the off-Site disposal or recycling of these materials are included in **Section A-7**, below.

A-3.5 SEGREGATION AND PROCESSING OF CONCRETE, BRICK AND CONCRETE BLOCK BUILDING MATERIALS FOR POTENTIAL ON-SITE REUSE

As described in Sessler's Demolition Work Plan (**Appendix B** of the ISMP), following the removal of non-concrete, brick and concrete block building materials, building demolition will proceed in a strategic manner starting from the southwest side of the building and working towards the northeast end at Flint Street. Starting at the southwest side of the building, Sessler will systemically remove structural and non-structural members in a top-down approach, allowing materials to free fall to below levels and/or debris receiving areas. In addition to the segregation of potentially impacted material discussed in Section A-3.3 above, non-impacted concrete, brick and concrete block building material will be segregated at the point of demolition based on the portion of the building being demolished, working from the southwest to the northeast.

The segregated materials will be processed to remove metal rebar and reduce the size of the debris to approximately 1-2 feet in size and stockpiled in the Stockpile Staging Area located to the southwest of the building footprint (see **Figure 6**). This material processing will be conducted utilizing 300 and 400 class excavators (used for the building demolition) with impact hammer and pulverizer processor attachments. The total amount of metal rebar has been estimated to be in the range of 50-150 tons. This metal rebar material will be cut to size (as needed) to facilitate stockpiling and loading, and stockpiled on-Site until a sufficient quantity has been generated to load for off-Site transport and recycling. Details regarding building material staging and stockpiling methods are included in Section A-4 below.

It is anticipated that approximately 4,000 cubic yards of concrete, brick and block building material debris will be generated during the building demolition process. To facilitate potential on-Site reuse of the concrete, brick and concrete block building material debris, this material will be segregated and stockpiled in manageable stockpile sizes to be sampled at a later date (if required) based on sampling requirements, as determined by the NYSDEC.

A-4 SOIL AND MATERIAL STAGING METHODS

Stockpiles will be placed on poly sheeting and/or geotextile fabric and continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be documented with photographs and recorded in a logbook. Inspection logs will be and maintained at the Site and submitted to the NYSDEC on a monthly basis with the monthly progress report as defined in Section 7 of the ISMP or the PRRs, as appropriate.

A-5 MATERIALS EXCAVATION AND LOAD-OUT

A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will oversee (i.e., be on-Site for) ground intrusive work and the excavation and load-out of excavated material, such as excavated soils from utility decommissioning, and the load-out of building materials generated from the demolition of the concrete, brick and concrete block building.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of ground intrusive and other work performed under this EWP.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. Planned work under this ISMP includes potential excavations to cap subsurface water and sewer lines service lines connected to the building (if required). Other subsurface utilities in the vicinity of the building include water lines and a potential gas line located on the northeastern end of the 5 Flint Street parcel and the abutting parcels to the northwest and southeast of the Site. Prior to ground intrusive activities at the Site, a subsurface utility survey and stakeout using ground penetrating radar (GPR) and Electromagnetic Induction (EI), or other subsurface location technologies, will be completed to assist in verifying the presence and location of subsurface utilities, and UDIG NY will be notified.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements). Trucks transporting contaminated soil or other site-related materials must have either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides.

A truck wash will be operated on-Site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-Site at a permitted facility in an appropriate manner and in accordance with local, State, and Federal regulations. See Section A-8 Fluids Management for additional details.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil and/or Site material tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived

from the Site during any intrusive and excavation activities, as well as building demolition, and material segregation, processing, and loading activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. Material accumulated from the street cleaning and egress cleaning activities will be disposed off-Site at a permitted landfill facility in accordance with all applicable local, State, and Federal regulations. See Section A-7 Materials Disposal Off-site for additional details.

A-6 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with either tight-fitting opaque covers that are secured on the sides and/or back, or opaque covers that are locked on all sides. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are shown on **Figure 4**. All trucks loaded with site materials will exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account:

(a) limiting transport through residential areas and past sensitive sites;

(b) use of city mapped truck routes;

(c) prohibiting off-site queuing of trucks entering the facility, to the extent practical;

(d) limiting total distance to major highways;

(e) promoting safety in access to highways;

(f) overall safety in transport; and

(g) community input where necessary.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off- Site queuing will be minimized to the extent practical.

The transportation of materials to be disposed off-Site will be sequenced over the duration of the building demolition, to the extent practical, to minimize the amount of truck traffic to and from the Site at any given time.

A-7 MATERIALS DISPOSAL OFF-SITE

Material to be removed from the Site will be treated as contaminated or recyclable and regulated material and will be transported and disposed off-Site to a permitted facility in accordance with local, State and Federal regulations. If disposal of material from this Site is proposed for unregulated

off-Site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC project manager. Unregulated off-Site management of materials from this Site will not occur without prior formal NYSDEC project manager approval.

Off-Site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, (e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility). Actual disposal quantities and associated documentation will be reported to the NYSDEC project manager in the subsequent monthly progress report as defined in Section 7 of the ISMP or the Periodic Review Report (PRRs), as appropriate. This documentation will include, but will not be limited to: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled consistent with 6 NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6 NYCRR Subpart 361-5 registered or permitted facility).

Segregated demolition material, not approved for on-Site reuse, will be disposed of or recycled off-Site as detailed below. Disposal quantities and associated documentation will be reported to the NYSDEC project manager in the subsequent monthly progress report as defined in Section 7 of the ISMP or the PRRs, as appropriate. This documentation will include, but will not be limited to waste profiles, test results, facility permits, facility acceptance letters, manifests, bills of lading and facility receipts.

ASBESTOS CONTAINING MATERIAL DISPOSAL

Following the completion of asbestos abatement activities at the Site, all ACM was properly packaged, labeled, and handled in accordance with applicable federal, state, and local regulations, including those established by the USEPA), the OSHA, and the DOL Industrial Code Rule 56. The ACM waste was transported by a licensed hauler to High Acres Landfill, located at 425 Perinton Parkway, Fairport, New York, a facility authorized to accept regulated asbestos-containing material. Documentation of transport and disposal, including waste manifests is included in **Appendix E** of the ISMP.

LEAD BASED PAINT

Following the completion of lead abatement activities at the Site, all lead-based paint will be transported and disposed off-Site to a permitted facility in accordance with local, State and Federal regulations.

CONCRETE, BRICK, AND BLOCK DISPOSAL OR RECYCLING

Contaminated/stained, and uncontaminated, recognizable concrete, brick and concrete block will be disposed off-Site at:

Waste Management – High Acres Landfill
425 Perinton Pkwy,
Fairport, NY 14450
Registration #8-000443

It should be noted that a Site-Specific Beneficial Use Determination (BUD) may be sought for on-Site reuse of uncontaminated concrete, brick and concrete block. A separate BUD package will be submitted to NYSDEC for their review.

METAL RECYCLING (WITH OR WITHOUT LEAD-BASED PAINT):

In accordance with 6 NYCRR 371.1(g)(1)(iii)(b), a scrap metal exemption request for scrap metal with lead-based paint was submitted to the RCRA Compliance & Technical Support Section of the Bureau of Hazardous Waste and Radiation Management, within the Division of Materials Management at the NYSDEC (625 Broadway, Albany, NY). C7 Notification for Generators was submitted to NYSDEC on June 23, 2025, and is included in **Appendix G**. With this exemption, all scrap metal (with and without lead-based paint) will be recycled at:

Metalico
1515 Scottsville Road, Rochester, NY
Scrap Metal Processor – Registration 28V30014

OTHER CONSTRUCTION & DEMOLITION DEBRIS:
Any other C&D debris not previously specified will be disposed off-Site at:

Waste Management – High Acres Landfill
425 Perinton Pkwy,
Fairport, NY 14450
Registration #8-000443

A-8 Soil/Fill Materials Reuse On-Site

The qualified environmental professional, as defined in 6 NYCRR Part 375, will ensure that procedures defined for soil/fill materials reuse in this ISMP are followed and that unacceptable soil/fill material (i.e. contaminated) does not remain on-Site. Contaminated on-Site soil/fill material, including historic fill, and contaminated soil, that is acceptable for reuse on-Site may be placed below the demarcation layer or impervious surface during the remedial action, and will not be reused within a future cover system or within landscaping berms. Contaminated on-Site soil/fill material may only be used beneath a future site cover as backfill for subsurface utility lines with prior approval from the DEC project manager.

Proposed soil/fill for reuse on-site must be sampled for full suite analytical parameters including per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet the site use criteria presented in NYSDEC DER-10 Appendix 5 – Allowable Constituent Levels for Imported Fill or Soil for all constituents listed, and the NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances April 2023 guidance values. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil/fill material for reuse on-Site will be segregated and staged as Section A-2. The anticipated location of stockpiles are shown on **Figure 6** of the ISMP. Stockpile locations will be based on the location of Site excavation and demolition activities and proximity to nearby Site features. Material reuse on-Site will comply with requirements of NYSDEC DER-10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager.

A-8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including excavation dewatering, decontamination waters, and groundwater monitoring well purge and development waters will be handled, transported and disposed off-site at a permitted facility in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC project manager.

Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream, or river) will be performed under a NYSDEC State Pollution Discharge Elimination System (SPDES) permit.

A-9 COVER SYSTEM AND SITE RESTORATION

This Section is reserved for future discussion of cover system restoration.

If excavations are completed on the Site prior to the installation of the Site-wide cover system, the excavation areas of the Site will be restored to the original grade. Backfill material to be used for the restoration of grades will be in accordance with Section A-2.

Excavated soil/fill material will be field screened and stockpiled in accordance with Section A-2. Reuse of Site soil/fill material as backfill will be in accordance with Section A-10.

A-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the NYSDEC project manager and the qualified environmental professional, as defined in 6 NYCRR Part 375, and will be in compliance with provisions in this ISMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review and approval.

Material from industrial sites, spill sites, other environmental remediation sites, or potentially contaminated sites will not be imported to the Site.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for Restricted Residential Soil Cleanup Objectives for all constituents listed. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in **Table 3** of the ISMP. Soils that meet 'general' fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC project manager. Soil material will be sampled for the full suite of analytical

parameters, including PFAS and 1,4-dioxane. Sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

A-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the ISMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

A-12 EXCAVATION CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during ground intrusive activities or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition. The NYSDEC project manager will be promptly notified of the discovery.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes [TAL metals, TCL volatiles and semi-volatiles (including1,4- dioxane), TCL pesticides and PCBs, and PFAS], unless the site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone within two hours to NYSDEC’s Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the subsequent PRR or the reporting as detailed in Section 7 of the ISMP.

A-13 COMMUNITY AIR MONITORING PLAN

The Community Air Monitoring Plan (CAMP) will be in accordance with the NYSDEC's DER-10's Appendix 1A NYSDOH Generic CAMP located in **Appendix I** of the ISMP. The locations of monitoring stations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. A figure showing the location of monitoring stations will be included in the daily reports submitted to NYSDEC and NYSDOH project managers.

Exceedances of action levels listed in the CAMP and the implemented corrective actions will be reported to NYSDEC and NYSDOH Project Managers in the daily reports.

A-13A SPECIAL REQUIREMENTS FOR WORK WITHIN 20 FEET OF POTENTIALLY EXPOSED INDIVIDUALS OR STRUCTURES

Not applicable currently. The ISMP will be updated as needed.

A-13B SPECIAL REQUIREMENTS FOR INDOOR WORK WITH CO-LOCATED RESIDENCES OR FACILITIES

Not applicable currently. The ISMP will be updated as needed.

A-14 ODOR CONTROL PLAN

Due to the limited scope of excavation proposed, odor control is not anticipated to be required at this time. However, this odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include limiting excavation areas and covering excavated soil (i.e., with polyethylene sheeting or in covered roll off containers). If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH project managers will be notified of all odor events and of any other complaints about the project activities. Implementation of all odor controls, including the halt of work, is the responsibility of the remedial party's Remediation Engineer, and any measures that are implemented will be discussed in the subsequent PRR or the reporting as detailed in Section 7 of the ISMP.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams or other odor suppressant materials to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15 DUST CONTROL PLAN

Particulate monitoring must be conducted according to the CAMP provided in Section A- 14 and **Appendix M** of this ISMP. If particulate levels at the site exceed the thresholds listed in the

CAMP or if airborne dust is observed on the site or leaving the site, the dust suppression techniques listed below will be employed. The remedial party will also take measures listed below to prevent dust production on the site.

A dust suppression plan that addresses dust management during on-Site ground intrusive activities, building demolition, and material segregation, processing, staging/stockpiling and load out work will include, at a minimum, the items listed below.

- Dust suppression (excluding for building demolition and small excavations related to utility abandonment, if any) will be achieved using a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles. For small excavations, dust suppression will be achieved using a hose and nozzle.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

For demolition work, portable water spray systems will be positioned and moved as necessary to effectively target fugitive dust generated in the work zone. These systems consist of manually operated hoses connected to a nearby hydrant, providing continuous water supply. Trained personnel will guide the hoses to directly target areas of active demolition, particularly at the point of initial contact between the excavator and the building structure. These portable water spray systems will also be employed during the segregation and processing of the building materials. If necessary, additional water spray systems, such as Boss Tek DB60 or Buffalo Turbine Mister will be installed and relocated as necessary. This dust control measure is intended to reduce airborne particulate matter and maintain compliance with standards set in **Appendix M – CAMP** of the ISMP.

A-16 OTHER NUISANCES

Roux has contracted Town and Country Pest Solutions Inc. to implement rodent control at the site in preparation for demolition. Documentation related to rodent control can be found in **Appendix C** of the ISMP. Rodent control measures have been active since June 2024 and will continue until the completion of building demolition. The necessity for additional rodent control will be assessed and implemented as needed prior to and during Site clearing and grubbing, and during all remedial work. This is to minimize the movement of pests that may be living within the existing Site building and to prevent them from affecting nearby properties and surroundings.

In accordance with COR Municipal Code Chapter 75, Noise, Section 10, Construction Activities, on-Site activities will occur only between the hours of 7:00 a.m. and 10:00 p.m. If noise complaints are received Roux will confer with COR and NYSDEC to determine appropriate actions. Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to the COR noise ordinance.[2]

Note that vibration monitoring is not required by the COR demolition permit nor in the COR Municipal Code. Vibration monitoring will be implemented if any complaints are received. A

[2] City of Rochester, NY Municipal Chapter 75, Section 10. https://ecode360.com/8676945

vibration monitoring plan will be developed and submitted to the NYSDEC project manager for review and approval.

A-17 SITE FENCING AND SECURITY

Perimeter fencing will be installed where not currently in place or adjusted, as needed, to encompass the work area and will be maintained by Roux and its contractors during the implementation of this scope-of-work to control site access. The fences and gates will be closed and locked whenever there is no activity on the Site, and any breaks or gaps will be repaired immediately. Additional fencing will supplement the perimeter fencing to delineate and secure the area of on-going activities within the Site, such as soil stockpiles and health and safety exclusion zones.

Building demolition exclusion zone will be maintained with additional fencing (e.g., cones, caution tape, etc.), within the perimeter of the work area, or with perimeter work area fencing, during active building demolition and will be adjusted as needed. As shown on **Figure 6** of the ISMP, the building demolition exclusion zone will include portions of 10 Flint Street and 102 Violetta Street, including a portion of the Genesee River Trail bike path (bike path) on 102 Violetta Street during active demolition of the building. As included in **Appendix C** of the ISMP**,** a permit application was submitted to COR Traffic Control Board to close this portion of the bike path during active demolition.

As discussed in Sessler's Demolition Work Plan Section 11.9 (**Appendix B** of the ISMP) specific "Controlled Debris Receiving Areas" will be established and access prevented until areas have been identified by Sessler as "CLEARED" at all locations within the demolition and debris receiving areas. Additional fencing (e.g., cones, caution tape, etc.) will be installed and relocated by Sessler as needed throughout the building demolition and material segregation, processing, staging/stockpiling and loadout.

APPENDIX B

Sessler Demolition Work Plan

DEMOLITION WORK PLAN

PROJECT
5 FLINT STREET BUILDING DEMOLITION
5 FLINT STREET, ROCHESTER, NY 14608

CLIENT
ROUX ASSOCIATES, INC.
200 SUMMIT DRIVE, SUITE 500, BURLINGTON, MA 01803

CLIENT CONTACT:
SARA BARRIENTOS
PROJECT GEOLOGIST
ROUX ASSOCIATES, INC.
SBARRIENTOS@ROUXINC.COM

SUBCONTRACTOR
L.M. SESSLER EXCAVATING AND WRECKING, INC.
1257 STATE R NY-96
WATERLOO, NY 13165

SESSLER CONTACT:
MATT FELICE
PROJECT MANAGER
MFELICE@SESSLERWRECKING.COM

SUBCONTRACTOR'S MAIN SCOPE OF WORK
CLEAN DEMOLITION & LOADOUT

July 10th, 2025
Version 3.0

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1.0 Submittal Summary

L.M. Sessler Excavating & Wrecking, Inc., herein referred to as "Sessler", is working under a Subcontract Agreement with Roux Associates, Inc., herein referred to as the "Client," to perform the clean demolition of the main 3-story building located at 5 Flint Street, Rochester, NY 14608.

This submittal generally discusses the best safe industry practices for the demolition and removal of the structure noted above, of which shall be considered clean (i.e., no asbestos, lead, PCB, or other contaminants which may impact the assumed clean C&D, hardfill, or salvage waste streams).

Sessler shall conduct all demolition and removal operations in accordance with the contract documents and local, state, and federal regulations.

The following submittals shall be submitted under separate cover; however, they are referenced within this Submittal for correlation of work processes.

- Sessler Corporate Health and Safety Plan

2.0 Building Demolition Scope of Work (SOW)

Sessler has been contracted by the Client to perform the following major tasks:

a. Clean Demolition & Removal of the above grade portion of the 3-story concrete/brick/block building located at 5 Flint Street only. Sessler is to demolish the building to slab on grade and leave the building 1st floor slab and foundation systems in place after demolition.
b. All demolition debris generated from the building during the demolition will be sent offsite for disposal and/or recycling to the approved facilities.

The work shall be sequenced per the following conceptual schedule:

- **Phase I: Pre-Demolition Work**
  - Mobilization and Setup.
  - Perform interior clean out of all the assumed clean C&D debris (dry walls, wood, loose debris, etc.) throughout the building. Sessler to following Sessler's Lifting Plan to get the skid steer machines onto the 2nd floor of the building.
  - Review and Sign Off on the Sessler Utility Disconnection Verification Form.
- **Phase II: Demolition Work**
  - Clean Demolition of 5 Flint Street with continuous load-out of all clean C&D debris to a regulated NYSDEC Part 360 Solid Waste Landfill/Transfer Facility and all hardfill debris to a permitted recycling facility. Roux to specify and approve the facilities that are to be used prior to any waste being sent there. Roux will also specify the plan to Sessler on what portion of the building debris waste is to be sent offsite for disposal and/or recycling.
  - Continuous dust suppression during demolition to eliminate dust.
- **Phase III: Final Cleanup and Demobilization**
  - Site inspection with Client.
  - Final cleanup and demobilization of crew and equipment.

3.0 Client Scope of Work

The following additional work is excluded from Sessler's scope and shall be performed by others as necessary without delay to Sessler:

- Obtaining permits (i.e., demolition, utility disconnect, etc.).
- Any required bonding or taxes.
- All work involving utilities (Water, Storm, Sanitary, Gas, Communications, Electrical, etc.) inclusive of, but not limited to, identification, cutting, capping, protecting, maintaining, and

rerouting of all above and below grade utilities within and/or outside of the building footprints up to an OSHA recommended safe working distance away from Sessler work activities. Assumes that utilities shall be isolated, separated (i.e., air-gapped) and made safe by others prior to Sessler mobilization.

- Temporary services including work area lighting, temporary water supply via a fire hydrant within proximity to the demo work area(s) for dust control, vehicular or pedestrian traffic controls, flagging, barricades including any site fencing required to surround the demolition site, hiring of site security, third-party asbestos air monitor (if required), community and/or work zone air monitoring, noise monitoring, and vibration monitoring.
- Provide and install temporary erosion and sediment control features to assist with project site.
- Asbestos abatement, universal/household hazardous waste removal, animal and/or pest control, refrigerant removal, or characterization of wastes. Assumes that all hazardous and abatement scope will be performed prior to Sessler mobilization, and the demolition will be performed with clean demolition methods. PCB and lead abatement are not anticipated to be a part of this project.
- Engineering, installation, maintenance, and removal of protection around existing adjacent utilities, equipment, and structures to remain, as needed.
- Engineering, installation, maintenance, and removal of any above or below grade temporary or permanent shoring systems.
- All site work such as general mass excavation, removal of concrete or asphalt that is outside of the building footprints, site restoration, dewatering, clearing, grubbing, grading, providing, and installing general fill, surveying & compaction testing, stone, and/or topsoil (i.e., any backfill), and seeding. Removal of the 1st floor slab and below grade foundations is also excluded.

4.0 Project Plans and Deliverables

Sessler will prepare and submit for Client review and approval the following documents:

- This Demolition Work Plan
- Corporate Health and Safety Plan (submitted under separate cover)

4.1 Corporate Health and Safety Plan

Sessler to implement their Health & Safety Plan (HASP) to provide basic precautions and protection for workers as it relates to the Contracted SOW. The Sessler HASP shall be reviewed and acknowledged by all direct employees of Sessler as well as any Subcontractors. The Sessler HASP shall be administered in conjunction with any higher-level H&S requirements from the Client's Safety Program.

Refer to Appendix B for Sessler's Corporate Health and Safety Plan.

Safety meetings will be conducted every morning prior to starting work and revisited at lunchtime pending change of conditions. Sessler's "Health and Safety Plan" and "Daily Hazard Analysis" will be reviewed at this time.

5.0 Organizational Structure

Refer to **Table 1** for Sessler staff that shall be utilized to safely implement the Contracted Clean Demolition Scope of Work. Refer to **Table 2** for Roux personnel who will have direct engagement with the Sessler team:

Table 1: Sessler Organization Chart

Person	Position	Phone	Email
Jeff Sessler	Company Sponsor	315-719-8112	Jeff@SesslerWrecking.com
Gus Rivera	Director of Health & Safety	518-577-9386	GRivera@SesslerCompanies.com
Dan Skinner	General Site Superintendent	315-415-8637	DSkinner@SesslerWrecking.com
Jason Tartaglia	Site Foreman	315-466-6133	JTartaglia@SesslerWrecking.com
Matt Felice	Project Manager	315-283-4586	MFelice@SesslerWrecking.com

Table 2: Roux Associates, Inc. Organization Chart

Person	Position	Phone	Email
Sara Barrientos	Project Geologist	781-569-4033	SBarrientos@Rouxinc.com
Eric Runstrom	Senior Geologist	781-569-4000	ERunstrom@Rouxinc.com

5.1 Roles and Responsibilities

Project Manager

- Responsible for coordinating, organizing, and tracking the flow of project related information.
- Project scheduling and coordination with the Project Superintendents.
- Support the Corporate Health & Safety Director in making sure that the project meets company and client specific requirements.

General/Site Superintendent

- Understanding and navigating the needs of the Project Manager, as well as specific client needs, while simultaneously pushing the safety and quality of work forward to achieve scheduling milestones.
- Conduct daily site inspections, prior to work start and throughout day as needed, to detect hazards from weakened/deteriorated floors walls or loose material.
- Overall safety of the project with support from the Director of Health & Safety.
- Manage field crew from entry to senior levels, ranging from equipment operators, laborers, and subcontractors.
- Forecast project schedule, material, labor, and equipment demands.
- Attend and participate in client required project meetings.
- Prioritize demolition phases and tasks and problem solve if issues arise.
- Implement work objectives and ensure that work product follows specified quality standards.

Director of Health and Safety/Health and Safety Compliance Officer

- Ensure compliance with Health and Safety Plan (HASP) throughout project duration.
- Scheduling and conducting safety meetings and safety training programs as required by Laws and Regulations, Contractor's HASP, and good safety practices.
- Ascertaining via personal inspection that safety Laws and Regulations and safety program requirements are enforced. Make inspections not less than once per work shift to ensure that machines, tools, and equipment are in a safe operating condition; and that all work areas are free of hazards to the extent practicable. Implement necessary and timely corrective actions to eliminate unsafe acts and unsafe conditions. The Director of Health & Safety or any of Sessler's safety officers will not be on site every day for the project, potentially just up to once per week or when requested.

Site Foreman

- Working with Superintendent to coordinate daily tasks according to priorities and plans, making changes when necessary due to weather, supply, delivery, and personnel.

- Delegating individual responsibilities and project tasks to crew members and contractors.
- Emphasizing safe use of tools, machinery, and equipment.
- Resolving conflicts or miscommunications quickly and amicably.
- Regularly reporting project status to supervisors and other site personnel.

6.0 Existing Site Conditions

The Project Site is located at 5 Flint Street in Rochester, NY, in Monroe County, and is a roughly 40,000 SF, up to 3-stories tall concrete/brick/block framed building that is scheduled to be demolished and removed. The site is directly south of the main portion of the city of Rochester, NY and has many adjacent active businesses north of the building scheduled for demolition that are located on Flint Street as well.

7.0 Project Schedule

Sessler's project schedule assumes all contracted scope of work shall be started and successfully completed during one mobilization event. The demolition scope is anticipated to start as soon as the July 2025 timeframe after all hazardous/abatement scope is performed.

8.0 Utility Disconnections and Make Safe Work

Prior to demolition, utility disconnect verification and physical separation for all overhead and underground utilities shall be performed by the Client, and both entities (Sessler and Client) shall be in mutual agreement that the work areas are safe prior to start of demolition work. The Client will cut, cap, and separate any existing live and/or abandoned utilities that are connected to the structure to be demolished, of which may include but shall not be limited to the following: steam, electric, gas, fiber, communications, sanitary, storm, and water. **PRIOR TO STARTING ANY WORK:** As part of Sessler's quality control process, a Utility Disconnection Verification form shall be utilized with review and signatures of competent Sessler persons. The form shall be shared with the Client for their review and signature as allowed within the terms of our Contract. **Refer to Appendix A** for an example of the **Utility Disconnect Verification Form.**

Sessler shall notify NYS Dig Safe at least seven (7) business days prior to building demolition and confirm that there are no conflicts with utility members. Sessler shall immediately notify the Client of any potential conflicts. Sessler will remove abandoned utilities within 5-ft of the perimeter of each building or until the complete disconnected utility line runs to if abandoned (unless a structural stability conflict is presented), as needed, during implementation of the demolition process.

9.0 Universal Waste Removal and Asbestos Abatement

Prior to demolition, all universal wastes and asbestos containing materials shall be removed and disposed of by others. Sessler assumes clean demolition during their scope of work.

10.0 Lead Paint Removal and Management

Sessler acknowledges that certain materials throughout the building have been identified with levels of lead paint, according to the provided Paradigm TCLP Analytical Report, within the debris after testing was performed, including within the assumed clean C&D materials that are to be removed during the soft strip interior demolition process prior to performing the mass demolition of the building. However, since the levels of the lead are low (below 5 mg/L) that were tested on the report for the materials within the building, Sessler does not anticipate to need any additional PPE for the workers to handle the removal of these materials other than the basic Level D PPE (hard hats, vests, glasses, gloves, etc.) for typical

clean demolition projects. Sessler workers will still have the proper lead awareness training for his project to handle such materials. If by chance additional testing is performed for any additional lead containing debris discovered during demolition and the levels of lead come back equal or greater to the 5 mg/L limit, than Sessler will utilize additional PPE, Level C PPE (Tyvek suits, respirators, etc.), for their workers onsite per OSHA requirements.

11.0 Approach to Safe Demolition

The purpose of this section is to highlight the proposed protection measures to be implemented throughout safe and resourceful demolition operations.

11.1 Prior to Commencement of Demolition

Prior to performing any work onsite, the following means and methods to implement a safe and successful demolition project shall apply:

1. This Sessler Clean Demolition Work Plan submittal shall be approved.
2. The building to be demolished will be vacated and their use discontinued prior to Sessler mobilization. If adjacent areas remain occupied, an acceptable safe buffer zone (up to within 1.5 times the lateral distance of the highest material demolition point until the critical demolition piece is removed and the work area is made and deemed safe by Sessler) shall be maintained from Sessler demolition area.
3. All utilities shall be made safe by the Client prior to Sessler demolition, such that disconnections, terminations, and separations of utilities, as well as removal of abandoned utilities (the latter as applicable) up to a distance of 2H:1V of the greatest vertical removal depth from the building footprint and/or specific area/equipment is completed. Please see **Table 3** for Utility Marking Uniform Color Codes.
4. Prior to Sessler mobilization, the Client shall visually mark in paint or other visual queue all areas to be demolished and/or separated, including all cut lines above and/or below grade, as well as any locations that may be buried behind walls, ceilings, floors, etc.

Table 3: Utility Markings – Uniform Color Code

UNIFORM COLOR CODE - UTILITY IDENTIFICATION ASSIGNED COLORS	
White	To delineate proposed excavation site
Pink	Survey markings
Green	Storm and sanitary sewers and drainage systems, including force mains and other nonhazardousmaterials
Blue	Water
Orange	Communication lines or cables, including, but not limited to, those used in, or in connection with, telephone, telegraph, fire signals, cable television, civil defense, data systems, electronic controls, track signal and control, and other instrumentation
Red	Electrical power lines, electrical power conduits and other electrical power facilities, railroad traction power (i.e. 3rd rail or catenary), traffic signals and appurtenances and illumination facilities
Yellow	Gas, oil, petroleum products, steam, compressed air, compressed gases and all other hazardous liquid or gaseous materials except water
Brown	Other
Purple	Radioactive materials, reclaimed water, irrigation

11.2 Mobilization, Crew Size, Work Hours, and Notice of Work

Sessler shall mobilize professionally trained personnel and equipment as necessary to safely support Sessler's scope of work. Sessler anticipates having at least two to three (2-3) core Sessler personnel on-

site at any given time throughout the duration of the project for the demolition scope. Sessler to provide the client separately, when requested, years of experience for each crew member regarding the project's scope of work and time worked with Sessler.

Mobilization to the site will include all necessary training for project personnel, including any required site orientation/safety training required for working onsite.

Workdays for this project shall be from Monday through Friday, within the range of 7 AM to 10 PM, or earlier/later as needed to expedite the project schedule, excluding government holidays. Sessler assumed to have the ability to work overtime as needed without any cost or schedule implications from the Client and/or other trades.

11.3 Inspection of Suspect Materials

Prior to demolition, Sessler will visually inspect the work area, as well as additional areas that may not have been captured during the original environmental survey process and immediately notify Client/Owner of any additional suspect materials that may need to be abated (e.g., asbestos, lead based paint, PCB caulking, etc.).

11.4 Engineers Survey of Structures per OSHA 1926.850(a)

Prior to demolition, Sessler shall perform an engineering survey of the structure to be demolished, which shall identify any existing visual structural deficiencies and correlate any potential compounded safety hazards based on the demolition approach.

The engineering survey shall be in accordance with OSHA Standard 1926.850(a) and shall be conducted by Sessler's Site Supervisor, as the competent person. The survey will be submitted to the Client once completed.

11.5 Site Access

Site access to the demolition area(s) shall be restricted to authorized personnel only. Sessler personnel will request keys to site access gates from the Client and sign in each day, listing names of persons onsite and their respective firms.

11.6 Traffic Control and Signage

Heavy equipment and outgoing debris loads shall be coordinated to and from work area(s) by use of Client designated/maintained access roads and gates. The Client shall provide appropriate traffic control signage as needed to coordinate a close working relationship with all trades.

Access to existing walkway, exits, and other facilities used by occupants of adjacent buildings shall be maintained, to the extent practical, throughout demolition.

11.7 Noise

Sessler's demolition work shall be performed with minimal disruption to the active businesses adjacent to the site. Noise control techniques should be implemented such as working within allowable hours of operation as required by the Client and Sessler shall comply with the local noise ordinance.

11.8 Dust Suppression

Sessler shall suppress fugitive dust for the structure demolition by using portable water spray systems strategically placed and relocated as needed throughout the demolition area. Such systems should maintain low levels of dust and be applied at temperatures above 32-degrees Fahrenheit. Additionally, laborers with water hoses and appropriate nozzles shall provide additional dust suppression support as needed. When temperatures drop below 32 degrees Fahrenheit, rock salt may be utilized to reduce freezing/slippery surfaces in areas of foot traffic. An onsite water source, allowed by the City of

Rochester, NY, will be available to supply the appropriate amount of water onsite for use throughout the demolition. A fire hydrant is located on Flint Street adjacent to the project site that is available for use. Sessler to work with the City of Rochester, water department to acquire the necessary hydrant permit needed for the dust suppression. Sessler shall install a backflow valve and meter to the fire hydrant to regulate and measure water flow when needed. Sessler shall then run a fire hose from the hydrant connection and use that fire hose for dust suppression. An onsite Sessler laborer will control the fire hose while the equipment operator in the hydraulic excavator is performing the actual demolition work and will aim the water that will be used for dust suppression at the point of contact from where the excavator is making contact to the building during the demolition and will also continuously mist the surrounding area. Sessler shall work in compliance with the Client's Dust Control Plan.

As Sessler implements the demolition scope of work, a reduction and/or elimination of water applied to control dust may be required to reduce or eliminate additional safety concerns that arise using water due to weather conditions. Modifying the method for applying water and the quantity used will only occur if determined by a Competent Sessler Employee (in conjunction with the Client) that following the requirements found in Table 1 of 29 CFR OSHA 1926.1153 (i.e., using water to control dust) is not feasible due to air temperatures, environmental factors, or other conditions that require adjustment to the use of engineering controls, administrative controls, or PPE requirements. Additionally, if it is determined by a Competent Sessler Employee that using water to minimize visible dust generated during demolition activities creates additional safety hazard(s), then a risk assessment shall be conducted to identify the supplemental work practice controls to be used to protect employees. The risk assessment shall include consideration of wind direction, extent of activity, and proximity of the public and non-trained workers. In summary, if water is not utilized to minimize visible dust, then employees working on the ground within the designated demolition work area will be required to wear respiratory protection with an assigned protection factor of at least ten (10). Employees operating with heavy equipment will work from within an enclosed cab with the necessary ventilation and filtration system to achieve adequate protection. All workers that wear respirators should have the appropriate training, medical clearance, and fit testing.

11.9 Clean Mass Demolition Controls and Procedures

The following lists logical general processes that will be implemented in no order of importance:

a. Demolition will proceed in a strategic manner where demolition work of structural and non-structural members shall proceed continuously until the remaining structure is in equilibrium with regard to loading (dead loads and any anticipated live loads – equipment, snow, rain, wind, etc.) in order to avoid safety issues such as structural collapse.
b. Demolition shall be performed by using hydraulic excavators equipped with grapple buckets, processing shears, impact hammers, and concrete processing attachments.
c. Water misting units shall be strategically placed as a means of dust control as well as manual misting of the materials via fire hoses as the structure is demolished, as needed.
d. Building members will be continuously assessed for structural vs. non-structural conditions, and Sessler will work to reduce loading on structural members by first removing the weight of the non-structural items (e.g., roofing materials, etc.). By first removing this excess weight, the overall load on the structural members is reduced, therefore the factor of safety is increased.
e. Sessler should be aware of specific roof truss configurations such that removal of one particular member may shift loading to adjacent member, thereby causing the potential for instability.
f. All structural and non-structural members shall be systemically removed as a top-down approach.
    - **Structural Members:** One end of the member(s) shall be separated while the opposing end will be hinged to minimize safety concerns from a total load free fall. Once the initial cut end is resting and stable, the remaining end shall be separated and allowed to free fall as deemed safe to below levels and/or debris receiving areas.
    - **Columns:** Shall be processed near the base and allowed to free fall as deemed safe to below levels and/or debris receiving areas.

- **Walls:** Shall be safely pushed/pulled and allowed to free fall as deemed safe to below levels and/or debris receiving areas.

g. To ensure worker safety during demolition and loadout processes, building materials shall be separated from the structure and permitted to descend to the ground at "**Controlled Debris Receiving Areas**" based on the following general approach:
   - Debris receiving areas shall be controlled and access prevented until areas have been identified by Sessler as "CLEARED" at all locations within the demolition and debris receiving areas.
   - Controlled protection shall be installed and relocated by Sessler as needed throughout the building demolition and material loadout; and protection may include the following:
     - Yellow – "Caution" tape.
     - Temporary barricades.
     - Safety cones.
     - Signage.
   - Constant radio contact shall be always made by Sessler employees.
   - Unless in direct radio and eye contact of the equipment operator(s), no ground persons and/or non-critical equipment operators in machines shall enter the controlled debris receiving area that are within 1.5 times the lateral distance of the highest material demolition point until the critical demolition piece is removed and the work area made and deemed safe by Sessler (*e.g., if the highest demolition point to the ridge of the roof is 40-ft above grade, the safe lateral distance shall be 60-ft; such that all ground level and non-critical equipment operators shall be outside of the 60-ft boundary*). Equipment operators that operate the equipment and that are critical for safe removal, may work within this lateral boundary.

h. As mentioned above, unless in direct radio and eye contact of the equipment operator(s), all ground workers (i.e., laborers that support dust suppression by spraying of water) shall remain at a distance of 1.5 times (150%) of the machines swing radius and/or building height, whichever is greater.

The building system shall be continuously evaluated for unsafe conditions, and all shall recognize the above conceptual plan is subject to change as directed by the Sessler Competent person.

11.10 Concrete Slab and Foundation Removal

Sessler, as directed by the Client, is to only remove the above grade portion of the 5 Flint Street, 3-Story building. The removal of the 1st Floor slab on grade and below grade foundation systems are excluded and are to remain in place after demolition is completed.

11.11 Site Restoration

Sessler has excluded any importation or installation of backfill, topsoil, and/or seeding at the project site. Assumes that any site restoration for the project site will be managed by others after Sessler demobilization.

12.0 Construction Waste Management and Disposal

The below sections include a brief overview of Construction Waste Management and Disposal. The goal is to minimize the volume/weight of materials that are sent to regulated municipal solid waste facilities by implementation of identification, separation, and waste stream diversion practices as deemed most efficient by Sessler and the desired project schedule.

12.1 Material Segregation

As long as the contracted schedule is achieved, Sessler shall minimize the amount by weight of material that is sent to solid waste landfills by implementing the following processes:

a. Material segregation at point of demolition (if possible).
b. Material to be Processed onsite to facility the disposal to the landfill.

c. Removal of bulk clean debris and salvageable materials/equipment from building prior to demolition.
d. Clean metals will be separated, sorted, and processed according to grades and then will be loaded into containers and brought offsite to a local recycling facility.
e. Recognizable brick, block, and concrete materials shall be hauled offsite for recycling and/or disposal, as appropriate.

12.2 Debris Stockpiles

Unregulated construction debris "Clean C&D" will be processed as needed and shall be live loaded and/or stockpiled onsite in small piles for minimal durations (typically the piles will be loaded out prior to the end of each workday, but they can last until the next day, overnight maximum to be loaded out the next day) before being loaded into on road haul trucks.

All work areas and material stockpiles shall be cleaned of loose/flying debris each day to the approval of the Client. Within material stockpile areas, heavier debris shall be placed on less dense debris to eliminate the potential for flying debris and associated hazards.

12.3 Materials Diverted from Landfill

Materials that are anticipated to be diverted from landfills are as follows:

a. Clean concrete. The Client is still confirming with the DEC that the concrete material can be recycled.
b. Clean wall materials (i.e., masonry, brick, and block). The Client is still confirming with the DEC that the wall materials can be recycled.
c. Ferrous and Non-Ferrous Metals (i.e., steel, stainless steel, aluminum, copper pipe and copper wire, cast iron, electrical, etc.) will be separated, sorted, and processed according to grades and then will be loaded into roll-off containers and/or trucks for recycling.

Assumes all hardfill materials to be clean, non-impacted, non-RCRA, non-DOT (i.e., no Asbestos Containing Materials (ACM), PCBs, Lead, etc.) and that all can be sent offsite for recycling. The Client is still confirming that these materials can be recycled.

12.4 Materials Being Sent to a Solid Waste Disposal Facility

The following materials are anticipated to be disposed of at approved facilities:

a. **Clean C&D that is not beneficial for reuse** – sent offsite for transportation and landfill disposal in walking floor trailers, push trailers, dump trailers and/or dump trucks to client approved facilities.

Assumes clean (i.e., no Asbestos Containing Materials (ACM), PCBs, etc.) C&D materials to be disposed of offsite at a regulated NYSDEC Part 360 facility. All facilities to be used for any disposal need to first be approved by the client. Assumes any lead paint to be non-hazardous (non-RCRA).

Documentation: Non-Hazardous Waste Manifests for each load of material leaving the site will be processed by Sessler and signed off by the owner of the building or representative. Each manifest shall be documented in an onsite load tracking report, which will be correlated daily with the Client's tracking report. Final tickets from the disposal facility will be submitted to the Client as soon as they are received by Sessler – depending on the landfill, this may be one to two days after the load leaves the site. Bill of Ladings (BOL) will be provided for materials that are sent offsite for recycling (i.e., steel, hardfill), which shall list the details of each load and the recycling facility that the materials are sent to. Weight tickets received from the recycling facilities can be provided to the Client for all recyclable materials.

12.5 Material Transportation

All transportation of regulated & unregulated waste, as well as material to be recycled, shall be procured, and coordinated by Sessler. Weight tickets shall be submitted to the Client for regulated C&D waste.

12.6 Solid Waste Management Landfill for C&D

The anticipated waste streams that require NYSDEC Part 360 landfill disposal are: Clean construction debris (C&D).

The following Solid Waste Management Facilities (Disposal Facilities) may be utilized, pending client's final confirmation with the Owner:

Clean Construction & Demolition Debris Landfills:

1. Waste Management – High Acres Landfill
   425 Perinton Pkwy,
   Fairport, NY 14450
   Phone: 585-223-6132

12.7 Facilities for Recyclable Materials

Sessler should utilize the following transporters and end recycling facilities to process diverted materials as shown above, pending that the facilities will be approved by the client prior to sending any recyclable materials offsite.

Salvageable Ferrous and Non-Ferrous Metals:

1. Metalico Rochester
   1515 Scottsville Road,
   Rochester, NY 14623
   Phone: 585-436-0713

Recognizable Concrete, Brick and Block Materials:

1. Villager Construction, Inc.
   200 Ferrano Street,
   Rochester, NY 14606
   Phone: 585-370-1006

12.8 Material Transporters: Regulated & Unregulated

Sessler shall utilize the following transporters during the entire project duration for removal of materials from site. The listed below transporters do not limit to just these vendors, other truckers may be used, and Client will be made aware by Sessler if this occurs.:

Clean C&D Materials:

1. Riccelli Enterprises, Inc.
   6131 E Taft Road,
   N. Syracuse, NY 13212
   Phone: 315-433-5115

2. Sessler Wrecking
   1257 State Route 96N,
   Waterloo, NY 13165
   Phone: 315-539-3353

Recognizable Concrete, Brick, and Block Materials:

1. Riccelli Enterprises, Inc.
   6131 E Taft Road,
   N. Syracuse, NY 13212
   Phone: 315-539-5115

2. Sessler Wrecking
   1257 State Route 96N,
   Waterloo, NY 13165
   Phone: 315-539-3353

13.0 Site Safety Procedures

All Sessler employees and working subcontractors will be required to review and acknowledge compliance with Sessler's Corporate Health & Safety Plan (submitted separately) and any Client required Safety Plans.

Sessler shall utilize the following controls/processes to safely complete the contracted demolition scope of work, which is not inclusive of any Client required Health & Safety Policies.

13.1 Training Requirements

All Sessler employees and working Subcontractors are required to have current the following training:

- Client specific training if required.
- Hazardous Waste Operations and Emergency Response (HAZWOPER) 40-hour; 8-hour refresher as needed.
- Construction Outreach OSHA 30-Hour or OSHA 10-Hour.
- First aid/cardiopulmonary resuscitation (CPR).
- General Awareness and/or Competent Person training.
- If workers are performing activities where they may be impacted by known or suspect lead-based paint and/or coatings, workers shall have had Lead Awareness training that complies with OSHA initial and annual lead awareness training requirements specified in 29 CFR 1926.59 and 29 CFR 1926.62(I).

Required records of training will be submitted to the Client prior to start of work.

13.2 Daily Reporting

Activity Hazard Analysis (AHA), or Client Daily Hazard Analysis (DHA) forms shall be processed by a Sessler employee who shall be competent in their respective construction trade. Such forms will be provided to the Client daily and a copy will be maintained onsite for immediate inspection upon request, if required.

13.3 Public Protection

Protection of the public shall be implemented by the Client controlled/provided fencing/gates/barricades and access points to the Sessler controlled demolition work area(s).

13.4 Personal Protective Equipment (PPE)

Sessler anticipates the use of, at minimum, OSHA Level D PPE throughout the implementation of presumed clean demolition activities:

- ANSI approved safety toe boots per OSHA 29 CFR 1926.95.
- Long work pants (i.e., jeans, canvas, and/or other durable material).
- Long sleeve shirts and welding shirts/jacket will be worn when required during torching.

- Gloves – at minimum, always cut resistant ATA Class 3 (*and by all trades regardless of task unless approved by the specific task Daily Hazard Analysis 'DHA or AHA*). Gloves shall be appropriate per the work task hazard (e.g., fire retardant, anti-vibration, rubber, neoprene, vinyl, cut resistant – the latter of which is the minimum requirement).
- Hard Hat (ANSI Z89.1-2014, ANSI Type 1, Class E, G and C).
- Safety Glasses (ANSI Z-87.1).
- Goggles and face shields when cutting/chipping, etc.
- High visibility safety vest – orange reflective break away style (ANSI Class II (day work) Class III (night work).
- Hearing protection as applicable.

Additionally, the following may be utilized throughout the project as required:

- Respiratory protection should be utilized as needed during cutting operations. Pulmonary function and respirator fit test records shall be separately supplied prior to usage.

13.5 Fire Protection and Prevention

Should Sessler be required to perform any hot work (e.g., cutting, or torching steel members for demolition), Sessler will request a hot work permit through the Client, and Client will obtain the permit through Owner. All equipment utilized for torching shall be maintained in accordance with OSHA and NFPA regulations.

The following procedures shall be adhered to when performing hot work:

- Utilize a designated "Fire Watch" which shall communicate with torch operators by use of an air horn if suspect conditions arise. A designated "Fire Watch" will be placed for 30 minutes.
- Make sure the work area is clear of flammable materials.
- Verify contents of concealed or hidden spaces prior to hot work near such spaces.
- Oxygen/acetylene lines shall be placed to ensure they are not cut by falling debris.
- When not in use, oxygen/acetylene tanks shall be stored within approved enclosures.
- Areas below cutting operations shall be cleared and maintained.
- Use of face shield/goggles when torching.
- Inspected fire extinguishers will be readily available and maintained throughout hot work operations.
- Use of proper ventilation.
- Acetylene and O2 tanks to remain upright and secure and tank operations to follow OSHA guidelines.

13.6 Emergency Procedures

Given the amount of heavy equipment utilized within the demolition work area and safe working tolerance of the site, Sessler shall ensure the following:

- All work tasks will be carefully planned and discussed in detail during the morning safety meeting and again after the lunch break as site conditions may change.
- Verify that all utilities and possible energized devices have been de-energized, separated, and locked-out by the Client and Owner prior to start of demolition activities.
- All work will be performed, at a minimum, in teams of two (2) trained people.
- All workers shall maintain consistent communication with the Sessler team (e.g., verbal, hand, or eye contact).
- Ensure that site access points are not blocked for emergency access.
- Minimize on-road truck traffic staging onsite.

Should an emergency develop, the Site Supervisor should proceed with the following action items:

- Efficiently and safely secure the work area to prevent additional issues.
- The Site Supervisor shall call emergency phone numbers in order of significance (i.e., 911 or Onsite Emergency Contact First).
- Once Emergency services are notified, the Client shall be notified. Client will be responsible for notifying the Owner.
- Use of an air-horn, when required, to indicate emergency evacuation.

Additional details of emergency action procedures are as follows:

13.6.1 Responsibilities

The General Site Superintendent or Site Foreman is responsible for responding to and coordinating the response of off-site emergency personnel. In the event of an emergency, the General Site Superintendent will direct notification and response and will assist the Site Foreman and Project Manager in arranging follow-up actions. Upon notification of an incident, the Site Fireman will call the hospital, fire, and police emergency response personnel for recommended medical diagnosis, treatment if necessary, and transportation to the hospital.

Before the start of work, the General Site Superintendent or Site Foreman shall:

- Review with the site staff weekly, emergency planning information including evacuation routes, emergency gathering areas, and locations of first aid kits, fire extinguishers, and eye wash stations.
- Notify emergency contacts, and health care facilities of the potentially hazardous activities on-site as a result of the activities.
- Confirm that the following safety equipment is available: eyewash, first aid supplies, air horn, and fire extinguishers.
- Have a working knowledge of the Sessler safety equipment.
- Confirm that employees who will respond to emergencies have been appropriately trained.

Before work may resume following an emergency, used emergency equipment must be recharged, refilled, or replaced and government agencies must be notified as required. All waste generated from an accident or investigation will be containerized in a manner consistent with regulatory requirements.

The Project Manager and Site Foreman are responsible for investigating the incident as soon as possible. The Project Manager will review the incident investigation report to determine whether and to what extent exposure occurred and the means to prevent similar incidents.

13.6.2 Accidents and Injuries

In the event of an accident or injury, workers will immediately implement emergency isolation measures to assist those who have been injured or exposed and to protect others from hazards. Upon notification of an incident, the Site Foreman will contact emergency response personnel who can provide medical diagnosis and treatment. The Site Foreman will notify the Client of any incidents immediately.

If necessary, immediate medical care will be provided by personnel on site that are trained in first aid procedures. Other on-site medical or first aid responses to an injury or illness will be provided only by personnel competent in such matters.

Refer to **Appendix C** for directions to the nearest hospital.

13.6.3 Fire Fighting Procedures

At least one, or more pending scope, fire extinguishers meeting the requirements of 29 CFR Part 1910 Subpart L, as a minimum, will be available in the work zones(s) during on-site activities. Fire

extinguishers shall be utilized to control small fires. When a fire cannot be controlled with the extinguisher, the Exclusion Zone will be evacuated, and the fire department will be contacted immediately.

13.6.4 Emergency Equipment

The following equipment will be maintained in the Support Zone for safety and emergency response purposes:

- At minimum, one ABC fire extinguisher per work area.
- One industrial grade first aid kit scalable to the number of workers.
- Eye wash bottle scalable to the number of workers.
- Washable coveralls.
- Gloves, both inner and outer.
- Face shields.
- Safety glasses.
- Respirators and appropriate cartridges.
- Disposable coveralls.
- Hard hats.
- Spill kit.
- Rain suits.
- Emergency blanket.
- American Red Cross Standard First Aid Book.

13.6.5 Muster Point

In the event of an emergency, an air horn will be sounded to notify all site personnel to stop work and proceed to the designated Muster Point. The location of the muster point will be identified daily during the daily safety briefing.

13.6.6 Emergency Site Communications

Portable/cellular telephones and VAMCFD radios will be available during site activities for emergency response communications. In the event of an emergency, a visual hand signal will be used as follows:

Hand Signal
Hands crossed on top of head.

Meaning
Stop all work immediately; Await verbal instructions (in-person, radio, or cellular communication).
In addition, walkie-talkies will be used for long-distance communication as well as three-way communication where the listener repeats orders to ensure a correct understanding of requests.

13.6.7 Security and Control

Work zone security and control during emergencies, accidents, and incidents will be monitored by the Site Supervisor while Sessler is onsite. Some of the duties of the Site Supervisor include limiting access to the work zones to authorized personnel and overseeing emergency response activities.

Workers should be aware of potential unauthorized vehicles entering the demolition work zone. All Sessler employees will wear high-visibility clothing and use high-visible cones and/or flashing lights during work.

13.6.8 Emergency Egress of Work Area

Sessler shall always maintain at least two (2) safe means of egress of any Sessler controlled work area.

Where worker access is required, specific routes and areas shall be free of debris, well lit, and free of any other safety concerns.

13.7 First Aid Requirements

All Sessler employees on-site shall be trained in First Aid/CPR/AED and Bloodborne Pathogens. First Aid Stations are controlled through the safety department. Should there be a need for First Aid, Sessler will notify Client management, who will take the necessary actions to administer first aid or arrange a doctor/hospital visit. This ensures all incidents are reported and addressed properly.

Sessler shall place within the Support Zone, a designated First Aid Station complete with

- First aid kit in accordance with ANSI-Z308.1-1978, in quantity, based on the number of workers under Sessler's management.
- Eyewash station(s) throughout the work area(s) as needed.
- CPR resuscitation masks and non-latex gloves as PPE for First Aid Providers.

13.8 Daily Housekeeping

Sessler shall maintain, clean, and organize the site to help minimize safety issues to workers and the surrounding community.

- Materials shall be stockpiled in a manner that will not cause secondary shifting/collapse.
- Debris piles shall be minimized by use of effective loadout/disposal scheduling techniques.
- Materials and supplies will not be left on walkways or outside of the work area.
- All demolition work areas shall be inspected periodically throughout the day and at the end of every day with overall approval from the Client. Typically, this is only documented in Sessler's in-house online daily track reports, but the daily notes can be shared with the Client, if requested.

14.0 Equipment to Utilize

Sessler anticipates utilizing the following heavy equipment onsite:

1. 400 Class Excavator(s).
2. 300 Class Excavators(s).
3. Excavator Attachments:
    a. Impact Hammer
    b. Pulverizer Processor
    c. Shear
    d. Grapple
    e. Bucket
4. Skid Steer (includes bucket & grapple).
5. Portable water misting system: Boss Tek DB60 or Buffalo Turbine Mister. There should not be any machine guarding and/or noise concerns with these.
6. Utility box truck with oxygen/acetylene torch set.
7. Pickup Truck, ¾-ton.
8. Enclosed utility trailer, 7-ton, for personnel decontamination.

The following hand tools are anticipated to be utilized:

1. 20-lb ABC fire extinguishers as needed throughout the project.
2. Portable first aid kits.
3. Portable eye washing stations.
4. Oxy/Act torch set with bottles.
5. Handheld demolition saw, 2-stoke, gas powered.
6. Electric Handheld band saw, electrical Sawzall's, & electric powered circular saws.
7. Battery operated screw guns.
8. Large and small diameter sockets and wrenches.

9. Breaker bars & pipe wrench.

Additional materials that may be utilized (For any of these chemicals that are brought to the site, all SDS' on file will always be accessible from the site):

1. Echo Power Blend Two-Cycle Engine Oil.
2. 80W-90 Oil.
3. Acetylene.
4. Anti-freeze & anti-gel.
5. Automatic Transmission Fluid (ATF).
6. Brake Cleaner (Aerosol).
7. Carbon Monoxide.
8. Fleet guard (DEF) AdBlue Diesel Exhaust Fluid.
9. All Purpose Degreaser (Aerosol).
10. Cetane Booster (Diesel fuel conditioner with cetane).
11. Diesel Fuel & gasoline (all grades).
12. GOJO NATURAL ORANGE Smooth hand cleaner.
13. Multi-Purpose Grease.
14. Chevron hydraulic oil AW 32, 46, 68.
15. KEN Super-D 3 Diesel Engine Oil 10W 30 40 50 GHS.
16. Loctite 460 Adhesive & motor oil (all grades).
17. Never Seize Compound with PTFE.
18. Oxygen (Compressed).
19. PB Blaster Penetrating Catalyst (Aerosol).
20. Propane.
21. Kleen-Start Starting Fluid & WD-40.
22. Windex Original glass cleaner.

Safety Data Sheets (SDS) for all materials will be kept onsite within the project trailer. An electronic version is also accessible to all employees with a smart phone device.

15.0 Demobilization

Following the completion of the scope of work, Sessler shall demobilize all equipment, materials, and personnel from the project site. The following work will be completed as part of the demobilization:

- Sending all non-hazardous materials offsite for regulated transportation and disposal to a permitted landfill/transfer station or hardfill to a recycling facility that are approved by the Client prior to sending.
- Provide all waste tracking data to the Client.
- Perform final punch list walk through and obtain written approval for completion prior to full demobilization.

16.0 Project Closeout

Following the demobilization and completion of the project closeout punch-list, Sessler will submit all requested closeout documentation required from the client for the entire project. This includes but is not limited to all waste weight tickets and non-hazardous manifests for all debris that went offsite.

End of Document Excluding Appendices

Appendix A:

Utility Disconnect Verification Form

Pre-Demo Client Sign Off Sheet

L.M. Sessler Excavating & Wrecking, Inc; 1257 State Route 96 Waterloo, NY 13165

Client - Business Name	**Roux Associates, Inc., 200 Summit Drive, Suite 500, Burlington, MA 01803**	**Client Project No.:**	TBD
Client Contact Information:	Sara Barrientos, 781-569-4000, sbarrientos@rouxinc.com	**Sessler Project No.:**	25-1700
Site Address	**3-Story Building** - 5 Flint Street, Rochester, NY 14608	**Project Manager:**	Matt Felice: 315-283-4586
Engineering Firm:	N/A	**Supervisor/Foreman:**	Dan Skinner: 315-415-8637
3rd Party Asbestos Monitor:	N/A		

General Items

Item	**Completed** (Yes, No, or N/A)	Responsibility	Print Name	Date	Signature
Deeds and Ownership		Roux			
Client Approval		Roux			
Building Cleared/Vacant		Roux			

Utilities

Item	**Completed** (Yes, No, or N/A)	Responsibility	Print Name	Date	Signature
U.F.P.O. DIG Safe		Sessler			
Pre-Demo Conference		Sessler			
Electric Disconnect		Roux			
Gas Disconnect		Roux			
Water Disconnect		Roux			
Sewer Disconnect		Roux			
Fiber Disconnect		Roux			
Telecom Disconnect		Roux			
Other Disconnections		Roux			

Permits & Approvals

Trade	**Completed** (Yes, No, or N/A)	Responsibility	Print Name	Date	Signature
Demolition & Other Permits		Roux			
E.P.A. Notification		Sessler			
D.O.L Notification	N/A				
Landfill Approvals		Sessler			
OSHA Pre-Demo Survey		Sessler			

Other

Trade	**Completed** (Yes, No, or N/A)	Responsibility	Print Name	Date	Signature
AST or UST's	N/A				
Architectural Salvage	N/A				

Schedule

Work Task	Anticipated Duration, Work Days

Notes

APPROVED TO START WORK

Subcontractor Name	Person Authorizing Start: Print Name	Date	Signature
L.M. Sessler Excavating and Wrecking, Inc.			

Client Name	Person Authorizing Start: Print Name	Date	Signature
Roux Associates, Inc.			

End of Checklist

Appendix B:

Sessler Corporate Health & Safety Plan

SESSLER WRECKING

DEMOLITION PROFESSIONALS SINCE 1958

SAFETY ✔
DEMOLITION ✔
REMEDIATION ✔
RECOVERY ✔
BRIDGES ✔
BUILDINGS ✔
MARINE ✔
INDUSTRIAL ✔

Health & Safety Manual





Prepared By: Gus Rivera, Director of Health and Safety

Prepared/Revised On: 5-2021 / 3-2024

Version: 2

COMPANY POLICY STATEMENT

Sessler Wrecking Company has a moral and legal responsibility to provide a safe working environment to all its employees. Because of this responsibility, safety will be a main concern of the entire job from the pre-bid visit to demobilization. Sessler Wrecking Company has developed the Company Policy to acknowledge this responsibility.

Occupational injury and illness are a burden on both the employee and the Company. Safety must be given priority in all the Company's activities to reduce the financial burden and loss of productivity.

By providing adequate personal protective equipment, insisting that all personnel adhere to all safety rules and regulations, providing continual safety training to employees on the safety aspects of their jobs, responding promptly to any accident to avoid any reoccurrence, and planning for any obvious hazards, Sessler Wrecking Company can better achieve its goal of no accidents or injuries, making for a healthier job place with increased productivity.

Every member of Management will be responsible for all safety matters relating to his/her job site and the personnel involved within that job site.



Jeff Sessler
Owner

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Accident / Incident Investigation

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Bloodborne Pathogens

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Working Near Water

Purpose

The purpose of this program is to have effective procedures for reporting and evaluating/investigating incidents and non-conformances in order to prevent further occurrences.

Responsibilities

Individual responsibilities for reporting and investigation must be pre-determined and assigned prior to incidents.

Sessler Wrecking Safety Manager

Ensures investigations are conducted and assists in identifying corrective actions.

Site Manager and Supervisors

- Investigates (or assists in) incident investigations
- Corrects non-conformances
- Accompany injured employees to the medical provider for initial treatment.

Employees

Employees must report incidents immediately after they occur. When an employee is involved in a work-related incident or is aware of a condition that may cause one the employee must report the incident as soon as possible to Sessler Wrecking. Incidents include any near miss, injury, job related illness, spill, or damage to any property to their immediate supervisor. If their immediate supervisor is not available, the employee is then to immediately notify the project manager. Employees who could be first responders will be trained and qualified in first aid techniques to control the degree of loss during the immediate post-incident phase.

Procedure

After immediate rescue or response, actions to prevent further loss will occur if the scene is safe. For example, maintenance personnel should be summoned to assess integrity of buildings and equipment, engineering personnel to evaluate the need for bracing of structures, and special equipment/response requirements such as safe rendering of hazardous materials or explosives employed.

Investigations of Incidents, Near Misses & Non-conformances
Investigation is an important part of an effective safety program in that it determines the root cause and corrective actions necessary to prevent similar incidents or non-conformances.

The following must be reported to the employee's supervisor immediately. If that person is not available, then the Sessler Wrecking Safety Manager shall be immediately notified for:

- Near miss incidents with the potential to harm people, the environment, or assets
- Work related injuries or illnesses; Property damage including vehicle incidents
- Hazardous chemical spillage, loss of containment and contamination
- Non-conformance to safety or environmental rules, policies, or standards

The supervisor shall make the necessary notifications and begin the incident investigation process.

In the case of a major injury or incident the scene of the event should be closed off and kept "as is" at the time of the incident. This is vital for effective incident investigation.

All incidents are investigated promptly. When Sessler Wrecking has been notified of a work-related incident it shall appoint qualified personnel to complete an investigation of the incident. The investigation should take place as soon as possible after the incident while the facts are still fresh within the minds of those involved (i.e., witnesses). Take the opportunity to talk to all of those involved before they become unavailable or memory fades. An incident investigation must be thorough and concerned only with cause and prevention and must be separate from administrative disciplinary action.

Equipment

Equipment shall be made available and may include some or all of the following items; writing equipment such as pens/paper, measurement equipment such as tape measures and rulers, cameras, small tools, audio recorder, PPE, flags, equipment manuals, etc. The Safety Manager shall have an incident investigation kit prepared in advance.

Incident Reporting Matrix

The Incident Reporting Matrix identifies, based on type of incident, who within corporate management shall be verbally notified and when. It also specifies which type of report from the field shall be completed based on the type of incident.

Reporting of the incident must occur in a specified manner based on site specific requirements and the reporting sequence shall be posted.

OSHA defines “in-patient hospitalization” as a formal admission to the in-patient service of a hospital or clinic for care or treatment. Treatment in an emergency room only is not reportable.

OSHA defines “amputation” as the traumatic loss of all or part of a limb or other external body part. This would include fingertip amputations with or without bone loss; medical amputations resulting from irreparable damage; and amputations of body parts that have since been reattached. If and when there is a health care professional’s diagnosis available, the employer should rely on that diagnosis.

Results of incident investigations are communicated to employees via the Incident Notice form.

Incident Review Team and Incident Investigation Report
Contributing factors and/or root causes are identified and documented. The written incident investigation report shall include an explanation of the contributing factors or root causes of the incident that were identified during the investigation.

All incidents shall be investigated, and the extent of such investigation shall reflect the seriousness of the incident utilizing a root cause analysis process or other similar method determined by the Sessler Wrecking Safety Manager. They will form an Incident Review Team that participates in the determination of the final root cause investigative incident report. The team consists of representatives of management or other designees as assigned by the Sessler Wrecking Safety Manager.

Initial identification of evidence immediately following the incident could include a listing of people, equipment, and materials involved and a recording of environmental factors such as weather, illumination, temperature, noise, ventilation, etc.

Evidence such as people, positions of equipment, parts, and papers must be preserved, secured, and collected through notes, photographs, witness statements, flagging, and impoundment of documents and equipment. All shall be dated.

Witness interviews and statements must be collected. Locating witnesses, ensuring unbiased testimony, obtaining appropriate interview locations, and use of trained interviewers should be detailed. The need for follow-up interviews should also be addressed. All items shall be dated.

The final incident investigation report consists of findings with critical factors, evidence, corrective actions, responsible parties, and timelines for corrective action completion.

Results of incident investigations are communicated to employees via the Incident Notice form.

Field Incident Report Form
Incident investigations are documented. After the investigation of the incident Sessler Wrecking shall prepare a written report including the description of the incident, any evidence collected during the investigation, an explanation of the causes of the incident and corrective actions required or recommended. Written incident reports will be prepared via the Field Incident Report Form and a detailed narrative statement concerning the events. The format of the narrative report may include an introduction, methodology, summary of the incident, Incident Review Team member names, narrative of the event, findings, and recommendations. Photographs, witness statements, drawings, etc. should be included.

The supervisor completes the Sessler Wrecking Field Incident Report and takes the below steps when beginning an incident investigation.

- Provide emergency assistance, as needed, and qualified for
- Secure the area as quickly as possible to retain area in the same condition at the time of the incident
- Notify management by phone according to the Incident Notification Matrix
- Identify potential witnesses
- Use investigation tools, as needed (camera, drawings, video, etc.)
- Tag out for evidence any equipment that was involved
- Interview witnesses (including the effected employee) and obtain written, signed statements and fax to the Sessler Wrecking Safety Manager

- Prepare Sessler Wrecking Field Incident Report, sign the form, fax it to the Sessler Wrecking Safety Manager
- Implement any immediate corrective actions needed

Incident Notice Form
Lessons learned will be reviewed and communicated via the Incident Notice Form. Changes to processes must be placed into effect to prevent reoccurrence or similar events.

In order to communicate incident information and lessons learned from incidents the Sessler Wrecking Safety Manager shall send the Incident Notice to all work sites. The form shall be posted on employee bulletin boards and shall be discussed in weekly safety meetings until all employees at the job site have been informed of the incident.

Corrective Actions
Corrective actions are identified and implemented to prevent a recurrence of the incident.

The written incident investigation report shall include any immediate corrective actions that were taken as well as any long-term actions that are required to prevent the recurrence of the incident. Individuals will be assigned responsibilities relative to the corrective actions, and these actions will be tracked to closure.

Site Managers are held accountable for closing corrective actions. Corrective actions for safety improvement input are posted at each site and tracked by the Sessler Wrecking Safety Manager to ensure timely follow up and completion.
Corrective actions are also used as needed for revisions to site specific safety plans and the Sessler Wrecking Safety and Health Management System.

Injury Classifications
Injuries shall be classified per the following:

First Aid – Dressing on a minor cut, removal of a splinter, typically treatment for household type injuries.

Lost Work Day Case (LWDC) – An injury that results in an employee being unfit to perform any work on any day after the occurrence of an occupational injury.

Number of Lost or Restricted Work Days – The number of days, other than the day of occupational injury and the day of return, missed from scheduled work due to being unfit for work or medically restricted to the point that the essential functions of a position cannot be worked.

Occupational Injury – An injury which results from a work-related activity.

Occupational Illness – Any abnormal condition or disorder caused by exposure to environmental factors while performing work that resulted in medical treatment by a physician for a skin disorder, respiratory condition, poisoning, hearing loss or other disease (frostbite, heatstroke, sunstroke, welding flash, diseases caused by parasites, etc.). Do not include minor treatments (first aid) for illnesses.

Recordable Medical Case (RMC) – An occupational injury more severe than first aid that requires advanced treatment (such as fractures, more than one stitch, prescription medication of more than one dose,

unconsciousness, removal of foreign body embedded in eye (not flushing), admission to a hospital for more than observation purposes) and yet results in no lost work time beyond the day of injury.

Restricted Work Day Case (RWDC) – An occupational injury which results in a person being unfit for essential functions of the regular job on any day after the injury but where there is no time lost beyond the day of injury. An example would include an injured associate who is kept at work but not performing within the essential functions of their regular job.

Work or Work-Related Activity – All incidents that occur in work related activities during work hours, field visits, etc. are reportable and are to be included if the occupational injury or illness is more serious than requiring simple first aid. Incidents occurring during off hours and incidents while in transit to or from locations that are not considered an employee's primary work are not reportable.

The following are examples of incidents that will not be considered as recordable:

- The injury or illness involves signs or symptoms that surface at work but result solely from a non-work-related event or exposure that occurs outside the work environment.
- The injury or illness results solely from voluntary participation in a wellness program or in flu shot, exercise class, racquetball, or baseball.
- The injury or illness is solely the result of an employee eating, drinking, or preparing food or drink for personal consumption (whether bought on the employer's premises or brought in). The injury or illness is solely the result of an employee doing personal tasks (unrelated to their employment) at the establishment outside of the employee's assigned working hours.
- The illness is the common cold or flu (Note: contagious diseases such as tuberculosis, brucellosis, hepatitis A, or plague are considered work-related if the employee is infected at work).

Training

Investigation team members are provided training in investigation techniques. Members of the incident investigation or review team shall be qualified and competent individuals. Sessler Wrecking shall provide training on the investigation techniques used during an incident investigation. Training shall occur prior to responsibilities to response or investigation duties are assigned. Training frequency will be based on the specific area of responsibility but shall not exceed once every two years. Training requirements relative to incident investigation and reporting shall include:

- Awareness
- First Responder Responsibilities
- The Initial Investigation at the Accident Scene
- Managing the Accident Investigation
- CollectingData
- Analyzing Data
- Developing Conclusions and Judgments of Need
- Reporting the Results

Accident/Incident Investigation Report

Name of person involved:		Employer:	
Incident Date:	Incident Time:	Date Reported:	Time Reported:
Project Number:		Supervisor:	
Type of Incident:			
Injury/Illness _	Property Damage/Accident	Near Miss _____	Spill _____
Injury/Illness			
Body Part(s) affected:		Type of Injury (sprain, fracture, cut, etc.):	
Severity: FA_____	Medical_	Lost Time_	Fatality _____
Describe activity at time of incident:			
Describe the incident:			
Describe the cause of the incident:			
Action taken to eliminate cause:			
Employee current status:			
Witness(es):			

INCIDENT NOTICE

This notice is to be posted on all bulletin boards <u>and</u> documented in safety meetings and toolboxes at all locations until all staff are aware of the contents

Vehicle Property Damage

Date: XX-XX-XXXX

WHAT HAPPENED?

Provide just a one line factual statement...no names! Example:

A worker damaged a company vehicle by striking a concrete block while making a right turn on a road between buildings.

INSERT PHOTO	INSERT PHOTO

HOW DID IT HAPPEN?

Provide a concise determination...make the message clear! Example:

The main cause of this incident was the unsafe employee behavior by choosing not to pay attention to objects in the area while driving.

WHAT DO WE DO NOW TO PREVENT THIS FROM HAPPENING AGAIN?

Insert your corrective actions...again no names. Example:

All drivers must:

- Continually assess road conditions and hazards and be prepared for any challenge that may approach them.
- Slow down around construction, large vehicles, emergency vehicles, wildlife, congested work areas, fog, rain or anything else that adds a hazard to your driving.

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SESSLER
Making Good Things Happen!

Incident Reporting Protocol

Type of Incident	Who to Notify Verbally	When	Incident Report Form
Minor First Aid	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director	Verbal via phone and/or Text **within 24 hours**	Incident Report **within 48 hours**
Clinic or Doctor Visit	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director	**Verbal via phone Immediately (prior to employee going to Physician)**	Incident Report **within 24 hours**
Property damage	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director	Verbal via phone and/or Text **within 12 hours**	Incident Report **within 24 hours**
Any Property Damage related to the General Public or Customer Property	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director	**Verbal via phone ASAP**	Incident Report **within 24 hours**
Spill	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director	**Verbal via phone ASAP**	Incident Report within **24 Hours for Small Spills** Incident Report within **12 Hours for Large Spills**
Significant Near Miss	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director	Verbal via phone and/or Text **within 24 hours**	Incident Report **within 24 hours**
In-patient Hospitalization / Amputation / Loss of Eye	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director **Safety Director to notify Owners and OSHA**	**Verbal via phone Immediately**	Incident Report **within 12 hours**
Fatality	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director **Safety Director to notify Owners and OSHA**	**Verbal via phone Immediately**	Incident Report **within 12 hours**
Regulator Visit (DOL, OSHA, DEC, EPA etc.)	Safety & Compliance Manager(s), GM and Project Manager *Safety & Compliance Manager(s) to notify Safety Director	**Verbal via phone ASAP**	No Report needed unless findings are found. **If founding are found** a report must be provided **within 12 hours.**

SESSLER WRECKING CONTACTS:	
Safety & Compliance Manager (Wrecking) - Dean Landreville	518-605-5498
General Superintendent Bridge Demo (Wrecking) - Todd Worden	315-719-8120
General Superintendent Building Demo (Wrecking) - Dan Skinner	315-415-8637
Director of Health & Safety (Sessler Companies) - Gus Rivera	518-577-9386

Purpose

The purpose of this program is to provide basic precautions and protections for employees to avoid exposure to asbestos containing material (ACM) or presumed asbestos containing material (PACM).

Scope

This program applies to all Sessler Wrecking employees. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Key Responsibilities

Managers/Supervisors

- Ensure owners or operators are notified of PACM.
- Prohibit Sessler Wrecking employees from working until material in question is confirmed as non-asbestos or abated.
- Ensure proper employee training is completed.
- Ensure that all requirements of this program are understood and followed by those working under his/her direction.
- Perform duties of the Competent Person for asbestos work.

All Employees

All employees are required to act in strict compliance with the requirements of this program and delay or discontinue work if there is ever an unresolved concern regarding exposure to asbestos.

Procedure

Hazard Assessment

Potential exposure to asbestos is assessed by Sessler Wrecking to ensure exposure does not exceed occupational exposure limits. The potential for worker exposure to asbestos will be identified during the hazard assessment. Sessler Wrecking must take all necessary measures and procedures by means of engineering controls, work practices, and hygiene practices and facilities to ensure that the time-weighted average exposure of a worker to any of the forms of airborne asbestos, individually or collectively, is reduced to ensure that a worker's exposure to asbestos is kept as low as reasonably achievable and in any case employees must not be exposed to airborne concentrations of asbestos in excess of 0.1 fibers per cubic centimeter of air (.1 f/cc) [over an 8 hour time period for Alberta operations]. Atmospheric testing results should be assessed before a worker isexposed.

Health Effects

Sessler Wrecking will ensure that workers who are likely to be employed in an asbestos process or are likely to be exposed to asbestos dust are warned that the inhalation of asbestos may cause pneumoconiosis, lung cancer or mesothelioma and the risk of injury to health cause by the inhalation of asbestos is increased by smoking.

General

Sessler Wrecking shall develop an asbestos control plan that protects the health and safety of all workers. A plan developed must include the decontamination procedures to be used, the asbestos processes that workers may undertake, the training of workers in any asbestos process the workers may be required or permitted to undertake, the methods to control the release of asbestos dust, the PPE workers may be required touse.

Client owned and/or operated equipment and facilities, where surfacing material or insulation is present, must be confirmed non-asbestos before Sessler Wrecking employees disturbs that material. Where surfacing material or insulation cannot be confirmed non-asbestos, the client or owner must test, and where necessary abate, the material before Sessler Wrecking employees are permitted to work.

Sessler Wrecking must post signs at the boundaries of the restricted/designated work area indicating asbestos work is in progress, the hazards, and the precautions required for entering the work area and employees will abide warning signs and labels and will not disturb the Asbestos Containing Material.

Training

Workers are provided with training on the hazards of asbestos and safe work procedures. Sessler Wrecking must ensure all employees that are exposed to airborne concentrations undergo training applicable to the authority having jurisdiction. This includes site supervisors/superintendents who oversee other contractors performing this function to minimize the worker's exposure.

A certificate of training shall be provided and maintained.

Asbestos Exposure Control Program and Procedures

This section includes measures to be used to prevent the uncontrolled release of asbestos and the procedures to be followed if there is an uncontrolled release.

Where workers have access to asbestos-containing materials Sessler Wrecking shall ensure that the asbestos containing materials are clearly and conspicuously labeled with a placard as asbestos. A map or plan that is readily available to the workers must be available showing the location of any asbestos-containing material.

If a worker is or may be exposed to potentially harmful levels of asbestos, Sessler Wrecking must develop and implement an exposure control plan. To ensure adequate coordination of the overall plan, Sessler Wrecking must ensure that it is administered by a properly trained person.

The qualified person must be an occupational health and safety professional with experience in the practice of occupational hygiene as it relates to asbestos management.

The asbestos procedures must address containment of asbestos operations where applicable, control of the release of asbestos fiber, provision, use and maintenance of appropriate personal protective equipment and clothing, means for the decontamination of workers, and removal of asbestos waste and clean-up of asbestos waste material. The procedures must provide a worker with task-specific work direction that addresses both hazards and necessary controls.

Asbestos exposure controls are designed to eliminate or minimize an employee's exposure to airborne asbestos fibers through the use of work practices and engineering controls. If the TWA and/or excursion limit is exceeded, a site-specific written Asbestos Exposure Control Program to reduce employee exposure shall be implemented containing means of engineering & work practice controls & the use of respiratory protection.

Prior to initiating any asbestos work, the Competent Person must perform an asbestos exposure assessment. Subsequent to the exposure assessment, the engineering controls and work practices to be employed shall be identified.

Prior to commencement of work, the affected employees shall be briefed on the engineering controls and work practices designed to reduce/maintain the exposure below TWA for the asbestos work. This briefing shall be documented and maintained with the job documentation. Where engineering controls are not feasible work practices such as exhaust systems for hand tools, wet methods, clean-up procedures & PPE shall be used.

Wet methods will be employed for all asbestos work as a means to minimize potential airborne exposure wherever possible. ACM shall be wetted from the initiation of the maintenance or renovation operation and wetting agents shall be used continually throughout the work period to ensure that any dry ACM exposed in the course of the work is wet and remains wet until final disposal. Wetting agents, usually a surfactant (dish soap), are generally prepared by mixing 1 to 3 ounces of wetting agent in 5 gallons of water.

Where exhaust ventilation equipment used to contain asbestos dust Sessler Wrecking shall ensure that the equipment is equipped with a HEPA filter, inspected regularly for defects, maintained, and certified by a competent person at least once each year as being able to function safety and effectively.

Control measures to prevent worker exposure to asbestos and procedures to be followed in the event of an uncontrolled release of asbestos will be preloaded on a site-specific basis. The program must include site specific measures to be used to prevent the uncontrolled release of asbestos and the procedures to be followed if there is an uncontrolled release.

Restricted & Designated Areas

Where an asbestos process is undertaken, Sessler Wrecking shall ensure that the area is effectively isolated or otherwise enclosed to prevent the escape of asbestos dust to any other part of the place of employment and that a warning notice is conspicuously displayed indicating that asbestos work is in progress.

Workers involved in asbestos abatement must complete an asbestos certification course. Sessler Wrecking must ensure that a worker who enters a restricted area that is designated as a restricted area due to the presence of asbestos has successfully completed a course of instruction approved by a Director of Occupational Hygiene and has in the worker's possession the original valid certificate of completion of the course issued to theworker.

All employees who perform work in regulated areas will be covered by this procedure. Employees who perform housekeeping activities during and after construction activities are also covered by this procedure.

Personnel Air Monitoring

Monitoring shall occur to ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) in 30 minutes.

An independent/third party air sampling person shall perform all required air sampling during contractor asbestos work and provide the results to the Sessler Wrecking Competent Person. Note: Air sampling is not required for glove bag activities that are covered under a Negative Exposure Initial Assessment.

The air quality is to be determined from breathing zone air samples. The samples shall be representative of the 8 - hour TWA and 30-minute short-term exposure. Measurements are required for documentation.

Affected employees and/or their designated representatives are to be provided with the opportunity to observe asbestos exposure monitoring.

Where the asbestos exposure assessment (in the absence of quantitative personnel monitoring results) does not present objective, convincing data that indicates the ACM to be handled will not (under the worst circumstances) release airborne fibers, personnel air monitoring shall be performed to quantify exposure.

If personnel monitoring is considered necessary during the asbestos exposure assessment, in an effort to verify exposures would be maintained below the PEL/excursion limit, respiratory protection shall be utilized until such time that sufficient sampling results verify that respiratory protection is not required.

The Sessler Wrecking Safety Manager is to be consulted for advice and assistance in performing personnel air sampling activities.

The number of samples necessary to be considered “representative” is dependent upon many factors and must be determined in consultation with the Sessler Wrecking Safety Manager, certified Industrial Hygienist consultant, or a third-party air sampling professional.

Affected employees will be notified of monitoring results, which represent the employee’s exposure, as soon as possible following receipt of the monitoring results.

Employees shall be notified in writing either individually or by posting at a centrally located place that is accessible to affected employees.

Once representative sampling indicates that exposure levels for that particular activity are consistently below the established permissible limit and/or excursion limit, the requirement for respiratory protection may be waived.

It is imperative that accurate personnel air sampling records are maintained in order to justify any relaxation of respiratory protection requirements.

Results of air sampling data must be maintained in the asbestos job documentation.

Medical Surveillance Program

Workers exposed to asbestos are provided health assessments. The person with custody of the health assessment record must ensure that no person, other than the worker or health professional who conducts the health assessment, has access to the exposed worker's health assessment unless the record is in a form that does not identify the worker, or the worker gives written permission for access by another person. Sessler Wrecking must ensure that a worker undergoes a health assessment not more than 30 calendar days after the worker becomes an exposed worker, and every two years after the first health assessment. Exposed workers may refuse to undergo part or all of a health assessment by giving Sessler Wrecking a written statement refusing it. Sessler Wrecking must pay the cost of the health assessment and ensure that, if it is reasonably practicable, a health assessment is performed during normal work hours.

Respiratory Protection and Personal Protective Equipment

The use of approved respirators shall be at no cost to the employee and will be used in conjunction with work practice controls, work operations, to reduce exposure and in emergencies. Workers who may be exposed to asbestos dust during abatement activities must wear protective clothing. Sessler Wrecking must provide workers in a restricted area with protective clothing that protects other clothing worn by the worker from asbestos contamination, ensure that workers' street clothing is not contaminated by asbestos, and ensure that a worker does not leave a restricted area until the worker has been decontaminated.

Sessler Wrecking ensure each worker who may be exposed is provided with and use an approved respiratory protective device that is appropriate to the level of risk of the asbestos process and approved protective clothing that when worn, will exclude asbestos dust. All protective clothing is disposed of as asbestos waste after use or is kept, maintained, and cleaned in a safe manner each time it is used.

Other PPE will include:

- All persons within a restricted/designated work area wear protective clothing which is made of material resistant to penetration by asbestos fibers, fits snugly at the neck, wrists, and ankles and as necessary to protect against the risk, covers the head and feet as well as the body.
- Protective coveralls, Gloves, Head coverings / Foot coverings, Vented goggles / Face Shields.
- And others based on the hazard.

Before a worker removes protective clothing and equipment, Sessler Wrecking must ensure that the worker cleans this gear with a damp cloth, or a vacuum cleaner equipped with a HEPA-filtered exhaust and ensure that a worker removes protective clothing and equipment before leaving the restricted/designated work area.

Waste Disposal

If a building is to be demolished, Sessler Wrecking must ensure that materials with the potential to release asbestos fibers are removed first. Areas where asbestos abatement activities are in progress are isolated, so other areas are not contained. If a building is being altered or renovated, materials in the area of the alterations or renovations that could release asbestos fibers are encapsulated, enclosed, or removed.

Asbestos containing materials removed during abatement activities are adequately contained and labeled. Sessler Wrecking must ensure that asbestos waste is stored, transported, and disposed of in sealed containers that are impervious to asbestos and asbestos and asbestos waste. Sessler Wrecking must ensure that a container of an

asbestos product and asbestos waste is clearly labeled. To identify the contents as an asbestos product and carcinogenic, and to warn handlers that dust from the contents should not be inhaled.

Bags or containers shall be imprinted and clearly labeled with the following asbestos hazard warning and address:

DANGER - CONTAINS ASBESTOS FIBERS -
AVOID CREATING DUST - CANCER AND LUNG DISEASE HAZARD
Sessler Wrecking - Address

Asbestos waste or dust produced in a place of employment is cleaned away promptly and at least once each day, by vacuum cleaning equipment equipped with a HEPA filter to prevent the escape of asbestos dust into the air or where vacuum cleaning is not practicable, by wet methods.

Change in Process

Where a change is made in a process involving asbestos, or in the methods and procedures in the mining, use, handling or storage of asbestos and the change could result in a significant difference in the exposure of a worker to the inhalation or ingestion of asbestos, Sessler Wrecking shall cause a further assessment to be made.

Record Keeping

All records relating to any asbestos activity shall be maintained by Sessler Wrecking permanently.

The records of the exposures of each worker to airborne asbestos at the workplace to be maintained as provided by the asbestos control program shall identify the worker, including the worker's date of birth, the worker's jobs or occupations at the workplace, the results of monitoring for exposure to airborne asbestos in his or her work area, and the use by the worker of respiratory equipment and its type.

PURPOSE AND SCOPE

- SESSLER WRECKING is committed to providing a safe and healthful work environment for employees. This Exposure Control Plan (ECP) is provided to eliminate or minimize occupational exposure to bloodborne pathogens in accordance with OSHA standard 29 CFR 1910.1030. The ECP applies to all occupational exposures to blood or other infectious materials and is a key document to assist SESSLER WRECKING in implementing and ensuring compliance with the standard.
- The ECP includes the following elements:
  - Determination of employee exposure.
  - Implementation of various methods of exposure control including universal precautions, engineering and work practice controls, personal protective equipment, and housekeeping.
  - Hepatitis B vaccination.
  - Post-exposure evaluation and follow-up.
  - Communication of hazards to employees and training.
  - Recordkeeping.
  - Procedures for evaluating circumstances surrounding an exposure incident.

GENERAL INFORMATION

- The Director of Health and Safety is responsible for the implementation of the ECP.
- Those employees who are determined to have occupational exposure to blood or other potentially infectious materials (OPIM) must comply with the procedures and work practices provided for in this ECP.
- SESSLER WRECKING will maintain and provide all necessary personal protective equipment (PPE), engineering controls (i.e.: sharps containers), labels, and red bags as required.
- The EHS Director will be responsible for ensuring that all medical actions required are performed and that appropriate employee health and OSHA records are maintained. The EHS Director will be responsible for training, documentation of training, and making the written ECP available to employees.

RESPONSIBILITIES AND PROCEDURES

- All employees will observe and utilize universal precautions. All body fluids will be considered potentially infectious.
- All employees have an opportunity to review this plan at any time during their work shifts by contacting their immediate supervisor. If requested, SESSLER WRECKING will provide an employee with a copy of the ECP within 15 days of the request.

- The EHS Director is responsible for reviewing and updating the ECP on an annual basis. The review and update of the plan will also reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens; and document annually consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure.

- Potentially all employees trained in first aid, as well as employees responding to blood cleanup incidents, may have exposure to infectious materials.

- Hand washing facilities or appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels or antiseptic towelettes will be available on all jobsites.

- All employees will wash their hands immediately after potential exposure to infectious materials.

- No eating, drinking, smoking, or applying cosmetics or lip balm in first aid areas.

- Personal protective equipment, such as gloves, CPR shields, and resuscitators will be available with all first aid kits. This PPE will be provided at no cost to employees.

- Personal protective equipment will be used by employees who are trained in first aid to prevent blood or other potentially infectious materials to pass through or reach the employee's work clothes, skin, eyes, mouth, or other mucous membrane sunder normal conditions of use and for the duration of time which the protective equipment will be used.

- If a garment (including gloves) is penetrated by blood or other potentially infectious materials, the garments will be removed immediately or as soon as feasible. The infected garment will be placed in leak proof bags for handling, storage, and transport.

- All equipment and environmental and working surfaces will be cleaned and decontaminated with an appropriate disinfectant immediately or as soon as feasible when surfaces are overtly contaminated or after any spill of blood or other potentially infectious materials.

- Any employee who wishes the hepatitis B vaccinations may have them provided at no cost to the employee. The Office Manager will make the necessary arrangements for the vaccination.

- After an exposure incident, a confidential medical evaluation and follow-up will be immediately available to the exposed individual. Arrangements for the medical evaluation should be coordinated with the Office Manager.

- Regulated waste is placed in containers that are closable, constructed to contain all contents and prevent leakage, appropriately labeled, or color-coded, and closed prior to removal to prevent spillage or protrusion of contents during handling. Contaminated sharps are discarded immediately or as soon as possible in containers that are closable, puncture-resistant, leak

- proof on sides and bottoms and labeled or color-coded appropriately. Bins and pails (i.e.: wash or emesis basins) are cleaned and decontaminated as soon as feasible after visible contamination. Broken glassware that may be contaminated is picked up using mechanical means, such as a brush and dustpan.

- SESSLER WRECKING will provide training to employees on hepatitis B vaccinations, addressing the safety, benefits, efficacy, methods of administration, and availability. The hepatitis B vaccination series is available at no cost after training and within 10 days of initial assignment to employees.

- Vaccination is encouraged unless documentation exists that the employee has previously received the series, antibody testing reveals that the employee is immune, or medical evaluation shows that vaccination is contraindicated.

- However, if an employee chooses to decline vaccination, the employee must sign a declination form. Employees who decline may request and obtain the vaccination at a later date at no cost. Documentation of refusal of the vaccination is kept at the corporate office in Syracuse. Following hepatitis B vaccinations, the health care professional's written opinion will be limited to whether the employee requires the hepatitis vaccine, and whether the vaccine was administered.

- Any exposure determinations will be made without regard to the use of personal protective equipment.

TRAINING

- All employees who have the potential for occupational exposure to bloodborne pathogens receive training. All employees who have occupational exposure to bloodborne pathogens receive training on the hazards, epidemiology, symptoms, and transmission of bloodborne pathogen diseases.

- Employees covered by the bloodborne pathogens standard will receive training during their initial assignment and at least annually, or when new tasks or procedures will affect the employee's occupational exposure. The training may be conducted as a standalone training session, as part of a HAZWOPER refresher, or in a Safety Talk.

RECORDKEPING

- Training Records

  Training records are completed for each employee upon completion of training. These documents will be kept for at least three (3) years at the corporate office in Syracuse. Employee training records are provided upon request to the employee or the employee's authorized representative within 15 working days.

- Medical Records
  Medical records are maintained for each employee with occupational exposure with 29 CFR 1910.1020. The EHS Director is responsible for maintenance of the required medical records. These confidential records are kept at the corporate office in Syracuse for at least the duration of employment plus 30 years. Employee medical records are provided upon request of the employee or to anyone having written consent of the employee within 15 working days.

- OSHA Recordkeeping
  An exposure incident is evaluated to determine if the case meets OSHA's Recordkeeping Requirements (29 CFR 1904). This determination and the recording activities are done by the EHS Director.

- Sharps Injury Log
  Each Operations office shall maintain a sharps injury log to record percutaneous injuries from contaminated sharps. The information in the sharps injury log is recorded and maintained by the Office Manager. This protects the confidentiality of the injured employee.

Company Vehicle Safety and Usage Policy

Purpose: Your employment with Sessler Wrecking may involve the use of a vehicle (personal vehicle, or company owned or leased) to perform certain duties on behalf of the company. The purpose of this policy is to define the rules and responsibilities required to ensure the safe and legal operation of any vehicle driven under the scope of your employment.

As you represent Sessler Wrecking in the community, you are responsible for operating a vehicle according to local, state, and federal law as well as this Policy. Violation of these laws and rules may result in the removal of driving privileges on behalf of the company as well as potential termination.

After reviewing this document, your signature will certify that you understand the terms of this Policy. You will sign another document that authorizes Sessler Wrecking to check your record with the motor vehicle authority (DMV) in your jurisdiction at minimum 12-month intervals.

Driver Qualifications

Company drivers and anyone authorized by management to operate a company vehicle within the scope of employment must have a valid driver's license issued in your state of residence for the class of vehicle being operated. Securing a driver's license is your personal expense. Sessler Wrecking will verify and review your MVR annually at a minimum.

Further driver qualifications are as follows:

1. Authorized employee of Sessler Wrecking.
2. Must be at least 21 years old.
3. Must have an acceptable Motor Vehicle Record as determined by Sessler Wrecking management.
4. Must pass Sessler Wrecking drug test.
5. Must demonstrate the ability to operate the vehicle properly either via road or yard driving test or on the job training
6. Must take the NY Safety Counsel Defensive Driving Course within the first 90 days of employment.
7. Must have the correct class of license for the vehicle being driven.

Sessler Wrecking reserves the right to determine what constitutes a satisfactory driving record. Not all Sessler Wrecking employees will meet the criteria to be able to drive on behalf of the company, whether in a company car, rental, or their own vehicle. These include, but are not limited to:

- Drivers who have had more than 3 moving violations or chargeable accidents in the past 3 years.
- Drivers under age 21.
- Drivers not holding a valid U.S. or Canadian driver's license.
- Drivers with less than 1 year U.S. driving experience.
- One or more major violations in the past threeyears.
    - Major Violations include:
        - Driving while intoxicated or under the influence of intoxicating liquor or any drug (DUI, DWI).
        - Possession of an open alcoholic beverage container.
        - Disregarding or evading a police officer.

- Detailing is NOT a covered expense unless there is a permanent transfer of a vehicle from one driver to another.
    - Driving with a suspended or revoked license due to drivingrecord.
    - Homicide or vehicular assault
    - Driving on the wrong side of theroad.
    - Failure to comply with implied consent law.
    - Felony involving a motor vehicle.
    - Hit and run, eluding, or leaving the scene of anaccident.
    - Illegal passing resulting in an accident.
    - Manslaughter with or without gross negligence.
    - Possession of a controlled substance.
    - Reckless or careless driving, drag racing or speed contest.
    - Speeding over 30 miles over the posted speed limit.
    - Filing a false report.

Reporting Obligations

You are required to immediately notify your manager of any of the following occurrences:

- All accidents or incidents in a company vehicle; and/or
- All moving violations and/or convictions that occur on company time while in either a company or personal vehicle; and/or
- Any incident involving driving or operating a vehicle under the influence of drugs or alcohol, regardless of whether such event occurs on or off company time or in a company or personal vehicle; and/or
- Any suspension, revocation, or invalidation of their license.

A failure to report any violation, conviction, accident or incident, or any suspension, revocation, expiration or invalidation of licensure, as stated above, may subject the employee to disciplinary action, up to and including termination.

Disciplinary Action

Should your driving record become unsatisfactory, you may be subject to discipline, up to and including termination. In certain situations, you may be required to take a defensive driving course outside of business hours and at your own expense, unless prohibited by state law. Typically, such a course would be required after a second chargeable accident in a three-year period.

Should the driving record be deemed unsatisfactory, driving privileges may be revoked or otherwise restricted.

Any employee with a clear determination or acknowledgement of guilt (e.g., admission, conviction or no lo contender) of a DUI, DWI, or DWAI will lose personal use of a company vehicle for one year. In addition, you may be subject to disciplinary action, up to and including termination.

Covered Expenses

The following expenses for those employees with company owned or leased vehicles will be borne by Sessler Wrecking:

- All routine and unscheduled maintenance. Certain expenses will require priorauthorization.
- Fuel - you will be issued a universal fuel card which enables you to fuel up at most stations. You are to keep this card in your possession and not store it in the vehicle. You are not to use the fuel card for personal use more than 250 miles from your normal work location. You are expected to enter the accurate odometer when prompted at the pump and keep your personal identification number (PIN) in a secure location. The PIN identifies you as the purchaser of fuel and should never be divulged to any other party. You are to purchase fuel only with the card, and not miscellaneous goods such as soft drinks or candy.
- Insurance.
- Any applicable vehicle-related taxes.
- Vehicle licensing fees.
- Depreciation and interest.
- Car washes (maximum two per month) - exceptions required formal approval by Sessler Wreckingmanagement.
- Toll Road Fees - incurred in the conduct of Sessler Wrecking business.

Expenses not covered by Sessler Wrecking include, but are not limited to, the following:

- Traffic or parking violations.
- Toll road citations.
- Toll Road fees while on personal time.
- Expenses including cost of repair resulting from accidents deemed to be the result of your own recklessness or carelessness will result in your responsibility.

Vehicle Labeling

No decal, sticker, license plate frame, or similar modification to any part of your vehicle is allowed, except as required by law. You and your vehicle are a representation of Sessler Wrecking in the community. Exceptions will be made only with management approval for Sessler Wrecking brand-related logos.

Personal Use

Company vehicles are provided to perform business activities; however, occasional personal use is permitted. Personal use is a privilege extended only to the authorized employee, spouse, or significant other. This privilege may be withdrawn at the discretion of Sessler Wrecking. The driver and any other authorized parties must meet all driver qualifications as described in the "Driver Responsibilities and Behavior Section".

Rules for use of company vehicles:

- Authorized parties must meet all driver qualifications as describedabove.
- Personal trailers, including boats and recreational vehicles, are not to be pulled.

Personal Use and Co-Pay

You are authorized to use a vehicle for non-business reasons within one tankful of fuel of your residence. Trips with company vehicles that involve travel beyond this radius require written permission from Sessler Wrecking management. Travel with company vehicle outside the United States is expressly prohibited.

Your personal co-pay for use of the company vehicle (which includes depreciation, interest, registration fees, maintenance, insurance, and fuel) is $0.00 per month to be deducted from your paycheck monthly.

Vehicle Maintenance

You are responsible for ensuring your company vehicle, and your personal vehicle if utilized for company business, is well maintained and clean.

Routine maintenance is defined in the vehicle owner's manual, and you are responsible for making sure the recommended work is performed at the appropriate intervals. It is your responsibility to:

- Make sure tire tread depth and pressure are at recommended levels, and that the appropriate fuel is used.
- Take vehicle into approved service facilities for scheduled oil change, tire rotation, inspection, fluid change/refill, brake, and emission services.
- Use the minimal recommended octane level (e.g.: regular unleaded gasoline).
- Immediately have safety-related issues repaired (e.g.: turn signal, headlights, horn).
- Take the vehicle to the dealership for necessary repairs while the vehicle is underwarranty.
- Adhere to any manufacturer recalls in a timely manner.

Any issue requiring repair should be dealt with at a qualified facility. Your manager will have a process in place for options and payment.

Make sure the following items are in your company vehicle:

- Current insurance card.
- First aid kit.
- Functional flat tire kit: lug wrench, spare tire, jack; or number for roadside service. If the vehicle is not equipped with a spare tire, it should contain a tire inflator repairkit.
- Reflector kit.
- Fleet Management Company phone number if applicable.
- Accident form/checklist.
- Owner's manual.

Accidents

In the event of an accident with your company vehicle or in your personal vehicle while on company business:

- Call for medical aid if necessary.
- Call the police.
- Do not discuss the accident with anyone except the police.

- Do not admit fault.
- Do not attempt settlement.
- Record names, address, and phone numbers for other drivers and witnesses.
- Take pictures of the accident scene from several angles if possible.
- Exchange vehicle identification and insurance information with the other driver.
- Complete the accident report in your vehicle.
- Cooperate fully with our insurance company and/or claims personnel.

Personal vehicles and rental cars

In certain situations, it may be necessary for you to use your own personal vehicle, or a rental car, to conduct company business. In these situations, miles incurred on your own vehicle will be reimbursed pursuant to IRS regulations. Rentals will be paid for or expensed to the company. Reimbursable mileage is defined as mileage over and above your normal commute. Any driver using a personal vehicle for company business must be authorized by management in advance to do so and must provide an insurance certificate with liability limits of at least $100,000/$300,000/$50,000.

Expectations of driving behavior in these situations are identical to those when driving your company car as outlined previously.

Parking, Toll Violations, and Citations

Fines for moving violations, parking, toll-road violations, towing and storage, or impoundment involving your company vehicle are your personal responsibility. You are expected to report any violation to your manager within two business days. Be aware that any infractions, whether incurred in the course of business or on personal time, may affect your driving status and are subject to review.

Telematics Notice

A telematics device may be attached to your company vehicle to monitor, record, and transmit data showing the activity of the vehicle including, but not limited to, the vehicle's location, speed, direction, mileage, operation or condition, and other information generated by the vehicle ("Telematics Data"). This information can be monitored and or recorded by Sessler Wrecking. The continued use of the vehicle is an acknowledgement and consent of the personal use option or if provided in the course of employment.

Driver Responsibilities and Behavior

As a Sessler Wrecking employee in a company vehicle you are responsible for its possession, care, and use. Your responsibilities include, but are not limited to, the following:

- Obeying all traffic laws.
- Ensuring seatbelts/restraints are used at all times by you and anyoccupants.
- Performing periodic services and inspections according to the owner's manual of your vehicle.
- Restricting your company car's use to you, the authorized driver, and only approved spouse/significant other.
- Reporting any accidents or moving violations.
- Reporting personal mileage monthly.

Maintaining cleanliness and professional appearance of your vehicle.

Practicing defensive driving:

- Maintain safe following distance (no tailgating).
- Observe posted speed limits and reduce speed according to conditions.
- Observe clearances.
- Use turn signals.
- Be alert for other vehicles, bicycles, or pedestrians at intersections androadways.
- Avoid backing up, when possible, but if necessary, keep distance traveled to a minimum and stay alert.
- Keep stereo to low volume levels.
- Company vehicles are not to be driven under the influence of alcohol or any controlled substance.
- Possession, transportation or consumption of alcohol or illegal drugs by anyone in the vehicle is strictly forbidden.
- Driver and all passengers must wear seat belts while vehicle isin operation.
- Texting or other typing on a cellphone or other device and/or reading of any incoming message is forbidden by driver while vehicle is in operation.
- Any use of cell phones will be in compliance with local laws. If not required by law, use of a hands-free device is recommended.
- Possession of firearms in a company vehicle is forbidden.
- Use of radar detection devices in vehicles driven by employees is forbidden.
- Smoking is not allowed in company vehicles.

I have read this Company Vehicle Safety and Usage Policy and will abide by the conditions and rules stated in this document.

Employee Name (print)_____

Employee Signature _____

Today's Date _____

Manager Signature _____

Employee Authorization: Motor Vehicle Record (MVR) Check Release Form:

As a prospective employee or current employee, I understand a Motor Vehicle Abstract will be ordered and reviewed by Sessler Wrecking management to assess minimum eligibility for driving privileges.

If Sessler Wrecking considers any information contained within my Motor Vehicle Record as grounds for denying my privilege of a company car or rights of personal use, I understand I will be provided with a copy of the report before the decision is finalized.

Employee Name (print) _____

Employee Signature _____

Date _____

Spouse/Eligible Same SexPartner _____

Date_____

Purpose

The purpose of this program is to prevent injury from hazards associated with concrete and masonry construction work.

Scope

This program covers all employees involved in concrete and/or masonry work.

Key Responsibilities

Managers/Supervisors

- Shall ensure that all employees are aware of the hazards associated with concrete and masonry during construction and are properly trained prior to their exposure of those hazards.
- Shall ensure that initial training is conducted for all new employees and that retraining is conducted when employee behaviors suggest that retraining is warranted.
- Conduct operations and train employees.

Employees

- Shall follow all requirements regarding the safe work practices and requirements of this program.
- Report all hazards if not previously made aware of them, especially when changes occur.

Procedure

Hazards Associated with Concrete/Masonry Construction

- Concrete Buckets: Impact injuries due to defective slings/hardware
- Concrete Pumper Truck: Electrical injuries due to overhead power lines; Impact injuries due to improper operator operations
- Concrete: Caustic burns to eyes and skin; Impact injury due to falling buckets, blocks, bricks, or other objects; Respiratory hazards due to concrete dust
- Cranes: Impact injuries due to defective slings or unbalanced load
- Electric Saws: Shock injuries due to defective power cords or non-grounded circuit
- Flagging: Impact injuries for flaggers exposed to traffic
- Forklifts: Impact injuries due to exceeding the lifting capacity or improper operation by operator
- Form Work: Fall injuries from height, ladders, or open excavation; Slips and trips working with footers: Cuts and puncture wounds from exposed nails
- Leading Edge Work: Fall injuries due to height and lack of knowledge - only experienced and authorized workers allowed
- Rebar: Struck Against injuries due to impalement on end of rebar; Slips and trips working with rebar

Injuries can result from unsafe work practices including:

- premature removal of formwork;

- failure to brace masonry walls;
- failure to adequately support precast panels;
- inappropriate operation of equipment;
- failure to guard the end of reinforcing steel;
- inadequate shoring, which can lead to formwork collapse.

Safe Work Practices and Requirements

Construction Loads

- Sessler Wrecking must not place construction loads on a concrete structure or portion of a concrete structure unless Sessler Wrecking determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the intended loads.

Reinforcing Steel

- All protruding reinforcing steel, onto and into which employees could fall, must be guarded to eliminate the hazard of impalement.

Post-Tensioning Operations

- Employees (except those essential to the post-tensioning operations) must not be permitted to be behind the jack during tensioning operations.
- Signs and barriers must be erected to limit employee access to the post-tensioning area during tensioning operations.

Concrete Buckets

- Employees must not be permitted to ride concrete buckets.

Working Under Loads

- Employees must not be permitted to work under concrete buckets while the buckets are being elevated or lowered into position.
- To the extent practicable, elevated concrete buckets must be routed so that no employee or the fewest employees possible are exposed to the hazards associated with falling concrete buckets.

Concrete and Masonry Construction

Personal Protective Equipment

Employees must not be permitted to apply cement, sand, and water mixture through a pneumatic hose unless they are wearing protective head and face equipment.

General Requirements for Formwork

Formwork must be designed, fabricated, erected, supported, braced, and maintained so that it will be capable of supporting without failure all vertical and lateral loads that might be applied to the formwork. As indicated in the Appendix to the standard, formwork that is designed, fabricated, erected, supported, braced, and maintained in conformance with Sections 6 and 7 of the American National Standard for Construction and Demolition Operations—Concrete and Masonry Work (ANSI) A10.9-1983 also meets the requirements of this paragraph.

Drawings or Plans

Drawings and plans, including all revisions for the jack layout, formwork (including shoring equipment), working decks, and scaffolds, must be available at the jobsite.

Shoring and Reshoring

- All shoring equipment (including equipment used in reshoring operations) must be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.
- Damaged shoring equipment must not be used for shoring. Erected shoring equipment must be inspected immediately prior to, during, and immediately after concrete placement. Shoring equipment that is found to be damaged or weakened after erection must be immediately reinforced.
- The sills for shoring must be sound, rigid, and capable of carrying the maximum intended load. All base plates, shore heads, extension devices, and adjustment screws must be in firm contact and secured, when necessary, with the foundation and the form.

If single-post shores are used one on top of another (tiered), then additional shoring requirements must be met. The shores must be as follows:

- Designed by a qualified designer and the erected shoring must be inspected by an engineer qualified in structural design,
- Vertically aligned,
- Spliced to prevent misalignment, and
- Adequately braced in two mutually perpendicular directions at the splice level. Each tier also must be diagonally braced in the same two directions.

Adjustment of single-post shores to raise formwork must not be made after the placement of concrete.

Reshoring must be erected, as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

Vertical Slip Forms

The steel rods or pipes on which jacks climb or by which the forms are lifted must be specifically designed for that purpose and adequately braced where not encased in concrete.

Forms must be designed to prevent excessive distortion of the structure during the jacking operation. Jacks and vertical supports must be positioned in such a manner that the loads do not exceed the rated capacity of the jacks.

The jacks or other lifting devices must be provided with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanisms occurs.

Requirements for Cast-in-Place Concrete

- The form structure must be maintained within all design tolerances specified for plumbness during the jacking operation.
- The predetermined safe rate of lift must not be exceeded. All vertical slip forms must be provided with scaffolds or work platforms where employees are required to work or pass.

Reinforcing Steel

- Reinforcing steel for walls, piers, columns, and similar vertical structures must be adequately supported to prevent overturning and collapse.
- Sessler Wrecking must take measures to prevent unrolled wire mesh from recoiling. Such measures may include, but are not limited to, securing each end of the roll, or turning over the roll.

Removal of Formwork

Forms and shores (except those that are used for slabs on grade and slip forms) must not be removed until Sessler Wrecking determines that the concrete has gained sufficient strength to support its weight and superimposed loads. Such determination must be based on compliance with one of the following:

- The plans and specifications stipulate conditions for removal of forms and shores and such conditions have been followed, or
- The concrete has been properly tested with an appropriate American Society for Testing and Materials (ASTM) standard test method designed to indicate the concrete compressive strength and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

Precast Concrete

- Precast concrete wall units, structural framing and tilt-up wall panels must be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.
- Lifting inserts that are embedded or otherwise attached to tilt-up wall panels must be capable of supporting at least two times the maximum intended load applied or transmitted to them. Lifting inserts for other precast members must be capable of supporting four times the load. Lifting hardware shall be capable of supporting at least five times the maximum intended load applied or transmitted to the lifting hardware.
- Only essential employees are permitted under precast concrete that is being lifted or tilted into position.

Lift-Slab Operations

- Lift-slab operations must be designed and planned by a registered professional engineer who has experience in lift-slab construction. Such plans and designs must be implemented by Sessler Wrecking and must include detailed instructions and sketches indicating the prescribed method of erection. The plans and designs must also include provisions for ensuring lateral stability of the building/structure during construction.
- Jacking equipment must be marked with the manufacturer's rated capacity and must be capable of supporting at least two and one-half times the load being lifted during jacking operations and the equipment must not be overloaded.
- Jacks/lifting units must be designed and installed so that they will neither lift nor continue to lift when loaded in excess of their rated capacity and jacks/lifting units must have a safety device which will cause the jacks/lifting units to support the load at any position in the event of their malfunction or loss of ability to continue to lift.
- No employee, except those essential to the jacking operation, shall be permitted in the building/structure while any jacking operation is taking place unless the building/structure has been reinforced sufficiently to ensure its integrity during erection.

- Under no circumstances shall any employee who is not essential to the jacking operation be permitted immediately beneath a slab while it is being lifted.

Masonry Construction

Whenever a masonry wall is being constructed, employers must establish a limited access zone prior to the start of construction. The limited access zone must be as follows:

- Equal to the height of the wall to be constructed plus 4 feet and shall run the entire length of the wall;
- On the side of the wall that will be un-scaffolded;
- Restricted to entry only by employees actively engaged in constructing the wall; and
- Kept in place until the wall is adequately supported to prevent overturning and collapse unless the height of the wall is more than 8 feet and unsupported, in which case it must be braced. The bracing must remain in place until permanent supporting elements of the structure are in place.

Purpose

The purpose of this program is to ensure the safety of all employees and contractors working for Sessler Wrecking and to comply with all regulations and host clients that pertain to confined spaces.

Scope

This program covers all employees and other workers that may be involved in confined space entry. When work is performed on a non-owned or operated site, the operator's program shall take precedence. This document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Definitions

Acceptable entry conditions - the conditions that must exist in a confined space to allow entry and to ensure that employees involved with a confined space entry can safely enter into and work within the space.

Attendant - an individual stationed outside one or more Confined spaces who monitors the authorized Entrants and who performs all Attendant's duties assigned in the Sessler Wrecking Confined Spaces Program. Attendants must have sufficiently completed and fully understands the Confined Space training and is approved by the Safety Manager to work in a confined space as an Attendant.

Authorized Entrant - an individual who is authorized by Sessler Wrecking to enter a confined space. Entrants must have sufficiently completed and fully understands the Confined Space training and is approved by the Safety Manager to work in a confined space as an Authorized Entrant.

Blanking or Blinding - the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Confined Space

- A space that is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit (for example, tanks, vessels, coolers, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
- Is not designed for continuous occupancy.

Double block and bleed - the closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between the two closed valves.

Emergency - any occurrence (including any failure of hazard control or monitoring equipment) or an event internal or external to the confined space that could endanger Entrants.

Engulfment - the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entry - the action by which a person passes through an opening into a confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the Entrant's body breaks the plane of an opening into the space.

Entry permit – means the written or printed document that is provided by Sessler Wrecking to allow and control entry into a confined space that contains the information specified in this program.

Entry Supervisor - the person responsible for determining if acceptable entry conditions are present at a confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

- Entry Supervisors must have sufficiently completed and fully understands the Confined Space training and is approved by the Safety Manager to work in a confined space.
- An Entry Supervisor may also serve as an Attendant or as an authorized Entrant, as long as that person is trained and equipped as required by this section for each role he or she fills. Also, the duties of Entry Supervisor may be passed from one individual to another during the course of an entry operation.
- The Entry Supervisor is responsible for testing and monitoring the atmosphere conditions.

Hazardous atmosphere - an atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from a confined space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL), (0% is normal).
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent, (20.9 % is normal).
- Any other atmospheric condition that is immediately dangerous to life or health. (Ex.-H2S 10%, 0% is normal).
- Note: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Safety Data Sheets that comply with the Hazard Communication Standard, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Hot work permit - the written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

Immediately dangerous to life or health (IDLH) - any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a confined space.

- Note: Some materials -- hydrogen fluoride gas and cadmium vapor, for example -- may produce immediate transient effects that, even if severe, may pass without medical attention, but are followed by sudden, possibly fatal collapse 12-72 hours after exposure. The victim "feels normal" from recovery from

transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately dangerous to life or health".

Inerting - the displacement of the atmosphere in a permit space by a non-combustible gas (such as nitrogen) to such an extent that the resulting atmosphere is non-combustible. This procedure produces an IDLH oxygen deficient atmosphere.

Isolation - the process by which a confined space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Line Breaking - the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Non-Permit Confined Space - A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Oxygen deficient atmosphere - an atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere - an atmosphere containing more than 23.5 percent oxygen by volume.

Permit-Required Confined Space - a confined space that has one or more of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere.
- Contains material that has the potential for engulfing an Entrant.
- Has an internal configuration such that an Entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
- Contains any other recognized serious safety or health hazard.

Permit system - the employer's written procedure for preparing and issuing permits for entry and for returning the confined space to service following termination of entry.

Prohibited condition - any condition in a confined space that is not allowed by the permit during the period when entry is authorized.

Rescue service - the personnel designated to rescue employees from Permit-Required Confined Spaces.

Retrieval system - the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from confined spaces.

Testing - the process by which the hazards that may confront Entrants of a confined space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

Responsibilities

Managers/Supervisor

- Shall ensure that all employees have been trained and fully understand the requirements of thisprogram.
- Shall provide the necessary equipment to comply with these requirements and ensure that all employees are trained in its use.
- Shall ensure that all confined space assessments have been conducted and documented.
- Shall ensure that provisions and procedures are in place for the protection of employees from external hazards including but not limited to pedestrians, vehicles, and other barriers and by use of the pre-entry checklist verifying that conditions in the permit space are acceptable for entry during its duration.
- Shall ensure that all Permit-Required Confined Spaces permits are posted.
- Shall ensure an annual review of the program including all entry permits issued that during that annual period.
- Shall ensure that confined spaces are identified properly as either a Non-Permit Confined Spaceor a Permit-Required Confined Space.
- Shall ensure that all confined spaces that have been identified as “no entry” have signs thatstate, “DANGER- DO NOT ENTER”.
- Shall ensure signs have been posted at all Permit-Required Confined Space areas that state, “DANGER – PERMIT ENTRY CONFINED SPACE” along with the proper warning word such as “ASPHYXIANT, FLAMMABILITY or TOXIC HAZARD”
- Shall file all permits at the area offices for review. Permits shall be kept on file for oneyear.

Affected Employee

- Shall attend Confined Space Entry training commensurate with their duties and when duties change as required.
- Shall comply with all aspects of this program.
- Authorized Entrants, Attendants and Entry Supervisors may be any Sessler Wrecking employee that is authorized by management to work in a confined space setting and that has been trained and is proficient in the understanding of program requirements.

Authorized Entry Supervisor Duties

- Shall have a tailgate safety meeting, with all workers to be involved in the confined space entry and review the job to be performed and what safety concerns may be present.
- Shall confirm that all isolation, Lock/out and Tag/outs have been completed prior to entry into a confined space.
- Shall ensure that the requirements of this program are followed and maintained.
- Shall test all atmosphere conditions prior to entry and shall complete and maintain the confined space permit form and have it accessible for review on the job site at alltimes.
- Shall notify Sessler Wrecking supervisor of entry into a confined space and notify the supervisor of any changes that may occur, during an entry.
- If the confined space poses a hazard that cannot be eliminated, the Entry Supervisor must arrange for a rescue service.

- If the confined space poses no hazards to the Entrants, the Entry Supervisor can reclassify the confined space to a Non-Permit Confined Space.
- A stand-by rescue team is not required to be on site for Non-Permit Confined Spaceentries.

Authorized Attendant Duties

- Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- Is aware of possible behavioral effects of hazard exposure in authorized Entrants.
- Continuously maintains communication and an accurate count of authorized Entrants in the confined space and ensures that the means used to identify authorized Entrants, and accurately identifies who is in the confined space.
- Remains outside the confined space during entry operations until relieved by another Attendant.
- If more than one confined space is to be monitored by a single attendant, the program must include the means & procedures that will be used in order to enable the attendant to respond to emergencies in one or more permit spaces that he/she is monitoring without distraction from allresponsibilities.
- Attendants may enter a confined space to attempt a rescue, if they have been trained and equipped for rescue operations as required and only when they have been relieved by another authorized Attendant.
- Monitors activities inside and outside the confined space to determine if it is safe for Entrants to remain in the space and orders the authorized Entrants to evacuate the confined space immediately under any of the following conditions:
    - If the Attendant detects a prohibited condition;
    - If the Attendant detects the behavioral effects of hazard exposure in an authorizedentrant;
    - If the Attendant detects a situation outside the space that could endanger theauthorized entrants;
    - If the Attendant cannot effectively and safely perform all the duties required.
- Summon rescue and other emergency services as soon as the Attendant determines thatauthorized Entrants may need assistance to escape from confined space hazards.
- Takes the following actions when unauthorized persons approach or enter a confined space while entry is underway:
    - Warn the unauthorized persons that they must stay away from the confined space;
    - Advise the unauthorized persons to exit the confined space immediately, if they have entered the space;
    - Inform the authorized Entrants and the Entry Supervisor if unauthorized persons have entered the confined space.
- Performs no duties that might interfere with the Attendant's primary duty to monitor and protectthe authorized Entrants.
- Authorized Attendants shall not monitor more than one confined space at a time.

Authorized Entrant Duties

- Knows the hazards that may be faced during entry, including information on the mode,signs or symptoms, and consequences of the exposure;
- Uses appropriate personal protective equipment properly, e.g., face and eye protection, and other forms of barrier protection such as gloves aprons, coveralls, and breathing equipment;

- Is aware of possible behavioral effects of hazard exposure in authorized Entrants.
- Shall witness and verify calibrated air monitoring data and if approved, sign off, before entry is made.
- Is entitled to request additional monitoring at any time.
- Maintain communication with the Attendants to enable the Attendant to monitor the Entrants status as well as to alert the Entrant to evacuate if needed; and
- Exit from confined spaces as soon as possible when ordered by an Attendant or Entry Supervisor, when the Entrant recognizes the warning signs or symptoms of an exposure exists, or when a prohibited condition exists, or when an alarm is activated.

Provisions and Procedures for Protection of Workers During Entry into Confined Spaces-Permit Only

Permit-Required Confined Space Entry

If the space is properly isolated and results of air monitoring are above acceptable parameters without local exhaust ventilation in operation, classify the entry as a Permit-Required Confined Space.

- Complete the Sessler Wrecking Confined Space Entry Permit before proceeding with work in a Permit-Required Confined Space.
- Entrants and/or their representative shall be given the opportunity to observe and participate in the air monitoring process.
- Entrants shall review and sign the confined space permit.
- At least one trained Attendant must always be outside the Permit-Required Confined Space.
- The Attendant must monitor the authorized Entrants for the duration of the entry operation.
- Only authorized Entrants may enter a Permit-Required Confined Space.
- All Entrants must sign in and out on the entry permit when entering and leaving a Permit-Required Confined Space.
- The back of the permit or a sign-in sheet must be used for this purpose.
- Post signs and barricades outside all Permit-Required Confined Spaces to notify personnel that a confined space entry is in progress and unauthorized entry is prohibited.
- Conditions must be continuously monitored where Entrants are working to determine that acceptable conditions are maintained during entry.
- If a hazardous atmosphere is detected during an entry, personnel must immediately evacuate the space.
    - The Entry Supervisor shall cancel the entry permit.
    - Re-evaluate the space to determine how the hazardous atmosphere developed.
    - Take action to protect personnel before any subsequent activity to re-enter the space takes place.
    - Re-issue the Sessler Wrecking Confined Space Entry Permit before allowing Entrants to re-enter the space.
    - Employees or their representatives are entitled to request additional monitoring at any time.
- The permit must be terminated when the entry operations are complete or when permit conditions change (i.e., hazardous air monitoring results are noted, unsafe behaviors are observed, etc.).
- The minimum rescue equipment required for Permit-Required Confined Space entry is covered in the Rescue & Emergency section of this program.
- Permit-Required Confined Space entry operations will be reviewed when Sessler Wrecking believes that the requirements of this confined space program may not adequately protect personnel.

- If deficiencies are found in the program, the program will be revised, and personnel will be trained in the new revisions before subsequent entries are authorized.

Pre-Job Planning and Space Preparation
The Entry Supervisor must determine that the confined space is properly isolated by blinding, disconnecting, and/or by following local Lockout/Tagout procedures.

The Entry Supervisor must discuss with all Entrants the hazards of the space, communication methods and emergency procedures during the confined space entry.

Eliminate any condition making it unsafe to open the equipment to atmosphere.

Promptly guard the opening to prevent an accidental fall through the opening and to protect each employee working in the space from foreign objects entering the space.

If applicable, wash, steam, ventilate or degas the confined space to properly free it of possible contaminants. Vent vapors to a safe location.

Do not allow unauthorized personnel to enter a confined space. Barricade and/or guard all confined spaces to prevent entry of unauthorized Entrants.

If performing hot work in the confined space, precautions must be taken consistent with the Sessler Wrecking Hot Work Permit procedure.

Ensure that vehicle or other equipment exhaust does not enter the space.

Pre-Entry Safety Meeting
The Entry Supervisor must declare when the confined space is ready for entry.

The Entry Supervisor shall hold a pre-entry safety meeting to discuss all requirements and procedures with all authorized Entrant(s) and Attendant(s) involved with the entry. He/she will discuss other concerns such as previous contents, vessel coating, PPE required etc., during this meeting.

The Entry Supervisor must coordinate entry operations when employees of more than one company are working simultaneously in the confined space. This coordination is necessary so that one company's work does not endanger the employees of another company.

Equipment
Check all work equipment to ensure that it has the proper safety features and is approved for the locations where it will be used. The Entry Supervisor shall ensure that all equipment is properly maintained in a safe condition and that Entrants use the equipment properly.

The following equipment must be considered and may be required when entering a confined space:

- Atmospheric Testing and Monitoring Equipment.

- Barriers, Shields, and Signs – Post signs and barricades outside all Permit-Required Confined Spaces to notify personnel that a confined space entry is in progress and unauthorized entry is prohibited. Any signs used must state "Danger – Permit Entry Confined Space" along with the proper warning word such as "Asphyxiant, Flammability or Toxic Hazard". All barricades must be capable of preventing a person from inadvertently walking into or kicking an object into the space.
- Communications Equipment – Only use intrinsically safe equipment in areas where a hazardous atmosphere may exist. Use a communication system that will keep the Attendant in constant, direct communication with the Entrant(s) working in the confined space. Also, use a communication system that allows the Attendant to summon help from rescue or emergency services.
- Entry and Exit Equipment – (For example: ladders may be needed for safe entry and exit).
- Lighting Equipment – Needed for safe entry, work within the space and exit. Lighting equipment used in the confined space must be certified safe for the location.
- Portable electric lighting used in wet and/or other conductive locations (drums, tanks, vessels) must be operated at 12 volts or less. 120-volt lights may be used if protected by a ground-fault circuit interrupter.
- Personal Protective Equipment – Ensure that personnel wear the required personal protective equipment. For respiratory protection requirements, refer to the Respiratory Protection Program.
- Rescue and Emergency Equipment – Except if provided by outside rescue services.
- The Attendants must also have an approved first aid kit.
- Vacuum Trucks – When used, trucks must be properly grounded or bonded to prevent static sparks.
- Ventilating Equipment – Local exhaust air movers used to obtain acceptable atmospheric entry conditions (e.g., Copus air movers).
- Other – Any other equipment necessary for safe entry into and rescue from permit required confined spaces.

Air Monitoring

- Before an employee enters the space, the internal atmosphere shall be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Monitoring of the space must inform the entrants of the potential hazards and results and they must participate in the permit review and signing.
- The air shall be periodically tested while continuous ventilation is applied.
- Any employee who enters the space, or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by this paragraph.
- Employees or their representatives are entitled to request additional air monitoring at any time.

Ventilation

Continuous forced air ventilation must be used and tested as follows:

- An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere.
- The forced air ventilation shall be so directed as to ventilate the immediate areas where an employee is or will be present within the space and shall continue until all employees have left the space.
- The air supply for the forced air ventilation shall be from a clean source and may not increase the hazards in the space.
- The atmosphere within the space shall be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee, who

enters the space, or that employee's authorized representative, shall be provided with an opportunity to observe the periodic testing and may request additional monitoring at any time.

- If a hazardous atmosphere is detected during entry each employee shall leave the space immediately and the space shall be evaluated to determine how the hazardous atmosphere developed; and measures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

Multiple Employer Procedure

In order not to endanger the employees of any other employer, the Entry Supervisor shall:

- Verify that all contractor employees have been trained in confined space and that all contractor employees fully understand the Sessler Wrecking procedures pertaining to Confined Space.
- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section.
- Apprise the contractor of the elements, including the hazards identified and the employees experience with the space, which make the space in question a permit space.
- Inform the contractor of any precautions or procedures that Sessler Wrecking has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.
- Coordinate entry operations with the contractor, when both Sessler Wrecking personnel and contractor personnel will be working in or near confined spaces.
- Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in confined spaces during entry operations.
- In addition to complying with the confined space requirements that apply to all employees; each contractor, who is retained to perform permit space entry operations, shall:
    - Obtain any available information regarding confined space hazards and entry operations from the Sessler Wrecking Entry Supervisor.
    - Coordinate entry operations with the Sessler Wrecking Entry Supervisor, when both Sessler Wrecking personnel and contractor personnel will be working in or near permit spaces.
    - Inform Sessler Wrecking of the confined space program that the contractor will follow and of any hazards confronted or created in the confined space, either through a debriefing or during the entry operation.

Issuance/Reviewing of Permit

Only when all pre-entry requirements are satisfied, the Entry Supervisor shall issue a completed and signed confined space permit. The confined space permit is valid for one shift.

In the event of any unauthorized entry, employee complaints, a hazard not covered by the permit, the occurrence of an injury or near miss the entry permit shall be cancelled and a review shall be conducted to provide employee protection and for revising the program prior to authorizing subsequent entries.

Termination and Closing or Cancelling of Permits

The Entry Supervisor shall terminate the confined space permit, at the end of the job operation, at the end of the shift or when the Entry Supervisor or Attendant determine that conditions in or near the confined space have changed and is hazardous to the Entrants.

The Entry Supervisor shall, at the conclusion of entry operation, close out the permit and provide the safety department with the original copy of the Confined Space Permit.

Procedures for Summoning Rescue Services, Rescuing Entrants, First Aid and Unauthorized Personnel During Rescues

Rescue services must be on-site for immediately dangerous to life and health (IDLH) conditions while work is being performed. Rescue services must be either:

- Provided by the host facility,
- Provided by an outside service which is given an opportunity to examine the entry site, practice rescue and decline as appropriate, or
- Provided by Sessler Wrecking by selecting a rescue team that is equipped and trained to perform the needed rescue services.
- The Attendant shall order the other Entrants not to move the injured nor allow untrained or unauthorized workers into the space that are not trained to handle a confined space rescue.
- Safety Data Sheet's for substances that an injured Entrant was exposed to must be provided to the medical facility treating the injured worker.

Non-entry Rescue

- To facilitate non-entry rescue, an Entrant must be attached to a retrieval system whenever he/she enters a Permit-Required Confined Space with a vertical depth of more than 5 feet.
- The retrieval equipment is not required if it will increase the overall risk of entry, e.g., creating an entanglement hazard, or will not contribute to the rescue of the Entrant.
- Each Entrant shall use a full body harness equipped with a "D" ring located between the shoulders or above the head.
- Wristlets may be used instead of the full body harness if the use of the full body harness is not feasible or creates a greater hazard *and* that using wristlets is the safest and most effective alternative.
- The retrieval line must be attached to the "D" ring and the other end of the retrieval line attached to a retrieval device or fixed point located outside the space so that rescue can begin as soon as the rescuer becomes aware that rescue is necessary.

Training

Training shall be provided so that all employees whose work is regulated by this program acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned to them.

Training shall be provided to each affected employee, before the employee is first assigned duties under this program, if a new hazard has been created or special deviations have occurred and before there is a change in assigned duties.

Purpose

The purpose of this program is to protect employees who may encounter demolition and the accompanying hazards while performing work.

Scope

This procedure applies to Sessler Wrecking operations where employees may be exposed to demolition during the course of their routine work.

This program is to ensure essential information regarding the hazards of demolition work is communicated to our staff and controls to minimize any potential exposure. When work is performed on a non-owned or operated site, the operator's program shall be followed.

General

All demolition work must be carried out in accordance with local regulations and permits.

Demolition

Prior Notification
If Sessler Wrecking is applying for demolition work proper notification is required and Sessler Wrecking must ensure it has read and will comply with local regulations and permits.

Stability Notification
Local authorities must be informed immediately if, during any demolition work:

- The building concerned (including an intact part of the building) becomes unstable; and
- There is a danger that the building could collapse and injure any person who is in any place not under the control of the person who is carrying out that work, either directly or by his or her employees or agents.

Investigation Prior to Demolition
Before the commencement of stripping or demolition work, an initial investigation of the building to be demolished and the site on which it is located must be carried out in accordance with local regulations and permits.

The records of the investigations must be included by the employer in the work method statement for the demolition to substantiate the choice of a particular sequence, method, or technique of demolition.

It is a requirement that the results of the investigations of the building and site must be recorded in writing by Sessler Wrecking and must be made available to local authorities for inspection on demand.

Barricading and Signage
If falling material could endanger workers the danger area must be barricaded or effectively guarded to prevent entry by workers, and conspicuous warning signs must be displayed on all sides and approaches, or adequate

protective canopies must be installed over the danger area, or adequate catch platforms or nets must be provided to stop materials from falling into areas accessible to workers.

Sequential Mechanical Demolition Requirements

- If mechanical means are used to carry out demolition work, the work must be carried out sequentially.
- Sessler Wrecking must ensure that demolition work involving pulling with ropes or chains or similar means is carried out only if the building being demolished is not more than 16 feet in height and the work is carried out sequentially.

Demolition steps

Sessler Wrecking shall ensure that:

- Dust from the demolition is controlled to the extent that is reasonably practicable;
- Materials and debris are not allowed to accumulate in any area to the extent that the materialsand debris cause overloading of a structure that could result in the collapse of all or part of the structure;
- Any opening or hole in a floor, roof or other surface on which workers are required or permitted to walk or stand is guarded or covered;
- A free-standing scaffold is used in the demolition of a building shaft from the inside;
- Steel structures are dismantled column length by column length and tier by tier from the top downward; and
- No wall or other part of the structure being demolished is left in an unstable condition or in danger of accidental collapse except during the actual demolition of that wall or part of the structure.
- Where a material chute presents a danger to workers, Sessler Wrecking shall ensure that a guardrail is installed around the top of the chute to prevent workers from falling into the chute.
- Ensure tools and equipment are in good working order.

Structural Members and Cranes

Sessler Wrecking shall ensure that structural members that are being removed are not under any stress other than the member's own weight and are secured or supported to prevent any unexpected movement.

Where a structural member is being hoisted by a crane or other similar lifting device from a structure being demolished or from the demolition rubble, Sessler Wrecking shall ensure that the hoisting line is in a vertical position and is over the center of gravity of the load in a manner that will reduce the danger to workers from a swinging or uncontrolled load.

Use of a Registered Professional Engineer

Where the demolition of a structure may affect the stability of an adjoining structure, Sessler Wrecking shall ensure that the demolition is carried out in accordance with procedures certified in writing by a registered professional engineer to safeguard the stability of the adjoining structure and a copy of the procedures is kept at the worksite during demolition.

Housekeeping

Material and debris must not be allowed to accumulate on floors or on the ground outside the building or structure if workers are endangered.

Clearances

No person shall work in or below a building that is being demolished if, at any time during the carrying out of the demolition work, there is a danger that the person might be injured as a result of demolished or other material falling or rebounding. This clause applies whether or not the person's work is associated with the demolition of the building.

HAZARD PROFILE - DEMOLITION

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
General Planning	Inadequate training, consultation, planning and improvisation	Task specific injuries due to inexperience, inadequate consultation, or failure to provide appropriate equipment	• Insufficient skills (competency) to complete the requiredtask. • Inadequate consultation with relevant employees. • Inadequate competent supervision. • Planning for required equipment not carried out. • Improvisation using inappropriate equipment.
	Poor Access	Slips, trips, and falls; abrasions, strains, and sprains; manual handling injuries such as back damage	• Access to work area cluttered – poor housekeeping. • Area around work area cluttered with stored materials and/or rubbish. • Inadequate access for demolishers and their equipment.
	Insufficient lighting	Slips, trips, and falls; walk into objects	• Poor lighting provided, especially in basement areas. • Access ways not suitably defined or lighted.
	Lack of adequate ventilation	Illness; overcome by fumes	• Working in a Confined Space. • Intake for asbestos decontamination, or other chamber positioned too close to diesel or other fumes. • Petrol/diesel driven equipment used.
	Working at height near edge	Fall from the edge of a floor	• Inadequate strength in perimeter handrail or midrailsmissing. • Gaps in perimeter protection, e.g., between screen or edge scaffold.
	Penetrations	Fall through penetration	• Penetrations not fenced or covered or cover not secured forming “trap”.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Uncontrolled collapse of structure or part of structure	Serious injury to person/s	• Poor planning of the demolition process. • Planning, including method of demolition not approved bythe appropriate Authority.
General planning	Noise from machinery and equipment	Hearing damage	• No engineering solution for high noise level, e.g., quieter, or muffled equipment. • No temporary sound absorption screen or barrier to protect other people in the area, e.g., ply or polystyrene. • No PPE or incorrect PPE for the required task.
	Sharp objects	Cuts, lacerations, puncture wounds	• No PPE or incorrect PPE for the required task.
	Hazardous materials in structure	Exposure to hazardous materials	• Hazardous substances survey not conducted prior to commencement of work. • Detailed removal techniques notdocumented. • Specialized workers (licensed) not involvedin removal or workers not inducted. • Hazardous materials not reported whendetected. • Required precautions for removal, handling and disposal not followed. • Demolition techniques inappropriate for containment of hazardous material – scatter material over a widearea. • Otherworkers not prevented from entering areas where hazardous materials exist or are beingremoved. • No warning signs or signsinsufficient. • Hazardous material left on site after completion ofwork.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Dust and other fibers	Inhalation, respiratory disease	• No PPE or incorrect PPE for the required task.
	Exposure to Ultraviolet Light, glare	Skin cancer; sunburn, eye damage	• Personal protective clothing – sunscreen 15+, shirt, flap on hard hat not provided or not worn. • AS rated sunglasses not worn.
Preliminaries Disconnect and/or decommission services	Electricity	Electric shock or electrocution	• A licensed electrical contractor not used to switch off/isolate power. • On site labor do not treat all power circuits as live. • Pyro connection (fire backup for alarm) not identified, tagged, and isolated. • Earth Leakage Switch not installed on mains supply or portable generator. • Other power sources from outside the site not identified and disconnected. • Irregular connections not identified and disconnected. • Temporary connections not identified, tagged, and isolated. • Water pipe electrified.
	Gas	Injury from explosion; severe burns from being caught in the explosion or fire or fighting a fire	• A Licensed Gas Plumber not used to isolate and switch off gas supply at source. • Residual vapor in mains not flushed with compressed air. • Workers attempt to fight a gas fire instead of notifying emergency services. • Leaks in pipes caused by heavy machinery loading. • Irregular connections not identified and disconnected.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Other volatile or explosive materials	Injury from explosion; severe burns from being caught in the explosion or fire or fighting a fire	• Insufficient identification and planning. • Dust ignition. • Chemical ignition. • Diesel/petroleum ignition. • Decommissioningofold chemical, or fuel, tanks.
	Fire	Burns and/or smoke inhalation or asphyxiation	• Short circuit. • Work area not cleared of combustible material priorto oxy cutting. • Stray spark from oxy or other. • Spotter" (additional worker) not used to watch for spot fires that maybe causedby sparks from oxycutting. • Material combustion. • Fire extinguisher not full or adjacent to workarea. • Workers not trained in the use of fireequipment.
Protection of the public and site personnel	Windborne dust and small particles	Struck by dust or small particles. Eye damage	• Dust not wet down. • No regular cleanups andremoval. • Safety glasses not worn. • Poor separation and/or protectionof work and publicareas on the building perimeter or within the building if it is inuse. • Perimeter scaffold not adequately screened e.g., chain wire and shade cloth.
	Large falling debrisor partialcollapse	Serious injury to person/s	• Poor separation and/or protectionof work and publicareas on the building perimeter or within the building if it is inuse. • Uncontrolled collapse of large members or othermaterial. • Insufficient planning for loweringor controloflarge materials.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Collapse of a facade to be retained	Serious injury to person/s	• Insufficient planning by engineer/s or other responsiblepersons. • Planning does not allow for adverse weather– e.g., high winds. • Façade foundation undermined. • Façade supportingstructure struck by machinery. • Poor separation and/or protection of work and public areas on the building perimeter or withinthe building if it is in use.
	Lifting loads by crane	Serious injury to person/s from falling material being lifted	• Qualified rigger(s) or crane driver notused. • Individual loads not inspected and cleared before lifting commences. • Slingsnot regularlyinspected and tested. • Load not slung correctly. • Sling capacity overloaded. • Load strikes object, e.g., structure, when lifting or lowering. • Communication error between RIGGERS and cranedriver. • Foundation for mobile crane unstable.
Hazardous materials removal	Contact with substance classified as hazardous	Short- or long-term health affect, e.g., overcome by vapors, rash, allergy, disease	• Risk assessment not undertaken. • Alternate(safer) substance not considered. • No MSDS provided. • No PPE or incorrect PPE for the required task. • Safety instructions ignored and/or trainingin safe use of the substance not provided.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Release of Asbestos fibers	Exposure to Asbestos	• Unidentified sources within structure. • Contamination of area with friable asbestos. • Release of fibers during removal of: ○ vinyl tiles. ○ roof membranes. ○ roof sheeting. ○ electrical switchboards. ○ lift brake linings. ○ mastic sealants.
	Lead dust or fumes	Exposure to Lead	• Unidentified lead paint on site. • Inhalation of lead contaminated dust. • Inhalation of lead contaminated fumes when cutting lead painted material
	Heat generated toxic fumes	Inhalation of fumes	• Inhalation of cyanide gas when cutting galvanized material. • Inhalation of lead contaminated fumes when cutting lead painted material.
	Mercury in switch gear	Exposure to Mercury	• Unidentified sources within structure. • Damage to electrical switchgear during removal.
	PCBs in light fittings and transformers	Exposure to PCBs	• Unidentified sources within structure. • Damage to fluorescent lights during removal. • Damage to transformers during removal.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Contamination of or lack of air	Person collapses, suffocates, or is asphyxiated	• Intake for asbestos decontamination, or other chamber positioned too close to diesel, or other fumes. • Asphyxiation in a confined space due to lack of ventilation. • Confined Spaces Regulation not followed.
	Petrochemical products	Exposure causing allergies or other skin irritations	• Allergic reaction to chemicals. • No PPE provided for the required task. • Incorrect PPE for the required task.
Soft strip out	Synthetic mineral fibers (SMFs)	Release of fibers – inhalation	• Unidentified sources within structure. • Work not conducted in a controlled manner when demolishing walls or ceilings. • Scatter of glass fibers, mineral wool particles, SMFs. • Fibers not securely bagged and removed before damage to bags occurs. • No PPE or incorrect PPE for the required task.
Structural demolition techniques	Sharp objects	Puncture wounds, cuts, glass fragments in the eye/s	• No PPE or incorrect PPE for the required task. • Debris not cleared from work area on a regular basis.
			• Hypodermic needles left by drug users and vandals. • Nails protruding from timber and other materials. • Removal of debris containing glass or metal with sharp edges. • Glass breaks during removal – fragments.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Heavy mobile machinery in operation	Worker struck by machinery	• Working too close to machinery operating area. • Workers not aware of planned exclusion zone for operation of machinery. • "Spotter" not used to supervise machinery. • Operator error in the control of the machinery. • Risktaking- violationof instruction or rule. • Plant not switched off duringon-site maintenance. • Additionalpassengers riding on the machinery. • Operator not signaled (eye contact)before approaching the
	Plant working at heighttipping debris over an open edge	Operating machinery dragged over edge	• Work areas cluttered with debris, particularly steel reinforcement, and concrete. • Debris caught on machinery, e.g., in wheels or tracks. • No safety rail for machinery at point where debrisis tipped over the edge. • Safety rail of inadequate strength, and height, unableto withstand possible machinery impact. • Safety rail not replaced immediately if removed to increase access to the edge.
	Stability of operating machinery	Roll over crushing operator	• Inadequate foundation for operating machinery. • Subsidence or collapse of earth or rubble below or adjacent to machinery. Plant operatingtoo closeto an excavation,basement, or trench. • Plant inclined beyond safe operating limits.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Stability of operating machinery	Roll over crushing operator	• Inadequatefoundation for operating machinery. • Subsidenceor collapseof earth or rubble below or adjacent to machinery. • Plant operatingtoo closeto an excavation,basement,or trench. • Plant inclined beyond safe operating limits.
	Plant or equipment generated projectiles	Person/s struck by debris flung out from machinery	• Poorhousekeepingaroundmachinery and equipment. • Debris spun off machinery wheelsor tracks. • Shattered concrete or masonry breakage whenusing powered hammers orpicks. • Unauthorized persons wander into workarea. • Operator not adequatelyprotected.
	Wall/s destabilized	Collapse of wall or part of the wall onto person/s	• Site inspection and detailed Work Method Statement not carried out. • Engineering approvalfordemolitionsequence not obtained. • Planneddemolitionsequencenot followed. • Public areas, e.g., streets or walkways, not closed if there is a risk of collapse. • Demolition not startedat thetop of the wall. • Operator untrained,lackof understanding of specific demolition sequence. • Stray debris falls, e.g.,loose bricks. • Undetectedchanges in wallstructure, e.g., ducts.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Column/s overloaded or destabilized	Uncontrolled collapse causing death or multiple injuries	• Site inspection and detailed Work Method Statement not carried out. • Engineering report not correct. • Planneddemolitionsequencenot followed. • Not builtto plan or plansincorrect. • Moving machinerycollideswith, or swinging boom, hits column. • Deterioration due to termites or rust. • Public areas, e.g., street or walkway, not closed if there is a risk of collapse.
	Floor/s overloaded or destabilized	Floor collapse causing death or multiple injuries	• Site inspection and detailed Work Method Statement not carried out. • Engineering report not correct. • Plant falls through floor. • Not builtto plan or plansincorrect. • Changes in floor structure or part thereof during life of building e.g., old lift well, tower crane or dumbwaiter. • Demolition materials stacked too high causing overload. • Structural registered professional engineer's report does not establish depth guidelines for the stacking ofrubble. • Plant strays from defined operating areas. • Planneddemolitionsequencenot followed. • Workareaslab not regularlyinspected for signs of movement or new cracking, especially from underneath.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Use of explosives to weaken or topple main structure	Person/s struck by debris flung out by blast	• Insufficient technical skills (competency) to complete the required task. • Planning, including method of demolition not approved by the appropriate Authority. • Inadequate assessment of the structure and explosive technique to be used. • Inadequate early warning. • Inadequate blast absorption barriers. • Inadequate exclusion zone for workers and the public. • Worker/s strays into the blast area.
Use of handheld tools	Falling debris or tools	Person struck by falling objects	• No barrier exclusion zone or size of the zone inadequate. • Drop zones not barricaded and/or signposted. • Debris tipped from higher levels fall onto machinery or persons below. • Insufficient containment. • Unauthorized persons wander into work area. • Tool dropped by worker. • Perimeter of the site not adequately secured with a combination of scaffold, chain wire mesh, shade cloth, plywood,
	Operating steel tipped tools e.g., jackhammer	Steel splinters flung out from shattered tool striking worker/s or pick punctures work boot	• No PPE or incorrect PPE for the required task. • Jackhammer pick breaks or shatters. • Pick worn or damaged. • Jammed jackhammer resulting in loss of control. • Loss of control due to constrained work area. • Operator not trained in the use of the tool. • Operator uses foot to guide jackhammer pick.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Operating chain saw	Saw kicks back causing blade to strike operators body	• Equipment not adequately maintained. • Operator not trained in the use of the tool. • No PPE or incorrect PPE for the required task. • Loss of control due to constrained work area. • Kickback brake not working.
	Operating electric power saw or angle grinder	Electric Shock or electrocution	• Electrical equipment faulty. • Extension lead faulty or damaged. • Lead severed by power saw blade or disk. • Earth Leakage Switch not installed on mains supply or portable generator.
	Cutting with power saw or angle grinder	Serious cuts from contact with saw blade or disk	• Sawblade or grinder disk unguarded. • Guard faulty. • Sawblade or cutting disk damaged causing tool to catch and jump. • Cutting disk badly worn – blade disintegrates. • Wrong type of blade or cutting disk used. • Grinder not fitted with "Dead Mans" switch.
	Sparks generated when using power saw or angle grinder to cut metal	Fire causing burns	• Work area not cleared of combustible material prior to cutting. • "Spotter" (additional worker) not used to watch for spot fires that may be caused by sparks. • Fire extinguisher not full or adjacent to work area. • Workers not trained in the use of fire equipment. • No PPE or incorrect PPE for the required task.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Cutting Steel with Oxy Acetylene torch	Burns to the body e.g., arms and legs. Damage to eyes	• No PPE or incorrect PPE for the required task. • Hot cut piece not constrained. • Long guns (extended nozzles) not used for constrained work areas. • Damage to hose orequipment. • No flashback arrester. • Blowback from rust and concrete.
Working at height	Working at height	Fall e.g., from the edge or through a roof or from a boom lift	• No edge protection. • No harness or harness not secured. • Harness anchorage incorrect. • Climb outofelevated boom lift. • Fall through brittle roof. • Standingon a destabilizedroofafterfixings have been removed in advance. • Workers not trained in the useof safetyequipmentforworking at heights • Work not supervised to ensure correct procedures arefollowed.
	Erecting ladders or working platforms near live power	Electric shock or electrocution	• Working too closeto livepower lines. • Ladder contacts power lines. • TigerTails not in placeon power lines. • Windcauses powerlines to swing. • Wind causes loss of control whenerecting ladder.

Job Activity (Tasks)	What Can Harm You (Hazards)	What Can Happen (Risks)	Causes Needing Management (Controlled)
	Working from a ladder	Fall from ladder	• Ladder not tied off. • Load capacity of the ladderexceeded. • Ladderfailuredue to physical damage or corrosion. • Domestic ladder used instead of commercial. • Ladder not positioned at correct angle.
	Working from a platform	Fall from platform	• Incorrect assembly or different systems mixed together. • Access ladders not positioned a minimum of 4 feet above the platform. • Scaffold incorrectly constructed. • Scaffold not adequately tied or braced. • Platform not fully decked. • Inadequate edge protection. Struck by machinery or equipment. Struck by uncontrolled collapse of part of the structure or dislodged material

Purpose

The purpose of this program is to establish a firm but fair disciplinary action policy to enforce the safety system.

Scope

This document is applicable to all employees.

Responsibilities

It is the responsibility of each person employed by Sessler Wrecking to work in a safe and efficient manner. The safety system provides guidelines and procedures to help ensure that safe work practices are observed. If any employee violates provisions of the Sessler Wrecking safety system or works in a manner that threatens his own health and safety or the health and safety of the employees around him, he will be subject to disciplinary action, up to and including termination of employment.

The safety manager, operations managers, supervisors, and foremen hold positions responsible for enforcing the safety system and for issuing disciplinary action as required by this section of the safety manual.

Sessler Wrecking is committed to safety and senior management holds all supervisory staff responsible and accountable for safety within their respective areas.

Physical inspections by Sessler Wrecking officials or insurance representatives shall occur. Company officials must conduct periodic inspections of work areas to ensure compliance with safety rules and policies.

Requirements

Safety and health is a core value and a condition of employment at Sessler Wrecking. The following actions constitute a safety violation:

- Not following verbal or written safety procedures, guideline, or rules of Sessler Wrecking or our clients
- Horse play, failure to wear required PPE, and or abuse of PPE
- Being under the influence of drugs or alcohol during work
- Bringing weapons on the job site
- Failure to report incidents or injuries
- Attempted or actual physical force to cause injury, threatening statements, or other actions to cause an employee to feel they are at risk of injury.

Procedure

The following procedures will be followed after issuing a safety violation notice:

- The first offense will result in a verbal warning. The employee will be met with and informed that he or she is being issued a verbal warning and informed of the infraction, rule or procedure that was violated and the corrective action to be taken. Proper procedure will be discussed to clarify the situation and allow the employee to correct his behavior. The person making this verbal warning will inform the operations

manager of his branch that this warning has been issued so the operations manager may make a written record of the warning.

- The second offense will result in a written reprimand and additional training. The reprimand will be written on the standard Safety Reprimand form (see below) and will describe the unsafe activity or behavior that needs correction. Refer to the section of the safety program that was violated (when applicable). The employee receiving the reprimand has the right to submit a written rebuttal to the reprimand. The employee must sign the reprimand. The reprimand and any rebuttal will become a part of the employee's employment records.
- The third offense will result in another written reprimand (using the standard form) and punitive layoff, the duration of which will be decided at the time of the disciplinary action and is to be weighed by the severity of the offense. Again, the employee may submit a written rebuttal to the reprimand. The employee must sign the reprimand. The reprimand and any rebuttal will become a part of the employee's employment records.
- The fourth offense may result in the termination of the offending employee.

The above actions are to be taken against a sliding twelve-month scale. If an employee receives a reprimand on January 1 and commits his fourth offense on or before December 31st of the same year, he is terminated. The employee does not have to commit the same violation each time to receive further reprimands. He could receive a verbal reprimand for smoking in a no smoking area on his first offense and get a written reprimand for his second offense which might be a forklift violation and yet another for failing to use proper personal protective equipment. He will be terminated upon his fourth offense in the last twelve months.

In the case of serious safety violations such as by-passing guarding or other unsafe activities that put the violator or other employees at serious risk of injury, the manager may move the violator directly to the second or third warning level. If the violator’s actions put him or others at risk of death or dismemberment the manager has the option to terminate him with no further warning.

Safety Reprimand Form

Date: _____ Reprimand #____

Issued To: _____

Signature: _____

Issued By: _____

Signature: _____

Violation (Describe in Detail):

Follow upTraining: _____

Presented by: _____

Date ofTraining: _____

TraineeSignature: _____

- **PURPOSE AND SCOPE**
  - The purpose of this procedure is to ensure that all employees are aware of the requirements for driving company owned vehicles.

- **GENERAL INFORMATION**
  - Only company authorized personnel will be permitted to drive company owned vehicles
  - All company authorized personnel will have a valid and current Driver's License
  - Authorized drivers are prohibited from operating company owned vehicles while under the influence of alcohol and illegal drugs.
  - Vehicle Accidents will be reported to the EHS director by phone call immediately following each incident and followed up with the completion of Vehicle Accident Report within 24 hours of the incident.

- **RESPONSIBILITIES AND PROCEDURES**
  - Motor vehicles as covered by this section are those vehicles that operate on the highway, open to public traffic.
  - Allvehicles will have a service brake system, anemergency brake system,and aparking brake system. These systems may use common components and will be maintained in operable condition.
  - Whenever visibility conditions warrant additional light, allvehicles, orcombinations of vehicles, in use will be equipped with at least two headlights and two taillights in operable condition.
  - Allvehicles, or combination of vehicles, will have brake lights in operable condition regardless of light conditions.
  - Allvehicles will beequipped with an adequate audible warning device at the operator's station and in an operable condition.
  - No employee will use any motor vehicle equipment having an obstructed view to the rear unless:
    - The vehicle has a reverse signal alarm audible above the surrounding noise level or:
    - The vehicle is backed up only when an observer signals that it is safe to do so.
  - All vehicles with cabs will be equipped with windshields and powered wipers. Cracked and broken glass will be replaced. Vehicles operating in areas or under conditions that cause fogging or frosting of the windshields will be equipped with operable defogging or defrosting devices.
  - All haulage vehicles, whose payload is loaded by means of cranes, power shovels, loaders, or similar equipment, will have a cab shield and/or canopy adequate to protect the operator from shifting or falling materials. All loads shall be secure and shall not exceed the manufacturers specifications and legal limits for thevehicle.
  - Tools and material will be secured to prevent movement when transported in the same compartment with employees.
  - Vehicles used to transport employees will have seats firmly secured and adequate for the number of employees to be carried.
  - Seat belts and anchorages meeting the requirements of 49 CFR Part 571 (Department of Transportation, Federal Motor Vehicle Safety Standards) will be installed in all motor vehicles. All passengers in the vehicle must wear a seatbelt.

- Trucks with dump bodies will be equipped with positive means of support, permanently attached, and capable of being locked in position to prevent accidental lowering of the body while maintenance or inspection work is being done.
- Operating levers controlling hoisting or dumping devices on haulage bodies will be equipped with a latch or other device which will prevent accidental starting or tripping of the mechanism.
- Trip handles for tailgates of dump trucks will be so arranged that, in dumping, the operator will be in the clear.
- Mud flaps may be used in lieu of fenders whenever motor vehicle equipment is not designed for fenders.
- All vehicles in use will be checked at the beginning of each shift to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use: service brakes, including trailer brake connections; parking system (hand brake); emergency stopping system (brakes); tires; horn; steering mechanism; coupling devices; seat belts; operating controls; and safety devices. All defects will be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

VEHICLE INSPECTIONS

- To protect workers during company-related travel, a procedure for performing vehicle safety checks on corporate vehicles has been established. The procedures include performing a pre-trip inspection, as well as procedures for vehicle safety during and following the trip.
- Pre-trip Inspection. All drivers using corporate vehicles for company-related business will fill out a Pre- Trip Inspection Form prior to signing out a vehicle from the Warehouse Supervisor. Any problems or mechanical defects shall be reported to the Warehouse Supervisor.
- During the Trip. All drivers shall keep safety belts fastened whenever behind the wheel.
  - Drivers shall stay alert for problems that could develop during the trip.
  - If a problem develops and driving becomes dangerous, the driver shall stop immediately and call the warehouse supervisor for instructions.
  - If a minor defect develops, the driver shall make a note of it and report it to the warehouse supervisor upon returning to the warehouse.
  - At each stop, every three hours, or every 150 miles, the driver shall circle the vehicle for a quick check of the vehicle, its tires, and its contents.
- Post-trip Report. Upon returning to the office, the driver shall submit a written report documenting (a quick note is sufficient) any problems or mechanical defects that develop during the trip to his/her supervisor.

Occupant Protection Program

- **Safety Belts**
  - Every employee on official company business is required to have an occupant safety belt properly fastened when operating or occupying a motor vehicle which is in motion.
- **Cell phones**

- Every employee on official company business is required to use a hands-free device.

- **Posted Speed Limits**
  - Every employee on official company business is requiredto obey posted speedlimits and all other traffic safety laws.

- **Safe Distance from vehicles**
  - Every employee on official companybusiness will maintain a safe operating distance between other vehicles

- **Motorcycle Helmets**
  - Head protection, meeting the requirements of 49 CFR 571.218, Federal Motor Vehicle Safety Standard No. 218; Motorcycle helmets, will be worn by employees on official business while the motorcyclethey are operating or occupying is in motion.

- **Driver Safety Awareness**

  All drivers who routinely drive in official work assignments are required to attend a driver safety awareness segment. The following topics will be addressed:
  - Vehicle familiarization, including the use of vehicle safety systems
  - The use of safetybelts
  - Where appropriate, the use of motorcycle helmets
  - The effects of alcohol and other drugs on driver performance
  - Refresher training on the above topics will be performed every three years.
  - Certifications of the Driver Safety Awareness training will be kept in the employee's safety file.

ATTACHMENT A
Pre-Trip Vehicle Inspection

Drivers Name:_____ Vehicle ID:_____ DateofInspection: _____

Check the levels of:
___ Washer fluid
___ Oil
___ Antifreeze

Check for leaks of:
___ Oil
___ Water
___ Brake fluid

Check the working condition of:
___ Wipers
___ Brakes
___ Heater/Defroster
___ Mirrors
___ Safety belt
___ Seat Adjustment
___ Panel gauges
___ Horn
___ Gauges
___ Buzzers
___ Warning Lights

Check the Suspension System:
___ Broken springs
___ Hangers
___ Leaking shock absorbers

Check the under the Hood:
___ Battery
___ Cables
___ Connections
___ Alternator
___ Water pump belts
___ Fuel filter
___ Brake linings
___ Brake drums
___ Exhaust system connections
___ Hoses

Check the tires:
___ At least 4/32" tread depth on front tires
___ At least 2/32" tread depth on other tires
___ Rust around wheel lugnuts
___ Loose lug nuts
___ Damage to rims or wheels
___ Worn or broken cross links and bent or broken side chain fasteners
___ The latch and the fifth wheel is firmly attached to the frame

Check the safety equipment:
___ Flags
___ Flares
___ Fuses
___ Fire Extinguishers

Clean:
___ Lights
___ Mirrors
___ 4-Way Flashers

Check Cargo:
___ Cargo securely fastened

Check on trailers:
___ Connections
___ Brake lights

Purpose & Scope

Sessler Wrecking is committed to providing a safe work environment for its employees and for those whose safety may be affected by its employees. Sessler Wrecking recognizes that the use of alcohol and drugs can adversely impact a safe work environment. This policy is aimed at ensuring a safe work environment and outline specific responsibilities, requirements, and expectations to adequately mitigate the workplace risks associated with alcohol and drugs.

The purpose of this policy is to address and minimize the risks in the workplace associated with alcohol and drugs and to ensure that all employees are fit for duty. This policy outlines the expectations regarding fitness for duty, and the prohibitions against the use and possession of alcohol and drugs. This policy supports the Sessler Wrecking Environmental Health and Safety Policy and is only one facet of an overall approach to risk mitigation and safety.

Scope

This document applies to all Sessler Wrecking employees.

Responsibilities

Employees
Employees will perform their job safely and responsibly, and in all ways consistent with established Sessler Wrecking practices. In addition, all employees will:

- report fit for duty for all scheduled or unscheduled duty and remain fit for duty while on Sessler Wrecking or any client facility or affiliate location;
- read, understand, and abide by this policy as well as their responsibilities under it;
- seek advice and follow appropriate treatment if they have a current or emerging problem, and follow recommended monitoring programs after attending treatment;
- co-operate with any work modification related to safety concerns;
- notify their supervisor if they believe a co-worker, contract worker or visitor is not fit for duty on the job; and
- cooperate as required with an investigation into a violation of this policy, including any request to participate in the testing program as and when required to do so under this policy.

Sessler Wrecking is Responsible for:

- ongoing leadership and supervision to ensure safe operations and effectiveness of the policy;
- determining and providing appropriate levels of training for employees;
- guiding employees who voluntarily seek assistance for a personal problem to appropriate resources (e.g., Sessler Wrecking Human Resources and/or other local resources) while maintaining confidentiality;
- making arrangements for an assessment through Sessler Wrecking Human Resources if, in the course of any performance-related discussion, an employee states they have a problem with alcohol or drugs; taking appropriate steps to investigate any possible violation of the requirements set out in this policy; and implementing the requirements of this policy.

Testing Requirements

Drug testing is performed using a certified collector to collect the urine specimen then sent to a certified laboratory for analysis. Quick screen and dip stick tests are not acceptable.

Safety-Sensitive Position Designations
Because of the greater risk involved in performing certain functions, some positions may be designated as Safety-Sensitive Positions. Employees holding Safety-Sensitive Positions may be subject to additional requirements. Job titles include drivers, mechanics, crane operators, welders, and safety staff. This list is subject to change.

Frequency for Testing of Drugs and Alcohol

- Pre-Employment
- Post-Accident
- Reasonable Cause
- Return to Work
- Follow-Up as required

Drugs Being Tested For
The names of the drugs being tested for include:

- Marijuana
- Cocaine
- Opiates
- Amphetamines
- Phencyclidine

Testing cut-off levels for drug and alcohol testing that meet or exceed regulatory or best practices shall be used.

Records
Sessler Wrecking must ensure that it will maintain appropriate records for as long as we have a contract with a client and then for 3 years after the termination of the contract. Examples include:

- Chain of custody forms
- Alcohol testing forms
- Signed acknowledgment/consent forms

Policy

Any employee or subcontractor on duty or on Sessler Wrecking property who possesses, sells, receives, is impaired or is determined to have measurable levels of any alcohol or illegal drug in their blood or urine (no matter the amount), post drug/alcohol screen, will be subject to immediate disciplinary action or contract dismissal.

We have a Zero Tolerance policy. ANY violation of the policy will result in the permanent removal of the employee from Sessler Wrecking or our client's premises. Sessler Wrecking does not have a return to duty process and will

any employee or subcontractor violating this policy will be permanently banned from Sessler Wrecking or client property.

Sessler Wrecking prohibits firearms, weapons, explosives, etc. when working on Sessler Wrecking or customer premises.

Drug and alcohol testing will be performed when there is reasonable suspicion or reasonable cause to suspect the employee of being under the influence of a prohibited substance. The employee(s) or subcontractor(s) removed for reasonable cause testing will not be allowed to return to work until receipt of a negative drug and alcohol test is received.

Alcohol testing must be performed by a breath, blood, or saliva (with breath confirmation) test.

Drug and alcohol testing will be performed after an accident or incident. The employee(s) or subcontractor employee(s) will not be allowed to return to work on our clients' premises until documentation has been received showing the negative drug and alcohol test.

If an employee or subcontractor returns to work following an absence of more than 90 days a return-to-work screening shall occur. Follow-up drug screening shall be applied when appropriate, as determined by management.

Sessler Wrecking must ensure that all employees who will be working on our client's jobsite must have received a negative result on a drug within the past 12 months.

Sessler Wrecking prohibits the misuse of prescription or over-the-counter medications. Some types of medications could have undesirable effects, and these can create a safety risk and endanger the employee and others. Employees must notify his/her supervisor if taking a medication that might impair their ability.

Periodically, unannounced inspections will be made of persons entering or leaving Sessler Wrecking work sites by authorized Sessler Wrecking representatives. Entry onto Sessler Wrecking or client property is deemed to have provided consent to an inspection of a person, locker, vehicle, or any other personal effects. Our clients have the right to conduct unannounced searches of your personnel and property and any employee who refuses to cooperate with the searches shall be removed from our clients' property.

Any refusals to submit to a drug/alcohol screen will be treated as a positive test, resulting in immediate contract dismissal or disciplinary action, up to and employment termination. The subcontractor or employee refusing to submit to the test will be asked to sign a refusal document. If they refuse to sign the document, it will be noted and kept on file.

Drug and alcohol screening will be performed by an approved and qualified medical clinic with a medical review officer authorized to perform the tests. All results are treated with confidentiality. The switching or adulterating any urine, blood, or any other samples is a violation of this policy.

If another subcontractor or employee comes to management with concern regarding another subcontractor or employee in reference to alcohol or substance abuse, we will treat that with discretion and confidentiality. We will pursue investigation and decide accordingly whether a drug and or alcohol screen is the appropriate step to take.

All subcontractors and employees are subject to the policies explained above. This policy is to be posted in all facilities by the site supervisor.

DRUG AND ALCOHOL POLICY ACKNOWLEDGEMENT FORM

I acknowledge that I have been provided a copy of the Sessler Wrecking Drug and Alcohol Policy requirements. I understand that disciplinary action, up to and including termination, will result if I violate this policy.

_____ _____

Employee Signature Date

_____

Employee Printed Name

CONSENT AND AUTHORIZATION FOR DISCLOSURE TO CLIENTS OF SESSLER WRECKING OF ALCOHOL AND DRUG TEST RESULTS AND RELATED INFORMATION

I hereby consent to disclosure by Sessler Wrecking and its agents, including, but not limited to, any collecting and testing agencies, of the test results identified above and any related information to clients of Sessler Wrecking and its authorized agents, assigns, or representatives.

_____ _____

Employee Signature Date

_____

Employee Printed Name

Definitions

For the purposes of this policy capitalized terms herein shall have the following meaning:

Alcohol refers to beer, wine, and distilled spirits, and includes the intoxicating agent found in medicines or other products.

BAC means blood alcohol concentration.

Sessler Wrecking business refers to all business activities undertaken by employees in the course of Sessler Wrecking operations with client regardless of where the activities are conducted.

Drug means any substance, including illicit drugs and medications, the use of which has the potential to change or adversely affect the way a person thinks, feels, or acts.

Drug paraphernalia means any equipment, product or material intended or designed for use in manufacturing, compounding, converting, concealing, processing, preparing, or introducing an illicit drug or alcohol into the human body. This also refers to any product or device that may be used to attempt to mask, tamper with or adulterate an alcohol and drug testing sample.

Employee(s) means all regular full time, part time, temporary, casual, and seasonal employees on the Sessler Wrecking payroll and, subject to the terms of any applicable agreement, coop students.

Employee and Family Assistance Program or EFAP means an employer-sponsored benefit that provides confidential, professional counselling and advisory services for employees and immediate family members. The program provides access to services provided by a variety of professionals including psychologists, social workers, and addiction specialists.

Equipment includes all vehicles, machinery, equipment, and aircraft which are owned, leased, or otherwise controlled by Sessler Wrecking. This also includes Sessler Wrecking or client provided transportation.

Failure to Test includes the failure to report directly for a test, refusal to submit to a test, or refusal to agree to disclosure of a test result to the Sessler Wrecking Program Coordinator. A failure to test will also include inability to provide sufficient quantities of breath or urine fluid to be tested without a valid medical explanation acceptable to the Sessler Wrecking.

Fitness for Duty or Fit for Duty means the ability to safely and acceptably perform assigned duties without any limitations due to the use or after-effects of alcohol or drugs.

Medical Review Officer means a properly qualified independent physician who validates alcohol and drug test results.

Medication means a drug obtained over the counter, or by the employee through a doctor's prescription or through a Health Canada authorization.

Policy or Alcohol and Drug Policy means this Alcohol and Drug policy.

Premises includes but is not restricted to all land, aerodromes, facilities, operations, equipment, and worksites used for the purpose of performing Sessler Wrecking and client business. Worksites include any work location to which employees have been assigned, including any offsite work location involving client related work.

Program Coordinator means the Sessler Wrecking Alcohol and Drug program coordinator.

Safety-Sensitive Position means a position in which employees have a key or direct role in an operation where if actions or decisions are not carried out properly could result in:

- a serious incident affecting the health or safety of employees, contractors, customers, the public, the environment; or
- an inappropriate response or failure to respond to an emergency or operational situation.
- Employees who are required to temporarily relieve in a Safety-Sensitive Position and supervisors who directly supervise the Safety-Sensitive Positions and who may perform the same duties or exercise the same responsibilities are deemed to hold Safety-Sensitive Positions.

Site Coordinator means the Sessler Wrecking Alcohol and Drug site coordinator.

Substance Abuse Assessment means an assessment conducted by a Substance Abuse Professional to determine whether an employee has a substance dependence disorder.

Substance Abuse Professional means an individual with knowledge of and clinical experience in the diagnosis and treatment of alcohol and drug related issues.

Requirements and Prohibitions

The following are prohibited while on Sessler Wrecking business at Sessler Wrecking or client premises:

- the use, possession, cultivation, manufacture, storage, distribution, offering or sale of alcohol, illicit drugs, or drug paraphernalia;
- the possession, storage or use of prescription medications prescribed for another individual or the possession, storage, or use of prescription medications without being able to produce a legally, medically obtained prescription;
- the distribution, offering or sale of medications;
- reporting to work or being at work while not fit for duty; and
- the consumption of alcohol or illicit drugs or the consumption of any product containing alcohol while on duty.

Employees must comply with the following requirements:

- report fit for duty and remain fit for duty while at work;
- report for testing and participate in testing as required and promote the integrity of the testing process without tampering, adulterating, or interfering with testing (e.g., masking agents, diluting);

- use medications responsibly and seek appropriate guidance regarding medications that may impact safe work performance. Medications of concern are those that inhibit or may inhibit an employee's ability to perform their job safely.
- when designated “on call”, employees must remain fit for duty to respond to a call and be in compliance with this policy;
- if an employee is under the influence of alcohol or drugs and is contacted by Sessler Wrecking to perform unscheduled services, employees must decline the work request without any adverse consequences to the employee;
- employees must advise a supervisor if a person may not be fit for duty, may be under the influence of alcohol or drugs, or may otherwise be in violation of this policy. Reports must be made as soon as possible;
- employees must, when requested, participate fully in any investigation under this policy.

Investigation

Sessler Wrecking will investigate any violations or suspected violations of the policy including but not limited to in the following situations:

Unfit for Duty Situations
In all situations when an employee may be unfit to be on Sessler Wrecking or client premises or to perform their duties, the employee will be escorted by a supervisor to a private place, interviewed, and given an opportunity to explain why they do not appear fit for duty. The employee will be given an opportunity to provide a reasonable explanation for their behavior or condition, and the supervisor will take action appropriate to the situation.

If the explanation is not reasonable, and/or the supervisor conducting the interview still believes the employee is not fit for duty, the supervisor may take any of the following actions:

- referral for medical attention if there are immediate medical concerns (e.g., a health center, local hospital, or clinic); and/or
- referral for an alcohol and drug test if there is reasonable cause.

The employee will be provided with transportation and escorted to the collection site or hospital/clinic depending on the circumstances, and then transported to their local place of residence or the care of another adult person. At no time is the employee to operate Equipment until the matter has been resolved. The employee may be temporarily removed from their duties or reassigned pending completion of any investigation.

Suspected Presence of Alcohol, Drugs or Drug Paraphernalia
Sessler Wrecking reserves the right to investigate any situation when there are reasonable grounds to believe that alcohol, drugs, or drug paraphernalia are present on any Sessler Wrecking or client premises in violation of this policy. Supervisors are responsible for identifying situations where an investigation is justified based on a combination of indicators which could include behavior, odor, or presence of alcohol, drugs, or drug paraphernalia. Supervisors will be responsible for advising their manager of the situation, who, after consultation, will make the final decision as to whether and how to initiate an investigation.

Testing

Alcohol and Drug Testing
All employees are subject to the following alcohol and drug testing:

- post incident
- reasonable cause
- return to duty – post violation
- return to duty – post treatment
- certification (employees in Safety-Sensitive Positions)
- additional forms of alcohol and drug testing may be required on a site-specificbasis.

Equipment Operation

Loss of License/Impaired Driving Charge/Suspension
If an employee has been charged with an impaired driving-related offense or has received an administrative temporary license suspension as a result of impaired driving, then, prior to operating any equipment, an employee must advise their supervisor accordingly.

Impaired driving includes, but is not restricted to, testing over the legal BAC in that jurisdiction, driving while impaired, refusal to blow into a breath analyzer or refusal to provide a sample for testing. This may result in not being able to operate equipment until the suspension is complete and the employee has no further restrictions on their driver's license.

Consequences of a PolicyViolation

General Requirements
Any violation of this policy may result in discipline up to and including termination of employment. In all situations, an investigation will be conducted to verify that a policy violation has occurred. The appropriate discipline in a particular case depends on the nature of the policy violation and the circumstances surrounding the situation. The severity of the violation will warrant entering the discipline process at different levels. General violations of this policy include:

- failure to comply with the policy;
- a positive alcohol or drug test;or
- a failure to test.

Substance Abuse Assessments
After any confirmed positive alcohol and/or drug test, or for those who voluntarily seek assistance for a substance abuse issue, an employee may be referred by Sessler Wrecking to a Substance Abuse Professional for a Substance Abuse Assessment. Failing to meet with the Substance Abuse Professional or attend a scheduled Substance Abuse Assessment is a violation of this policy.

Conditions for Continued Employment

Should Sessler Wrecking determine that employment will be continued after a violation of the policy, the employee will be required to enter into an agreement governing their continued employment which may require any or all of the following actions, or any other condition appropriate to the situation:

- temporary removal from their position;
- adherence to any recommended treatment and aftercare program;
- successful completion of a return-to-work alcohol and drug test;
- ongoing unannounced follow-up alcohol and drug testing for the duration of theiragreement;
- adherence to any ongoing rehabilitation conditions or requirements; and
- no further policy or Standard violations during the monitoring period.

Failure to meet the requirements of the agreement will be grounds for discipline up to and including termination.

Confidentiality

Confidentiality will be maintained to the greatest extent possible, and disclosure will be restricted to where it is necessary for related health and safety concerns. Only information relating to the level of functionality (e.g., Fitness for Duty and any restrictions that may apply) may be shared with supervisors and for the sole purpose of determining Fitness for Duty, appropriate work accommodations, and/or work re-entryinitiatives.

Safety-Sensitive Positions

Because of the greater risk involved in performing certain functions, some positions may be designated as Safety-Sensitive Positions. Employees holding Safety-Sensitive Positions may be subject to additional requirements.

Review and Amendments

The policy is subject to ongoing review and modifications as may be necessary from time to time.

Purpose

The purpose of this program is to establish and implement written procedures for compliance to inform personnel of the potential exposure to electrical hazards in operations and to provide guidelines for use when dealing with those operations.

Sessler Wrecking must ensure that all electrical equipment shall be installed and guarded so that adequate provision is made for the safety of persons and property and for the protection of the electrical equipment from mechanical or other injury to which it is liable to be exposed.

Scope

This program is applicable to all employees. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Key Responsibilities

Managers and Supervisors

- For ensuring to implement and enforce the electrical safety program and to ensure that workers must be informed of the potential electrical hazards before being permitted to do work in proximity to energized electrical conductors or equipment.
- To ensure all electrical installations, equipment, apparatus, and appliances shall be in conformity with the requirements of the local, provincial, and national regulatory codes.
- To ensure only approved electrical equipment is used by workers and that the electrical equipmentis:
    - Approved for the intended use and location of the electrical equipment;
    - Maintained in proper working condition and capable of safe operation; and
    - Tested in accordance with the manufacturer’s recommendations

Employees

- Following the requirements in the electrical safety program.

Procedure

During Sessler Wrecking work there are times when overhead or buried lines may be present. Sessler Wrecking staff will use hazard identification and assessment methods to document hazards and corrective actions needed to eliminate employee exposure to potential electrical hazards.

Qualifications of Electrical Workers/NFPA 2015

Electrical work may only be performed by qualified workers. No unqualified worker shall connect, maintain, or modify electrical equipment or installations unless the worker is a certified electrician. A worker who does not meet the requirements may insert an attachment plug cap on the cord of electrical equipment or an electrical tool into, or remove it from, a convenience receptacle.

Sessler Wrecking shall ensure that the qualified electrician performing electrical work de energizes, isolates, and locks out and connects to ground electrical equipment on which work is to be done in a lawfully required manner, removes any potential stored power, and does not re-energize the equipment until the work has been completed and all persons in the immediate vicinity are in a safe location.

Qualified electricians/workers must follow the provisions of NFPA 70E 2015 to protect personnel by reducing exposure to major electrical hazards. Originally developed at OSHA's request, NFPA 70E 2015 helps companies and employees avoid workplace injuries and fatalities due to shock, electrocution, arc flash, and arc blast, and assists in complying with OSHA 1910 Subpart S and OSHA 1926 Subpart K.

A qualified person is one who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify and avoid the hazards involved. NFPA 70E 2015 requires that only a qualified person perform work on or near exposed and energized electrical conductors or circuit parts. A qualified person must be knowledgeable of:

- Safe work procedures and precautionary techniques.
- Selection and use of PPE, including insulating and shielding materials, insulated tools, and testequipment.
- Emergency practices, such as the ways to release a victim of shock who is in contact with anexposed conductor or circuit part.

PPE and Tools

Personal protective equipment must be worn for protection from electrical shock and/or arc flash. A worker shall use mats, shields or other protective devices or equipment, including personal protective equipment, adequate to protect the worker from electrical shock and burn.

Only non-conductive tools and equipment may be used while performing electrical work. Tools and other equipment that are capable of conducting electricity and endangering the safety of any worker shall not be used in such proximity to any live electrical installation or equipment that they might make electrical contact with the live conductor.

Safe Work Practices to Prevent Electric Shock

Safe work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contact when work is performed near or on equipment or circuits which are or may be energized. Additional practices include:

- Only nonconductive hardhats are allowed for use where there is a potential for injury from electric shock or burns due to contact with energized parts.
- Work shall not be done on an energized electrical conductor or equipment that has a voltage of more than 750 volts unless 2 or more authorized personnel are present while the work is beingperformed.
- Sessler Wrecking must ensure that the path to ground from circuits, equipment, or conductor enclosures shall be permanent and continuous, shall have ample ampacity to conduct safely and currents liable to be imposed on it, and shall have impedance sufficiently low to limit the voltage above ground and to facilitate the operation of the over current devices in the circuit.

- Equipment with defective electrical components is immediately removed from service. Defective electrical equipment and tools that may pose a hazard shall be immediately disconnected, removed from service, and tagged as being defective.
- Sessler Wrecking shall ensure that all operating electrical equipment is kept in safe and proper working condition. Electrical equipment maintained for emergency service will be periodically inspected and tested by qualified personnel as necessary to ensure its fitness for service.
- Infrequently used electrical equipment maintained for future service shall be thoroughly inspected by qualified personnel before use in order to determine its fitness for service.
- All wire joints or connections are to be fitted with an approved cap or other approved cover, enclosed in an approved box or where the wire joints or connections are not permanently installed be protected from damage by another approved means and all dead, abandoned, or disused electrical conductors or equipment are removed from the work area or disconnected and secured to prevent inadvertent energization.
- Only CSA approved electrical equipment and devices used in electrical installations within the jurisdiction of the local regulatory requirements shall be approved and shall be of a kind or type and rating approved for the specific purpose for which it is to be employed.

Electrical Fire Safety

- Sessler Wrecking shall ensure that electrical installations shall be made so that the probability of spread of fire through fire stopped partitions, floors, hollow spaces, firewalls or fire partitions, vertical shafts, or ventilating or air-conditioning duct is reduced to a minimum. Where a fire separation is pierced by a raceway or cable, any openings around the raceway or cable shall be properly closed or sealed in compliance with the National Building Code of Canada.
- Sessler Wrecking shall ensure that a fire extinguisher approved for Class C fires is readily available to workers working on or near energized high voltage electrical equipment.
- Sessler Wrecking will ensure that in locations where explosive or flammable materials or gases are present, special precautions shall be observed including that repairs or alterations shall not be made on any live equipment and fits or seals in enclosures shall be maintained in their original safe condition.

Signage, Markings and Warnings

Warning techniques will be used to protect employees from injury by electrical equipment. These include:

- Safety signs or tags will be used when necessary to warn employees about electrical hazards.
- Electrical equipment such as switchboards, panel boards, industrial control panels, meter socket enclosures and motor control centers that are installed in other than dwelling units and are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn persons of potential electric shock and arc flash hazards. The markings shall be located so that it is clearly visible to people before examination, adjustment, servicing, or maintenance of the equipment.
- Barricades, along with safety signs or tags, will be used where necessary to prevent or limit employee access to work areas by exposing employees to exposed energized equipment. The barricades should not be conductive if the potential for electrical contact exists.
- Where signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant must be stationed to warn and protect employees.
- Electrical control panels have their covers permanently marked: DANGER" "HIGH VOLTAGE" and must have an approved rubber mat in front of the panel.

- Notices reading "**DANGER**" "**HIGH VOLTAGE**" shall be placed in prominent positions in proximity to energized electrical equipment, operating at over 750 volts, which may be accessible to workers.
- Access to electrical control rooms and enclosures is restricted. The entrance to a room or similar enclosure containing exposed live electrical parts shall have a conspicuous sign, warning of the danger, and forbidding entry by unauthorized persons.
- All electrical panel switches must be legibly marked to indicate what they control. The markings must be durable to withstand the service environment.
- For electrically powered equipment in the shop: air compressors, fans, etc., controls must also be labelled unless the location of the switch makes it obvious what the control switch operates.

Working with and/or Near Exposed Energized and De-Energized Parts

The following applies to work on exposed energized and de-energized parts and/or near enough to them to expose the employee to any electrical hazard they present.

Lockout/Tagout

Lockout Tagout is used before performing electrical work. The power supply to electrical installations, equipment, or conductors shall be disconnected, locked out of service, and tagged before any work is done, and while it is being done, on or near live exposed parts of the installations, equipment, or conductors. Lockout Tagout requirements do not apply if it is not practical to disconnect electrical installations, equipment, or conductors from the power supply before working on, or near, live exposed parts of the installations, equipment, or conductors. The worker shall use rubber gloves, mats, shields, and other protective equipment and procedures adequate to ensure protection from electrical shock and burns while performing the work on live exposed parts.

See Sessler Wrecking Lockout/Tagout Program.

Sessler Wrecking facilities will have the necessary equipment for Lockout and Tagout breakers.

If more than one worker is involved in Lockout/Tagout the worker who disconnected and locked out the power supply will communicate the purpose and status of the disconnecting and locking out.

If a tag is used as a means of communication, the tag:

- Shall be made of non-conducting material;
- Shall be secured to prevent its inadvertent removal;
- Shall be placed in a conspicuous location;
- Shall state the reason the switch is disconnected and locked out;
- Shall show the name of the worker who disconnected and locked out the switch; and
- Shall show the date on which the switch was disconnected and locked out.

Guarding

- Work shall not be done in or around an area or structure in proximity to energized electrical conductors or equipment which are normally isolated by position or elevation, unless the electrical connections, conductors or equipment are provided with cabinets or guards which will effectively prevent contact by a worker, or by equipment being used or handled.

- Bare live parts shall be guarded against accidental contact by means of approved cabinets or other forms of approved enclosures except where local codes exempts and cabinets or guards shall meet the specifications of an authority acceptable to regulatory authorities.
- All switches, receptacles, luminaries, and junction boxes shall be fitted with a cover that is approved for the intended use and location of the cover.

Egress

- Sessler Wrecking shall ensure that passageways and working space around electrical equipment shall not be used for storage and shall be kept clear of obstruction and be arranged to give authorized persons ready access to all parts requiring attention.
- A minimum working space of 1 meter with secure footing shall be provided and maintained about electrical equipment such as switchboards, panel boards, control panels, and motor control centers that are enclosed in metal, except that working space is not required behind such equipment where there are no renewable parts such as fuses or switches on the back and where all connections are accessible form locations other than the back.
- Each room containing electrical equipment and each working space around equipment shall have suitable means of egress (walk areas, corridors, doors, etc.), which shall be kept clear of all obstructions.
- Access to electrical equipment must be kept free of obstruction and allow easy access to all parts which may require maintenance.
- Special care will be taken to ensure hazardous or flammable material must not be stored or placed close to or in dangerous proximity to any electrical equipment.
- For outdoor installations, arc producing electrical equipment shall not be installed within 1 meter from the discharge of a combustible gas relief device or vent.

Hazardous Locations

Hazardous locations will be classified as listed below:

- Class I: Locations in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive gas atmospheres.
- Class II: Locations in which there is a presence of combustible dusts or electrically conductive dusts.
- Class III: Locations in which there is a presence of easily ignitable fibers but in which such fibers are not likely to be in quantities sufficient to produce ignitable mixtures.

Wherever reasonably practicable no electrical equipment or devices shall be used or installed within hazardous locations unless the equipment is essential to the process being carried on therein.

Sessler Wrecking will ensure the use or installation of electrical devices be essential within a hazardous location, only electrical equipment rated and approved for use by local regulatory code with the specific gas, vapor, mist, or dust hazard which may be present within the hazardous location shall be used.

Service equipment, panel boards, switchboards, and similar electrical equipment shall, where practicable, be located in rooms or sections of the building in which hazardous conditions do not exist.

Electrical equipment shall be adequately ventilated to prevent the development around electrical equipment of ambient air temperatures in excess of those normally permissible for such equipment.

Adequate illumination shall be provided to allow for safe operation and maintenance of electrical equipment. Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.

Use of Portable Electric Equipment

- Portable equipment must not be handled in any way that would cause damage. Electrical cords cannot be used for raising or lowering equipment or be fastened by staples or otherwise hung in a manner which could cause damage to the outer insulation.
- Portable electrical equipment used outdoors or in damp locations is equipped with ground fault circuit interrupters (GFCI). When used outdoors or in wet locations, portable electrical tools shall be protected by a ground fault circuit interrupter installed at the receptacle or on the circuit at the panel.
- Extension cords and cords on equipment must be visually inspected before use or at the beginning of each shift to determine if the damage (loose parts, deformed or missing pins, damage to the outer cover or insulation, or pinched/crushed outer jacket) exists. A visual inspection is not required if equipment/cords remain connected and are not exposed to damage. All defective or damaged cords and equipment must be removed from service immediately until repaired and tested if they might expose an employee to injury.
- Cord-connected electrical equipment and tools must be adequately grounded. Cord-connected electrical equipment and tools shall have a casing that is adequately grounded. This does not apply to cord- connected electrical equipment or tools that are adequately double-insulated and whose insulated casing shows no evidence of cracks or defects, and/or a portable electrical generator in which the equipment is not exposed to an external electric power source if the casings of portable electrical tools connected to the generator are bonded to a non-current-carrying part of the generator).
- Only equipment and codes approved for use in wet locations may be used on job locations covered with water or conductive liquids or where employees are likely to contact conductive liquids.
- Employee's hands must be dry when plugging or unplugging energized equipment. Also, if energized plugs or receptacles are wet or could otherwise provide a conducting path, only insulating protective equipment may be used for handling the connection devices.
- When a portable luminaire is used, Sessler Wrecking shall ensure that the electrical extension cord and fittings are approved for the intended use and location of the extension cord and fittings and are properly maintained, and the electrical extension cord is not used to supply power to any equipment other than the portable luminaire unless the cord meets the proper requirements.

Working Under Overhead Lines & Clearance Distances

The lines shall be deenergized and grounded or other protective measures shall be provided before work is started.

When Sessler Wrecking personnel are working in an elevated position near overhead lines or have equipment elevated, the person and the longest conductive object he/she may contact cannot come closer to any unguarded, energized overhead line than specified below:

- For voltages to ground 50kV or below – minimum 10 ft. Clearance

- For voltages to ground over 50kV – minimum 10 ft. clearance plus 4 inches for every 10kV over50kV.

NOTE: For voltages encountered with overhead power lines, objects which do not have an insulating rating for the voltage involved are considered conductive.

Any vehicle or mechanical equipment capable of having structure parts elevated near energized overhead line of 50kV or less must be operated so that a clearance of 10 ft. is maintained. If the voltage is greater than 50kV, the clearance must be increased 4 inches for every 10kV. The following conditions may warrant these clearance requirements:

- If the vehicle is in transit with its structure lowered, the clearance from 50kV or less overhead lines may be reduced to 4 feet. If the voltage is greater than 50kV, the clearance must be increased 4 inches for every 10kV.

If adequately rated insulating barriers are installed to prevent contact with the lines and are not part of or an attachment to the vehicles or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

Emergency Procedures

The following emergency procedures shall be required as training to be completed and are to be followed if a person comes in contact with exposed energized electrical equipment and that contact may affect his or her safety or health:

When Closing Contacts at Electrical Control Panels

- If personnel must touch anything on an electrical control panel, first check it with a voltage tester (contact or non-contact). If not available, tap it with the back of your hand. (Prevents handfrom grabbing)
- Before operating switches or breakers ensure all protective panels are closed and properlyfastened.
- To disconnect the electrical power from the equipment, always shut the control switch off first, before shutting the main switch off.
- To connect the electrical power, always ensure all control switches are off before engaging the master switch.
- When operating the control or master switch, never stand in front of the electrical panel. Always stand off to the side of the panel to operate the switch. Never look at the control panel. Should the panel explode, your eyes or body must not be in a direct line with the explosion.

Contact with Normal Electrical Current

- Do not touch the victim unless the power is off.
- Unplug the equipment or turn the power off at the main control area.
- If you cannot turn off the power, use a dry wooden board or broom handle to separate the victim from the power source.
- Call for emergency medical assistance.
- If the victim is not breathing, perform mouth-to-mouth resuscitation, if trained.
- If the victim is conscious, keep them calm. Lay them on their back. Elevate their feet. Cover them with a blanket.

Contact with High Voltage Line

- Do not try to separate the victim from the power source.
- Do not touch the victim unless you are absolutely certain the victim is not in contact with electrical wire.
- Call for emergency help and medical assistance.

Electrical Fire

- Unplug the burning or smoking appliance.
- Get everyone out at once.
- If the fire is small, use a CO2 or dry powder fire extinguisher. Never put water on an electrical fire.
- Call for emergency assistance or the fire department. Tell the dispatcher your name, address, and that you have an electrical fire.

Training Requirements for Unqualified Persons

All Sessler Wrecking personnel shall be trained annually in the requirements of this program and general electrical safety safe work procedures. Specific elements include:

- Employees who face the risk of electric shock but who are not qualified persons shall be trained and familiar with electrically related safety practices.
- Employees shall be trained in safety-related work practices that pertain to their respective job assignments.
- Anyone who is not qualified must stay at least 42 inches from exposed circuits or equipment that is energized to between 50 and 750 volts (unless a qualified person is present).
- Training shall include clearance distances based on voltage (See Overhead Power Lines).
- Training shall also include emergency response for electrical contact.

All training must be documented and kept on file.

Training Requirements for Qualified Persons

These training requirements apply to employees who face a risk of electric shock that is not reduced to a safe level and those permitted to work on or near exposed energized parts.

- Employees shall be trained in safety-related work practices that pertain to their respective job assignments.
- Skills and techniques to distinguish live parts from other parts of electric equipment.
- Skills and techniques to determine the nominal voltage of exposed live parts.
- Clearance distances specified in 1910.333(c) and the corresponding voltages to which the qualified person will be exposed.
- Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials must also have the training needed to meet 1910.333(C)(2).
- NFPA 70E 2015 requirements.

All training and certifications or licenses must be documented and kept on file.

Purpose

The purpose of this program is to provide procedures and guidelines to eliminate all injuries resulting from possible malfunctions, improper grounding and/or defective electrical tools. This program applies to all sites, employees and contractors and shall be used on owned premises.

Definitions

Competent Person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Ground Fault Circuit Interrupter - a device for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.

Responsibilities

Supervisors are designated as competent persons for the Assured Equipment Grounding Conductor Program and are responsible for program execution. One or more competent persons must be designated (as defined in 1926.32(f) to implement and execute the program.

Employees are responsible for following the requirements of this program, to perform visual inspections and to take defective equipment out of service.

Procedures and Guidelines to Eliminate Injuries from Possible Malfunctions, Improper Grounding and/or Defective ElectricalTools

The following procedures and guidelines are designed to eliminate all injuries resulting from possible malfunctions, improper ground and/or defective tools.

Assured Grounding Site Program Requirement
An assured grounding conductor program must be implemented on all Sessler Wrecking sites covering all cord sets, receptacles which are not part of the building or structure & equipment connected by cord and plug which are available for use or used by employees.

Ground Fault Circuit Interrupters
All 120-volt, single-phase 15 and 20 ampere receptacle outlets on construction or maintenance sites, which are not part of the permanent wiring of the building or structure, and which are in use by employees, shall have approved ground fault circuit interrupters for personnel protection.

- All hand portable electric tools and extension cords shall use a GFCI.
- Additionally, approved GFCI's shall be used for 240-Volt circuits in the same service as described above.
- GFCI's must be used on all 120-volt, single-phase 15-amp and 20-amp receptacles within 6 feet of a sink, damp areas or on installed outdoor equipment.

- The GFCI must be the first device plugged into a permanent receptacle.
- The GFCI must be tested before each use.

Assured Equipment Grounding Conductor Program
The Assured Equipment Grounding Conductor Program (AEGCP) shall cover all cord sets, receptacles not a part of the permanent wiring of a structure and equipment connected by cord and plug on all construction and maintenance sites.

This written description of the program shall be kept at the jobsite for inspection and copying by OSHA and any affected employee.

Restrictions for Use of Equipment that Does Not Meet Requirements
Restrictions on the use of equipment that does not meet requirements or if is found to be defective shall be applied and enforced. Any equipment which has not met the requirements of this program shall not be available or permitted to be used by Sessler Wrecking. Damaged items shall not be used until repaired. If the equipment is not fit for purpose, it shall be destroyed or tagged and isolated from use.

How Often Inspection of Cords and Equipment are to be Made
Daily Visual inspections – The following shall be visually inspected before each day's use for external defects (such as deformed or missing pins or insulation damage) and for indication of possible internal damage:

- Cord sets;
- Attachment caps;
- Plug and receptacle of cord sets;
- Any equipment connected by cord and plug (with the exception of cord sets and receptacles which are fixed and not exposed to damage) such as deformed or missing plug, and
- Insulation damage
- Damaged items shall not be used until repaired or shall be discarded.
- Damaged items shall be tagged "DO NOT USE", removed from service until repaired and tested.

How and When Tests Are Performed and What Records Are Maintained
All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.

Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductors. The equipment grounding conductor shall be connected to its proper terminal.

When tests are performed:

- Before each use.
- Before equipment is returned to service following any repairs.
- Before equipment is used, such as when a cord has been run over.
- At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.

Tests performed as required by this program shall be recorded as to the identity of each receptacle, cord set and cord and plug connected equipment that passed the test and shall indicate the last date tested or interval for

which it was tested. This record shall be kept by means of logs, color coding or other effective means and shall be maintained until replaced by a more current record. These records shall be made available at the job site for inspection by the Assistant Secretary and any affected employees.

All tested cord sets and cord and plug-connected equipment shall be marked, at one or both ends, with colored tape to denote the month that the tests were performed. The below color code chart that must be followed for marking.

Month #	Month	Color of Tape to Apply to Cords
1	Jan	Red
2	Feb	Yellow
3	Mar	Green
4	Apr	Blue
5	May	Brown
6	Jun	White
7	Jul	Start over with Red and repeat

Purpose

The purpose of this program is to define the requirements for safely operating an aerial lift device.

Scope

This policy shall cover all aerial lift devices used on Sessler Wrecking property.

Key Responsibilities

Supervisors

- Shall ensure that all aerial devices are properly operated by competent personnel.
- Shall ensure pre-use inspections are performed prior to equipment use.

Employees

- Shall follow all aspects of this program.

Guidelines for Safe OperationalUse

- Elevated platforms/aerial lifts may not be “field modified” for uses other than those intended by the manufacturer.
- Pre-use inspections are to be documented, not just visual, including the work area to be used. Lift controls shall be inspected and tested each day prior to use to determine that such controls are in safe working conditions. Inspections and tests shall be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition. Additional inspections shall be made and documented in accordance with the manufacturer’s requirements.
- Boom and basket load limits specified by the manufacturer shall not be exceeded and if equipped with outriggers they shall always be deployed on stable, level ground.
- Aerial lifts shall have a working back-up alarm audible above the surrounding noise level or the vehicle is backed up only when an observer (spotter) signals that it is safe to do so.
- The minimum clearance between electrical lines and any part of the equipment (i.e., crane or load) shall be 10 feet for lines rated 50 kV or below.
- Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- Outriggers - The brakes shall be set and when outriggers are used, they shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline, provided they can be safely installed. Before moving an aerial lift for travel, the boom(s) shall be inspected to see that it is properly cradled, and outriggers are in the stowed position.

Competency/Qualifications forOperators

- Only authorized, competent persons shall operate an elevated platform/aerial lift. All employees who operate an aerial lift device shall be trained in the safe operation of the specific device they will operate.

- Competency is established by a written and documented operational practical exam administered by a qualified instructor. Each exam series is only for the specific model being used.
- Sessler Wrecking requires the operator/user to be competent in fall protection. An approved fall restraint system shall be worn when working from an aerial lift. The fall restraint system must be attached to the boom or basket. An approved fall restraint system shall be attached to the boom or basket when working from an aerial lift and it is not permitted to be attached to adjacent poles or structures.

Modifications

- No modifications to any equipment is permitted.

Training

- All employees who operate an aerial lift device shall be trained in the safe operation of the specific device they will operate. Training must conform to federal requirements and be documented.
- Refresher training is required on an annual basis.
- Sessler Wrecking requires the operator/user to be competent in fall protection. An approved fall restraint system shall be worn when working from an aerial lift. The fall restraint system must be attached to the boom or basket. An approved fall restraint system shall be attached to the boom or basket when working from an aerial lift and it is not permitted to be attached to adjacent poles or structures.

Purpose

Each Sessler Wrecking location shall have a written Emergency Action Plan, appropriate to the hazards of the workplace, in order to respond to an emergency that may require rescue or evacuation.

Each Emergency Action Plan shall be prepared to reflect all known probable emergency conditions which may arise from within the workplace and from adjacent workplaces, the minimum of which will include fire or other emergencies.

The emergency action plan must be available to all employees to review. An emergency action plan must be in writing, kept in the workplace and available to employees for review. However, if a site has 10 or fewer employees the plan may be presented orally to employees.

Emergency Response Planning, Issuing and Annual Review Guidelines

Emergency Procedures shall be issued and discussed with all new/transferred personnel upon arrival for assignment.

Emergency Action Plans shall be established, implemented, reviewed, maintained, and updated annually in conjunction with:

- Client emergency services department requirements.
- Sessler Wrecking safety staff and management.
- The requirement to ensure the plan is up to date reflects current circumstances at the workplace.

The plan is to be reviewed before the job and when conditions warrant and should be used for routine and non-routine emergencies as well as changes in operation, and products or services which warrant new emergencies situations.

Reviewing the Emergency Action Plan with Employees
A review of the emergency action plan should occur with employees:

- When the plan is developed, or the employee is assigned initially to a job.
- When the employee's responsibilities under the plan change.
- When the plan is changed.

Procedures for Emergency EvacuationPlanning

The emergency action plan must include procedures for emergency evacuation. An emergency action plan must include, at a minimum, procedures for emergency evacuation, including type of evacuation and exit route assignments.

The individual site evacuation procedure shall be appropriate to the risk must be developed and implemented to:

- Notify staff, including the first aid attendant of the nature and location of the emergency,
- Evacuate employees safely and procedures to account for all employees after evacuation,
- Check and confirm the safe evacuation of all employees,

- Notify the fire department or other emergency responders, and
- Notify adjacent workplaces or residences which may be affected if the risk of exposure to a substance extends beyond the workplace. Notification of the public must be in conformity with the requirements of other jurisdictions, including provincial and municipal agencies.

List of Potential Emergencies

The emergency action plan must include procedures for reporting a fire or other emergency. An emergency action plan must include, at a minimum, procedures for reporting a fire or other emergency.

Each location shall conduct a risk assessment for hazards posed by potential hazardous substances from accidental release, fie or other such emergencies that could cause an evacuation or rescue and list the potential emergencies for Sessler Wrecking operations. Procedures for each of these potential emergencies shall be contained within the Emergency Action Plan. Examples include:

- Fire
- Gas Leaks/Chemical Spills
- Bomb Threats
- Medical Emergencies
- Explosion
- Workplace Violence

Guidance Procedures for Potential Emergencies

Fire

- Warn others in the immediate area. Notify the appropriate emergency response personnel by phone or radio and pull the nearest fire alarm if present.
- If nearby staff have been trained, and it is safe to do so, fight the fire using a portable fire extinguisher. Remember, if in doubt get out.
- Evacuate the premises via the nearest exit and proceed to the nearest Emergency Assembly Area.
- Re-enter only after the Emergency Coordinator has given an ALL CLEAR.

Gas Leaks/Chemical Spills - Upon smelling or noticing a gas leak or unusual vapors, or a chemical spill:

- Pull fire alarm (if present) or sound warning and evacuate the premises via the nearest exit
- Proceed to the Emergency Assembly Area
- Contact local emergency response personnel by phone or radio
- Re-enter only after the Emergency Coordinator has given an ALL CLEAR.

If employees are required to control a release of a hazardous substance, to perform cleanup of a spill, or to carry out testing before re-entry, Sessler Wrecking shall provide:

- Adequate written safe work procedures and documented training.
- Appropriate personal protective equipment which is readily available to employees and is adequately maintained, and
- Material or equipment necessary for the control and disposal of hazardous substances.

Bomb Threats

- If a threat is received by phone, mail, or other means, get as much information as possible.
- If the threat is received by phone, try to keep the person on the line for as long as possible. Do not hang up the phone, even after the call has been terminated.
- Contact local emergency response personnel by phone or radio.
- If a suspicious device is identified, evacuate the immediate area, and notify local emergency response personnel.

Medical Emergencies

- Call for assistance by phone or radio. Give the exact location and details of the medical emergency.
- If qualified, provide basic first aid, and keep the person comfortable. Do not move the person. Do not leave him/her unattended.
- Arrange for emergency medical transportation based on the medical planning portion of the site's Emergency Action Plan.

Explosions

- Get down on the floor, take shelter under tables or desks, and protect your face and head against flying glass and debris.
- Once it is safe to do so, evacuate the premises via the nearest exit and proceed to the nearest Emergency Assembly Area.
- Re-enter only after the Emergency Coordinator has given an ALL CLEAR.

Workplace Violence

- Notify security immediately by phone or radio and report the occurrence.
- Do NOT attempt to physically intervene. Protect yourself first at all costs.

Emergency Response Equipment

Listing of Types of Emergency Equipment

Each site Emergency Action Plan shall identify, list the locations of and provide operational procedures for types of emergency equipment. For off-site locations, available emergency equipment should be identified and reviewed with workers prior to commencing work activities. Examples include:

- Living areas with an audible alarm and a fire hose cabinet.
- Emergency lighting, exit doors, dampers and fire stop flaps.
- First aid kits are located throughout the facility and in vehicles.
- Portable fire extinguishers being located throughout the facility and clearly marked.
- Only authorized and trained personnel will operate emergency equipment.

Inspection & Maintenance Records

Maintenance records must be kept, including but not limited to the name of manufacturer, the type of equipment, the date put into service, when and for what purpose the equipment has been used, the date of the last inspection and name of the inspecting person, any damage suffered, and the date and nature of any of maintenance on

emergency response equipment.

Ropes and associated equipment must be inspected visually and physically by qualified employees after each use for rescue, evacuation, or training purposes.

The Sessler Wrecking designated representative will perform and maintain the Sessler Wrecking Emergency Inspection Checklist Form on a monthly basis. The checklist shall be maintained for retention in active files for two years and in on-site archives for seven years.

Media Response Plan

Sessler Wrecking employees must not be interviewed by anyone unless Management has given prior approval. In most cases Management will have an attorney present for such interviews.

Note: If after Sessler Wrecking personnel have received approval for an interview from Management and another party's attorney appears unannounced, you should politely adjourn the interview until Sessler Wrecking management can be contacted. Personnel must not give any work-related interviews, affidavits, written or recorded statements, or depositions without the express approval from the Sessler Wrecking management.

In the case of interviews of Sessler Wrecking employees by non-attorneys, (law enforcement, government officials, media, etc.) you must inform Management before the interview. If the interview is taped or videotaped, you must request a copy of the tape. If the interview is reduced to writing, you must ask for a copy of any notes or statements taken. This procedure is to avoid information being misrepresented.

All media requests should be referred to the Sessler Wrecking management. Unless requested to do so by Management, other company personnel are not to give interviews or make statements to the media. Management prefers that families of personnel involved in an incident receive initial notification from a Sessler Wrecking representative and not the media.

Training

Sessler Wrecking shall ensure training for Emergency Action Plan is delivered, documented, and prepares the staff and facility for emergency conditions. Sessler Wrecking will designate and train employees to assist in a safe and orderly evacuation of other employees. Requirements include:

- All employees must be given adequate instruction in the fire prevention and emergency evacuation procedures applicable to their workplace.
- The designated site representative shall provide the Emergency Action Plan orientation to all new/transferred personnel before they begin work.
- All personnel shall receive a review/update orientation at least annually, or whenever any new/revised information is to be provided.
- The Emergency Action Plan Orientation Check List shall be completed after orientation and the record maintained in the individual's training records.
- Sessler Wrecking management shall ensure that contractors/consultants working in areas under the supervision of Sessler Wrecking also receive the Emergency Action Plan orientation upon arrival to the area.

- Employees expected to perform duties under the Emergency Action Plan will be trained prior to assuming their roles. This will include simulated rescue or evacuation exercises and regular retraining, appropriate to the type of rescue or evacuation being provided, and training records must bekept.
- A list of trained staff responders shall be posted and maintained indicating their name, response function, their work location and what type of equipment they have been trained in.

Location and Use of EmergencyFacilities

Sessler Wrecking shall ensure each Emergency Action Plan lists the location and how to use emergency facilities for each work site. For off-site locations, outside services that can provide assistance in the event of an emergency should be identified and reviewed with workers prior to commencing work activities. A list shall be posted in a conspicuous area showing local emergency facilities and how to contact. Examples include:

- Client Emergency Response Department (Initial Responder for All Emergencies If Applicable)
- Local Police, Local Hospital, Poison Center (Poison Response) 1-800-332-1414, etc.

Fire Protection & Response

Sessler Wrecking shall ensure each Emergency Action Plan provides fire protection and response planning within each site Emergency Action Plan and is utilized during all phases of work. As a minimum, all shall include the following:

Protection

- Smoking is not permitted except in designated 'SMOKING" areas.
- Facilities shall be designed and maintained in accordance with local fire code and regulations.
- Portable fire extinguishers shall be stationed, inspected, and maintained in accordance with local fire code and regulations. Sessler Wrecking personnel shall be trained in their use.
- Flammable and combustible liquids shall be properly stored.
- Employees shall report all fire safety issues to their immediate supervisor.
- Facilities shall be inspected by use of the Sessler Wrecking Emergency Inspection Checklist

Response

In the event of a fire**,** personnel working in facility will adhere to the following procedure for their work area:

- Warn others in the immediate area. Notify the appropriate emergency response personnel by phone or radio and pull the nearest fire alarm if present.
- If nearby staff have been trained, and it is safe to do so, fight the fire using a portable fire extinguisher. Remember, if in doubt get out.
- Evacuate the premises via the nearest exit and proceed to the nearest Emergency Assembly Area.
- Re-enter only after the Emergency Coordinator has given an ALL CLEAR.

Roads are designated as fire lanes. Vehicles can stop there for unloading, but no parking will be allowed.

Alarm & Emergency Communication

Each Emergency Action Plan for Sessler Wrecking shall contain methods to address alarms and communications in case of an emergency. For off-site locations, the method of emergency notification should be identified and reviewed with workers prior to commencing work activities.

Alarm System
A system must be in place to alert employees. The alarm system shall be distinctive and recognizable as a signal to evacuate the work area or perform actions designated under the emergency action plan. For sites with 10 or fewer employees in a particular workplace, direct voice communication is an acceptable procedure for sounding the alarm provided all employees can hear the alarm. Each Emergency Response plan will describe how to activate an alarm and what to do after either activating or hearing an alarm.

Personnel responding to any alarm shall avoid complacency. Every alarm should be treated as an actual incident until proven otherwise. Treating and responding to alarms as a routine happening can result in injuries, fatalities, and destruction of property.

Communications
Sessler Wrecking responders and security use telephones, cell phones and radios in conjunction with emergency response.

Rescue and Evacuation Procedures

Procedures for Rescue and Medical Services
Each site Emergency Action Plan shall address who performs recue services when required. It is the position of Sessler Wrecking that all rescue and medical duties are performed by client emergency responders or local governmental responders when on their location. For off-site locations, evacuation procedures and methods of rescue shall be identified and reviewed with workers prior to commencing work activities.

At least one member of a rescue team must be a first aid attendant trained to immobilize an injured employee.

Effective communications must be maintained between the employees engaged in rescue or evacuation and support persons.

Procedure for Evacuation

Preparation for Evacuation
Each site Emergency Action Plan shall contain a procedure for evacuation if required.

The Sessler Wrecking Designated Emergency Coordinator will maintain an active list of all Sessler Wrecking and contract emergency responders.

Critical Plant Operations Personnel

Staff designated to remain in the facility to shut down or supervise critical operations or equipment will be specifically trained and authorized by management to perform their duties before any evacuation may occur.

Evacuation Drills

Evacuation drills shall be conducted at least annually. Before conducting an evacuation drill a pre-drill assessment of the evacuation routes and assembly points shall be conducted. The pre-drill assessment is intended to verify that all egress components (stairs, doors, etc.) are in proper order and that occupants can use them safely.

Coordination Within a Facility

Emergency training and drills should also be coordinated within a Sessler Wrecking facility so that key staff are involved in the planning process and are aware of their responsibilities in an emergency as well as during the drill.

Facility management also needs to be informed of the potential for an interruption in productivity and business operations. Alternatives for the continuity of critical operations need to be considered.

Procedures to Account for All Employees After Evacuation

The emergency action plan must include procedures to account for all employees after the evacuation. An emergency action plan must include, at a minimum, procedures to account for all employees after evacuation. Each muster or assembly point will have a blank roster for evacuees to enter their name. All completed rosters will be gathered and checked against a master list of employees assigned or checked in at the facility to verify all employees are accounted for.

Emergency Evacuation Notification and Routes

In the event of an emergency occurring within or affecting the work site, the Emergency Coordinator makes the following decisions and ensures the appropriate key steps are taken:

- Advise all personnel of the emergency.
- Activate the emergency notification sequence to alert the appropriate responders and initiate emergency notification within the building.
- Evacuate all persons to the identified assembly area and account for everyone including visitors and clients.

All personnel will proceed to the primary safe area immediately located at the identified emergency assembly area for their location.

A copy of escape routes shall be posted in all offices, at all alarm stations and at all exits.

Sweep Check by Sessler Wrecking Designated Responders

- Sessler Wrecking trained responders will establish a pattern that will permit covering the area in the shortest time, with a minimum of backtracking.
- When the evacuation alarm rings, stop work immediately, and conduct a sweep of the area. Ask everyone to leave the premises immediately and proceed to the identified emergency assembly area for their location.
- If you encounter smoke or flames, leave that section immediately, finish your sweep and evacuate the building by activating fire alarm pull stations. Remember, if in doubt get out.

- If anyone refuses to leave, note their name and location, and advise the client emergency services personnel.
- Meet the client emergency services personnel and advise them of your sweep or an area of smoke or flame that you were unable to check. Assist with head count and evacuation ifrequired.
- Ensure that everyone stays at the emergency assembly area until the Emergency Coordinator has givenan all clear to re-enter the building.
- In the event of inclement weather, the client will make arrangements to have buses either as temporary shelter or to transport personnel to another location.

Evacuation or DrillEvaluation

Following an evacuation or drill a response review shall be conducted and documented by the Sessler Wrecking Emergency Coordinator and lessons learned shared with the appropriate responders and staff using the Sessler Wrecking Evacuation Report.

Emergency Response ProgramManagement

Contact information will be provided to employees who need additional information pertaining to the plan or to their respective duties. The Sessler Wrecking site manager may be contacted by employees who need more information about the plan or an explanation of their duties under the plan.

For the purpose of this Emergency Action Plan guidance the Emergency Coordinator will be designated by the Sessler Wrecking site manager. His/her alternate will be the Sessler Wrecking Site Safety Supervisor or otherwise designated by the site manager.

Employees performing rescue or evacuation must wear personal protective clothing and equipment appropriate to the hazards likely to be encountered.

Duties

Sessler Wrecking Emergency Coordinator

The Sessler Wrecking Emergency Coordinator ensures that:

- Evacuation drills are conducted on an annual basis.
- Inspections of facilities are performed monthly.
- All necessary repairs of components for evacuation paths are completed.
- Plans for the modification of any part of an evacuation path arereviewed.
- An up-to-date list of Fire Wardens is maintained.
- Radios and reflective vests and other response equipment areavailable.

During an evacuation or evacuation exercise, the Sessler Wrecking Emergency Coordinator:

- Coordinates activities in accordance with either local authorities or the client Security and ERT asrequired.
- Coordinates Fire Wardens and informs them of the nature of the emergency via handheld radios.

Following an evacuation or evacuation exercise, the Sessler Wrecking Emergency Coordinator:

- Notifies Fire Wardens that it is safe to re-enter the building.
- Prepares a report following an evacuation (actual or drill).

- Reports to management for follow-up or corrective actions.

Sessler Wrecking Site Safety Supervisor

- Assist the Sessler Wrecking Emergency Coordinator when requested.

Fire Wardens

- Be equipped with radios and reflective vests. The equipment is to be handed into the Sessler Wrecking Emergency Coordinator and reissued to the next oncoming Fire Warden for the designated area.
- Be familiar with exits and muster stations for their responsible area.
- Direct residents safely out of the building to the designated muster station or to an alternate location.
- Sweep their effected area, ensuring that the alarms are properly functioning and that residents evacuate safely.
- In order to account for all employees after evacuation the fire wardens or designated personnel shall complete a head count and reconcile the evacuees with the attendance or daily housing report at the assigned muster station or alternate location.
- Radio unaccounted for personnel to Security.
- Notify personnel that they may re-enter the building when permission has been given by the appropriate authorities.

Residents, Contractors & Visitors

- All employees, users, contractors, and visitors will follow the instructions of the Fire Wardens, Security, ERT, Safety Personnel, managers and supervisors when asked to evacuate thebuilding.
- Know the two safest and most direct evacuation routes from their work area(s).
- Know the designated evacuation assembly point for the building.

Sessler Wrecking Emergency Inspection Checklist

Department:	Location:	Date of Inspection:
Inspected by:	Title:	Ext:

This form is to be used monthly.

	N/A	Yes	No
EGRESS			
Is every means of egress arranged and clearly marked, so that the way to safety is unmistakable at all times?			
Are exits signs lit?			
Are there sufficient exits for the prompt escape of all employees in case of fire or other emergencies?			
Are doors that are not exits that could be mistaken as one, clearly marked “Not an Exit”?			
Do exit doors swing out?			
Are means of egress at least 28 inches at any point and adequate width for the number of people?			
Are egresses kept clear of obstructions and materials at all times?			
Is there proper lighting for emergency exiting? (i.e., during a power failure)			
Are at least two exits by separate ways of travel available for each occupant?			
Is the minimum width of any exit way no less than 28 inches?			
Are furnishings and decorations so placed that they will not obstruct the exits, the access thereto, or the egress there from, or the visibility thereof?			
Are explosive and highly flammable furnishings or decorations prohibited?			
EMERGENCIES/EVACUATION			
Are evacuation maps posted in readily accessible places?			
Do employees know where their muster point is located?			
Do employees know area hazards, the nearest exit, and alternate routes of escape?			
Do employees know the preferred means of reporting emergencies?			
Do employees know the site emergency number(s)?			
Is the site emergency number posted on or by the phone?			
Do employees know what signal indicates evacuation?			

This form is to be used monthly.

	N/A	Yes	No
Can all personnel perceive the employee alarm?			
Do employees with special assistance needs been addressed?			
Employees questioned know where the emergency shut off is for the natural gas			
FIRE PROTECTION			
Are fire hydrants accessible?			
Are fire hydrants inspected yearly and records maintained to show the date?			
Are control and operating valves locked open or electronically supervised?			
Are fire hoses maintained and periodically tested?			
Are combustible materials kept away from ignition sources?			
Are standpipe and hose system components visually inspected quarterly?			
Is the accumulation of flammable and combustible materials controlled so they do not contribute to fire emergency?			
All product, supplies, merchandise etc. not piled within 18" of Sprinkler heads			
No Combustibles within three feet of Hot Water Tank, Space Heaters and/or Electrical panels			
All Compressed Gas Cylinders tied or chained to eliminate tipping			
DETECTION AND ALARM SYSTEMS			
Are detection systems installed and maintained?			
Are all trouble alarms and fire signals investigated?			
Do detection/alarm systems shut down or reverse HVAC systems for smoke control?			
Do detection/alarm systems close smoke or fire doors?			
Do detection/alarm systems activate local alarms?			
Are alarm and PA systems periodically tested?			
PORTABLE FIRE EXTINGUISHERS			
Does everyone know where the nearest fire extinguisher is stored?			
Has the area fire extinguisher been maintenance tested within the last year and tagged to show the date?			
Are fire extinguishers accessible and the proper type for the fire hazard?			
Are employees trained in how to use fire extinguishers?			
Is there a fire extinguisher mounted within 75 ft. of any point in an area?			

This form is to be used monthly.	**N/A**	**Yes**	**No**
Are the extinguishers clean and well cared for?			
Is the seal and lock pin in place?			
Clear access to extinguishers? Not blocked			
Is the extinguisher location plainly marked, so as to be visible at a distance?			
Is the extinguisher class marked on the extinguisher?			
FIRST AID / MEDICAL SUPPLIES			
Are first aid supplies stocked, clean, accessible, and sanitary?			
Are there eye/body wash facilities near injurious corrosive materials?			
Is a person or persons adequately trained to render first aid available in the near proximity to the workplace?			
Are AEDs present and operators trained?			
Condition of First Aid Kits Acceptable			
Are employees/subcontractors familiar with the incident/accident reporting process?			
Do employees/subcontractors know where accident/incident forms are located?			

Date of last inspection of sprinkler system (required yearly) _____

Comment/Actions:

Sessler Wrecking Evacuation Report

This form is to be used to record all emergency evacuations (including drills).

Building Details

Building Name_____ Number of Floors(including ground) _____

Designated Muster Station_____ Person Completing Form _____

Evacuation Details

Evacuation Date/Time:_____/_____ Evacuation Drill Yes ☐ No ☐

Trigger for Evacuation: Fire Alarm Activated____Drill ___ ERT ___ Security ____

Emergency Situation: _____

Condition: Staff Only_____All Occupants_ After Hours_____Unoccupied_____Weather_____

Number of Evacuees_____ Elapsed Time to Evacuate_____ minutes

Evacuation was orderly with no panic		Yes ☐	No ☐
Mobility-impaired persons present (sight, hearing, physical, etc.)?		Yes ☐	No ☐
The majority of evacuees went to the mustering points?		Yes ☐	No ☐
Were the building occupants notified of this drill?	Not a drill ☐	Yes ☐	No ☐

Emergency Control Organization

Emergency Coordinator_____Deputy Emergency Coordinator _____

Emergency Coordinators were stationed at the proper emergency control point?	Yes ☐	No ☐
All Fire Wardens reported to the Emergency Coordinator?	Yes ☐	No ☐
If not, who did not report in? _____		
All Fire Wardens were identifiable (vests, hard hats, flashlights)?	Yes ☐	No ☐
Control of external building exits achieved?	Yes ☐	No ☐
Did the Fire Wardens perform their duties correctly?	Yes ☐	No ☐
Evacuation maps and emergency procedures posters are up to date?	Yes ☐	No ☐

Building Fire & Emergency Equipment

Was the evacuation signal audible throughout the building?	Yes ☐	No ☐
Automatic closing fire doors closed when the fire alarm activated?	Yes ☐	No ☐
Card access doors automatically released when the fire alarm activated?	Yes ☐	No ☐
Fire doors and emergency exits unobstructed?	Yes ☐	No ☐

Emergency Response Members

Client: Maintenance ☐ Security ☐ Sessler Wrecking Emergency Coordinator ☐ HSE ☐

Emergency Response Team Fire Brigade ☐ Ambulance ☐ Police ☐ Other:_____

Sessler Wrecking ActionSheet

Issue(s)	Action(s) Required	By Whom	By When	Sign Off/Date

Records

- Keep the original in your Emergency Response folder and monitor to ensure all action items are completed as soon as possible. Report delays to senior management.
- Copies shall be distributed in accordance with the Sessler Wrecking Site Emergency Action Plan.

Emergency Action Plan Orientation Check List

Employee Name_____ Department_____

Hire/Transfer Date_____ Orientation Date_____

[ ] Emergency Procedures

[ ] Evacuation route(s) from assigned work area

[ ] Evacuation from an unfamiliar area

[ ] Location of Emergency Assembly Areas

[ ] Receiving and following instructions during an emergency

[ ] ALL CLEAR and re-entry procedure

[ ] Reporting hazards and/or substandard conditions

[ ] Advising anyone who may require assistance during an emergency evacuation

[ ] Location of Emergency Equipment (i.e., Fire Extinguishers, etc.)

Employee Signature:_____

Orientation Conducted by:_____

Job Position/Title: _____

Sample Emergency Action Plan Core Requirements

POTENTIAL EMERGENCIES **(BASED ON HAZARD ASSESSMENT)**	The following are identified potential emergencies: • Fire • List others	
EMERGENCY PROCEDURES	In the event of a fire occurring within or affecting the work site, the Emergency Coordinator (or deputy) makes the following decisions and ensures the appropriate key steps are taken: • advise all personnel • pull the fire alarm to alert the nearest fire station and initiate all fire alarms within the building • evacuate all persons to a safe point in the assembly area and account for everyone including visitors and clients	
LOCATION OF EMERGENCY EQUIPMENT	Emergency equipment is located at: • Fire Alarm – List • Fire Extinguisher – List • Fire Hose - List	
WORKERS TRAINED IN THE USE OF EMERGENCY EQUIPMENT	(1) _____ (2) _____ (3) _____ (4) _____	
EMERGENCY RESPONSE TRAINING REQUIREMENTS	Type of Training • Use of fire extinguishers • Practice fire drills	Frequency • Orientation and annually • At the call of site management
LOCATION AND USE OF EMERGENCY FACILITIES	The nearest emergency services are located at: • List facilities	

FIRE PROTECTION REQUIREMENTS	• List all site fire protection requirements.
ALARM AND EMERGENCY COMMUNICATION REQUIREMENTS	• Pulling the fire alarm automatically alerts the fire department and initiates an alarm within the building • The fire alarm signal is (describe sound and pattern)
FIRST AID	First aid supplies are located at: • List First Aiders are: • List all names Transportation for ill or injured workers is by (describe). The contact number or radio channel is (describe).
PROCEDURES FOR RESCUE AND EVACUATION	In case of fire: • Advise all personnel • Pull the fire alarm • Evacuate all persons to a safe point in the staff parking lot and account for everyone including visitors and clients • Assist ill or injured workers to evacuate thebuilding • Provide first aid to injured workers ifrequired • Call emergency response personnel to arrange for transportation of ill or injured workers to the nearest health care facility if required.
DESIGNATED RESCUE AND EVACUATION WORKERS	The following workers are trained in rescue and evacuation (or describe client rescue organization): (1)_____ (2)_____ (3)_____ (4) _____
Completed on: _____ Signed: _____	

1.0 GENERAL INFORMATION

As an environmental company, SESSLER WRECKING is in business to provide services to its clients and at the same time serve to protect the environment. SESSLER WRECKING will make the effort to conduct the assigned work as efficiently as possible to control contaminants from the work area that may enter the environment. Project waste and scrap materials should be containerized whenever possible and disposed of as soon as is feasible to maintain an organized project site. Good housekeeping will be a priority both in the shop and at any jobsite.

Waste and Scrap materials shall be segregated and stored in such a manner to prevent impact to the environment. Materials that have the potential to be released shall be stored in such a way that any release will be contained.

SESSLER WRECKING personnel have been trained to protect themselves from hazardous materials through personal protective equipment, engineering, and administrative controls as well as decontamination procedures. The training extends to protect the environment through the collection of materials, covering drains and controlling runoff.

The Director of Health and Safety shall be notified immediately if there is a release regardless of volume.

Spill kits will be available at all project sites and on all vehicles transporting materials that could be released. Spill kits will be sized appropriately for the equipment and or material stored to ensure that they are adequate should a releaseoccur.

Disposal of waste material shall meet all federal, state, and local guidelines as it relates to the method of disposal. When feasible, waste materials should be recycled. Employees will be made aware of the proper methods of disposal of all project waste. Questions related to proper disposal methods should be directed to the Director of Health and Safety.

During emergency response, SESSLER WRECKING has set priorities, which are; Self, Employees, the public and then the environment. SESSLER WRECKING will take precautions during an emergency response of protecting the environment during the control of the incident, mitigating the hazard(s) based on goals, and objectives set by the incident commander or other governmental authority.

It must be emphasized that the protection of SESSLERWRECKING employees and the public are the first concern and then the environment. After an incident or other work where the environment has been contaminated or disturbed, SESSLER WRECKING personnel will contact their supervisor in the event a conflict arises on how to proceed to protect the environment as long as the priorities are not an issue.

SESSLER WRECKING personnel will not intentionally disturb or contaminate the work area or the environment. In the event that a release occurs during operations, efforts will be made by SESSLER WRECKING personnel to stop the release, clean the area, and prevent the incident from happening again. Compatible spill materials will be available if working with known liquid materials on the job.

Suggestions from employees on the preservation, protection or restoration of the environment will be brought to the attention of their supervisors where the suggestions will bewelcomed and evaluated for possible implementation based on client wishes and cost-effective measures.

Purpose

The purpose of this program is to provide fall protection procedures to prevent injury to employees while performing work assignments at elevated levels.

Qualifications of the Person or Position That Prepares Plans

Any changes to this Fall Protection Program must be approved by the Safety Manager, who is designated the Qualified Person to prepare plans for specified work sites. This is based on training received in fall protection planning and has demonstrated skills and knowledge in the preparation of fall programs, plans and the hazards involved.

Scope

This program applies to all Sessler Wrecking employees who have work assignments at work levels that exceed 6 feet in height where guardrails or nets are not utilized. This includes work near and around excavations. Guardrails, safety nets, or personal fall arrest systems shall be used where feasible. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Definitions

Anchorage means a secure point of attachment for lifelines, lanyards, or deceleration devices.

Body belt (safety belt) means a strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.

Body harness means straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with means for attaching it to other components of a personal fall arrest system.

Buckle means any device for holding the body belt or body harness closed around the employee's body.

Carabineer - see Snaphook

Connector means a device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabineer, or it may be an integral component of part of the system (such as a buckle or D-ring sewn into a body belt or body harness, or a snap-hook spliced or sewn to a lanyard or self-retracting lanyard).

Deceleration device means any mechanism, such as a rope grab, rip-stitch lanyard, specially woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

Deceleration distance means the additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body belt or body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of that attachment point after the employee comes to a full stop.

Equivalent means alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

Failure means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Free fall means the act of falling before a personal fall arrest system begins to apply force to arrest the fall.

Free fall distance means the vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

The Guardrail System means a barrier erected to prevent employees from falling to lower levels.

Infeasible means that it is impossible to perform the inspection work using a conventional fall protection system (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use any one of these systems to provide fall protection.

Lanyard means a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

Leading edge means the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Lifeline means a component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Lower levels means those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.

Personal fall arrest system means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt, or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

Positioning device system means a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.

Rope grab means a deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.

Self-retracting lifeline/lanyard means a deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

Snaphook means a connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snaphooks are generally one of two types: (1) The locking type with a self-closing, self- locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection; or (2) The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. As of January 1, 1998, the use of a non-locking snaphook as part of personal fall arrest systems and positioning device systems is prohibited.

Unprotected sides and edges means any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches (1.0 m) high.

Walking/working surface means any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork, and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

Work area means that portion of a walking/working surface where job duties are being performed.

Drawing of Components



Figure A

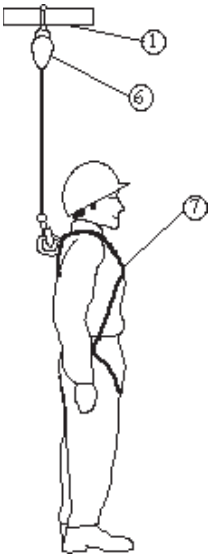


Figure B

1. Tie-off Point
2. Lifeline
3. Rope Grab
4. Shock Absorbing Lanyard
5. Cross-Arm Strap
6. Retractable Lifeline
7. Full-Body Harness
8. Restraining Belt
9. Restraining Lanyard
10. Carabineer

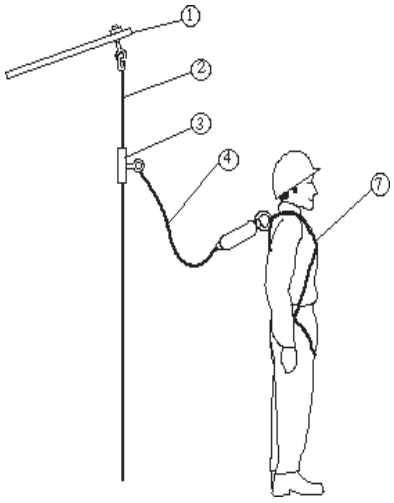


Figure C

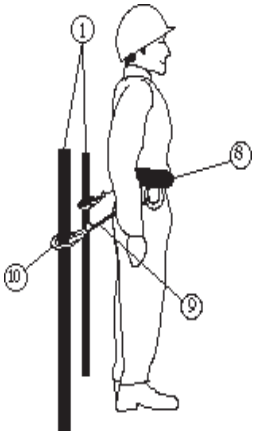


Figure D

Responsibilities

Competent Person

It is the responsibility of the designated competent person to implement this Fall Protection Program. Continual observational safety checks of work operations and the enforcement of the safety policy and procedures shall be regularly enforced. All jobs shall be pre-planned prior to the start of work.

Supervisor

The Supervisor shall ensure that all persons assigned to work at elevated levels, exceeding 6 feet in height or more above lower level and where guardrails or nets are not utilized, be protected by personal fall protection equipment.

- Supervisors shall make exposure determinations and shall discuss with their employees the extent to which scaffolds, ladders or vehicle mounted work platforms can be used.
- Ensure that fall protection equipment is available and in safe working condition.
- Provide emergency rescue in the event of a fall. Pre-plan the job to ensure that employees have been properly trained in the use, limitations, inspections and rescue procedures and that training records are on file.

Employees

Employees shall ensure they have and use the fall protection equipment as required by this program and:

- Understand the potential hazards of working at elevated levels as well as gaining access to and from the work location.
- Understand the use and limitations of such equipment.
- Pre-plan the job with his/her supervisor to agree that the job can be done safely.
- Inspect such equipment before each use and report defective equipment immediately to their supervisor.

Guidelines for Equipment, Use, Inspection and Purchasing

When Fall Protection Must Be Provided for Employees

Fall protection is required whenever employees are potentially exposed to falls from heights of six feet or greater to lower levels or if applicable jurisdictions require a lower height requirement. This includes work near and around excavations. Use of guard rails, safety net, or personal fall arrest systems should be used when the standard methods of protection are not feasible, or a greater hazard would be created.

Purchasing of Fall Protection Equipment

Fall protection equipment purchased will meet the requirements of applicable ANSI, ASTM, or applicable standards/requirements of the jurisdiction where work is being performed.

Use of Fall Protection Standards

Fall protection must be provided to employees working at heights that exceed applicable regulatory thresholds.

Fall protection is required whenever employees are potentially exposed to falls from heights that exceed applicable regulatory thresholds. Guard rails, safety nets or personal or fall arrest systems should be used. Some applicable regulatory thresholds may include:

- Protection for wall openings and holes. Every wall opening from which there is a drop of more than 4 feet shall be guarded.
- Unprotected sides and edges. Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.
- Guardrails shall be provided at locations where employees are exposed to floor or wall openings or waterside edges, including bridges or gangway-like structures leading to pilings or vessel mooring or berthing installations, which present a hazard of falling more than 4 feet (1.22 m) or into thewater.
- When employees are exposed to unguarded edges of decks, platforms, flats, and similar flat surfaces, more than 5 feet above a solid surface, the edges shall be guarded by adequate guardrails.
- Each employee engaged in a steel erection activity who is on a walking/working surface with an unprotected side or edge more than 15 feet (4.6 m) above a lower level shall be protected from fall hazards by guardrail systems, safety net systems, personal fall arrest systems, positioning device systems or fall restraint systems.

The following are minimum standards for Sessler Wrecking employee personal fall protection systems:

- When purchasing equipment and raw materials for use in fall protection systems,applicable standards/requirements should be met.
- All D-rings must be a minimum of 2¼ inches (inside diameter).
- All snap hooks shall not allow pressure to be applied to the gate in the opening direction.
- No pelican hooks on lanyards should be used as a primary connection.
- Connectors shall be dropped forged, pressed, or formed steel, or made of equivalent materials.
- Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.
- D-rings and snap hooks shall have a minimum tensile strength of 5,000 pounds.
- D-rings and snap hooks shall be proof-tested to a minimum tensile load of 3,600 pounds without cracking, breaking, or taking permanent deformation.
- Snap hooks shall be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snap hook. Only a locking type of snap hook designed and used to prevent disengagement of the snap hook by the contact of the snap hook keeper by the connected member shall be used.
- Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at leasttwo.
- Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds. Where vertical lifelines are used, each employee shall be attached to a separate lifeline.
- Lifelines shall be protected against being cut or abraded.

- Self-retracting lifelines and lanyards which automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds applied to the device with the lifeline or lanyard in the fully extended position.
- Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet or less, rip stitch lanyards, and tearing and deforming lanyards shall be capable of sustaining a minimum tensile load of 5,000 pounds applied to the device with the lifeline or lanyard in the fully extendedposition.
- Anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000 pounds per employee attached, or shall be designed, installed, and used as part of a complete personal fall arrest system which maintains a safety factor of at least two and under the supervision of a qualified person.
- Systems used by an employee having a combined person and tool weight in excess of 310 pounds shall be modified to provide proper protection for such heavier loads.
- The attachment point of the body harness shall be located in the center of the wearer's back near shoulder level, or above the wearer's head, except when climbing.
- Body harnesses and components shall be used only for employee protection and not to hoistmaterials.
- Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.
- Provide for prompt rescue of employees in the event of a fall or assure that employees are able to rescue themselves.
- Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration, and defective components shall be removed from service.
- Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists unless prior approval is obtained from a competent person.
- If and when a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the walking/working surface.

Stopping a Fall

The arresting force on an employee stopped by a fall shall be limited to a maximum arresting force of 1,800 pounds when wearing a body harness.

The fall arrest system shall be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level.

The fall arrest system shall bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet.

The fall arrest system shall have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.

Protection from Falling Objects

When employees are required to work in the near vicinity of others working with materials, tools, or equipment at elevated levels, Barricades around the immediate area of the overhead work shall be erected to prohibit employees from entering the barricaded area.

Employees performing work at elevated levels shall keep tools, materials, and equipment away from the edge to keep potential objects from falling over the side. Where practical, tools, etc. shall be secured with rope, wire, etc. to keep them from falling.

Portable Ladders
Three-point climbing is required while ascending/descending ladders. While on ladders, both hands and one foot, or both feet and one hand shall always be in contact with the ladder.

Tools required to perform a task shall be transported by a mechanical carrier such as a tag line, suspended bucket, or tool belt.

- Tools shall not be carried by hand while climbing.
- Hands must be free to grip the ladder.
- Tools shall not be carried in clothing pockets.
- Tools shall be pulled up to the job site only after reaching the area of work.

When work is to be performed from straight/extension ladders, fall protection shall be utilized when heights exceed 6 feet.

Straight ladders shall be tied off at the top to prevent them from moving. A second person shall steady the ladder at the base while it is being tied off at the top by another employee. Do not tie off fall protection equipment to the ladder.

Storage
A dedicated storage area shall be provided for the storage of fall protection equipment and all components. The storage area shall keep the equipment clean, dry, and free from oils, chemicals, paints, and excessive heat.

Inspections
Fall protection equipment including all harnesses and lanyards must be inspected prior to each use and annually and the inspection documented.

All personal harnesses, attachment devices and lanyards, after any activation, will be immediately discarded. Self-retracting lifelines, if activated, will be tagged out and sent for inspection by the manufacturer.

Elevated Personnel Platforms
Work performed, regardless of the nature of the work, from personnel platforms raised by forklifts, cranes, scissor lifts, etc., shall require the use of a full body harness and shall be connected to the platform.

Prompt Rescue of an Employee in the Event of a Fall
Sessler Wrecking shall provide for prompt rescue of employees in the event of a fall or shall assure the employees are able to rescue themselves.

The pre-planning stage prior to the beginning of each elevated work assignment shall be evaluated by the supervisor to provide rescue of employees involved in a fall.

Fall Protection Plan

The fall protection plan shall be prepared by a qualified supervisor and developed specifically for the site where the leading-edge work is being performed. The plan must be in writing and readily available to all workers on location.

The plan must include:

- the fall hazards at the work site;
- the fall protection system to be used at the work site;
- the anchors to be used during the work;
- that clearance distances below the work area, if applicable, have been confirmed as sufficient to prevent a worker from striking the ground or an object or level below the work area;
- the procedures used to assemble, maintain, inspect, use, and disassemble the fallprotection system, where applicable; and
- the rescue procedures to be used if a worker falls and is suspended by a personal fall arrest system or safety net and needs to be rescued.

Controlled Access Zones

When used to control access to areas where leading edge or other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.

When control lines are used, they shall be erected not less than 6 feet (1.8 m) nor more than 25 feet (7.7 m) from the unprotected or leading edge.

The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.

The control line shall be connected on each side to a guardrail system or wall.

- Control lines shall consist of ropes, wires, tapes, or equivalent materials.
- Each line shall be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.
- Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m).
- Each line shall have a minimum breaking strength of 200 pounds.

Only employees engaged in the related work shall be permitted in the controlled access zone.

Safety Monitoring System

When the use of conventional fall protection equipment is deemed infeasible, or the use of this equipment creates a greater hazard a Fall Protection Plan which includes a safety monitoring system shall be implemented by the supervisor.

Supervisors shall designate a competent person to monitor the safety of other employees. The competent person shall be assigned to:

- Recognize fall hazards;
- Warn employees if they are unaware of fall hazard or are acting in an unsafemanner;
- Be on the same working surface and in visual contact of workingemployees;
- Stay close enough for verbal communication; and
- Not have other assignments that would take his/her attention from the monitoringfunction.

Incident Investigations
Sessler Wrecking shall conduct accident investigations in the event of a fall, near miss or other serious incident.

Accident investigations shall be conducted to evaluate the fall protection plan for potential updates to practices, procedures, or training in order to prevent reoccurrence.

Changes to the fall protection program shall be implemented if deemed appropriate from incident corrective actions.

Training

Employees receive training pertaining to the recognition and elimination of fall hazards. A training program shall be provided for each employee who might be exposed to fall hazards. Training shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to follow to minimize these hazards.

The employee will be trained in the use and operation of fall arrest systems, inspections, and maintenance procedures.

Retraining – Retraining shall be provided when the following are noted:

- Deficiencies in training,
- Workplace changes
- Fall protection systems or equipment changes that render previous training obsolete.

All training is documented. Written certification records must be maintained showing the following:

- Who was trained
- When and dates of training
- Signature of person providing training
- Date Sessler Wrecking determined training was deemed adequate.

Training records shall be retained in the corporate office.

FALL PROTECTION SYSTEM INSPECTION FORM

INSPECTED BY (Designated Competent Person)	**DATE**
AREA	**CRAFT**

BODY HARNESS

INSTRUCTIONS:

All parts of body harness and attachments are to be checked for excessive wear and damage.

Y symbol is for YES or OK.

N symbol is for NO or REPLACE. Any N means immediate destruction of harness or lanyard.

Body harness to be inspected monthly and report is to be turned in to Safety Department. User to visually inspect prior to each use.

EMPLOYEE NAME	HARNESS SERIAL #	Harness Webbing	All Stitching	Rivets and Eyelets	D-rings & Buckle	Body Pad (if applicable)	Lanyard	Carabineer	Fall Warning Tag Intact	No Cuts, Corrosion, Burning	Overall Condition

FALL PROTECTION SYSTEMS

SYSTEM	LOCATION	Yes	*No or Repair* (Take Out of Service)	Comments
Vertical Lifeline				
Horizontal Lifeline				
Warning Lines				
Guard Rails				
Retractable Lanyards				
Hole Covers				
Positioning Devices				

- **INTRODUCTION**
  - Each of us has the responsibility to make the safety of ourselves and our co-workers a fundamental concern. As employees of SESSLER WRECKING, we have the opportunity to impact the design of our work environment and plan to prevent incidents and injuries, both on and off the job.
  - Fatigue can be defined as a state of impairment that can include physical and/or mental elements, associated with lower alertness and reduced performance.
  - SESSLER WRECKING is committed to ensuring proper control of fatigue risks that might affect the health and safety of those involved in the work or those affected by the work.

- **TRAINING**
  - Initial and annual training will be provided to each employee on how to recognize fatigue, how to control fatigue through appropriate work and personal habits and reporting of fatigue to supervision.

- **WORK HOURS AND JOB ROTATION**
  - The Operations Manager and/or the Project Manager will set work hour limitations and will control job rotation schedules to control fatigue. Work hours shall be set to allow for sufficient sleep. Obtaining sufficient sleep will increase mental fitness resulting in a more productive, efficient employee and will have a positive impact on preventing injuries or illness due to fatigue related incidents. Lower levels of fatigue will also increase morale and reduce employee turnover and absenteeism.

- **ERGONONICS**
  - Ergonomic equipment will be used to improve workstation conditions. Such equipment may include anti-fatigue mats for standing; lift assist devices for repetitive lifting, proper lighting and control of temperature, mechanical material handling equipment and other devices as deemed appropriate. Employees in sedentary positions should be encouraged to move about and stretch periodically. Employees working strenuous tasks should be afforded frequent opportunities to rest.

- **JOB ANALYSIS**
  - Work tasks to control fatigue must be analyzed and evaluated. This will be accomplished

during the development of the project Health and Safety Plan (HASP), Project Safety Plan (PSP), and/or Job Hazard Analysis (JHA). Adequate measures to protect employees from excessive fatigue will be devised and implemented.

- Such measures may include frequent rest breaks during strenuous activities.

- **RESPONSIBILITIES**
  - It is every employee's responsibility who is in a safety critical position to report fatigue/tiredness and lack of mental acuity to supervision.
  - It is the responsibility of supervision and management to make appropriate decisions and take appropriate actions to prevent incidents due to fatigue.

- **CHEMICAL SUBSTANCES**
  - Employees must report to their supervisor if they are taking prescription drugs that may potentially alter their mental status. All warnings and contraindications for prescription drugs shall be followed.
  - Alcohol and illegal drug use are prohibited. Refer to the SESSLER WRECKING Drug Free Workplace Program.

Purpose

The purpose of this program is to provide fire safety planning regarding fire, explosion, combustible materials and appropriate planning and procedures required to minimize risk.

Scope

This program applies to all Sessler Wrecking workers and all Sessler Wrecking locations.

Responsibilities

The safety manager is responsible for developing procedures for the design of fire safety plans and procedures at each Sessler Wrecking work site. The site manager is responsible for implementing the requirements and training at his or her location. The supervisors are responsible for enforcing the provisions of this section of the safety manual. All workers are responsible for following these provisions.

Responsibilities

Safety Manager
Develops local first aid plans or procedures for all worksites in accordance with this procedure and ensures workers are aware of the requirements of the fire and explosion prevention program plans or procedures.

Worksite Project Manager
Responsible for the implementation and maintenance of the fire and explosion prevention program for their facility and ensuring all assets are made available for compliance with the procedure.

Employees
All workers are responsible for following these provisions and attending specified training.

Procedure on Fire Prevention and Combustible & Flammable Liquids Storage/Handling

Assessment for Fire and Explosion Hazards
A site-specific assessment for fire and explosions shall be developed for each project. The Sessler Wrecking Safety Manager will perform a written assessment review.

Fire Safety Plan
Sessler Wrecking will factor the following into the hazard assessment and development of the site-specific fire safety plan and shall:

- Take all reasonably practicable steps to prevent the outbreak of fire at a place of employment and to provide effective means to protect workers from any fire that may occur;
- Develop and implement a written fire safety plan that provides for the safety of all workers in the event of a fire. A plan developed must include:

- the emergency procedures to be used in case of fire, including sounding the fire alarm, notifying the fire department, and evacuating endangered workers, with special provisions for workers with disabilities;
- the quantities, locations and storage methods of all flammable substances present at the place of employment;
- the designation of persons to carry out the fire safety plan and the duties of the designated persons;
- the training of designated persons and workers in their responsibilities for fire safety;
- the control of fire hazards.

- Suitable procedures are developed and implemented to prevent the ignition of flammable liquids or explosive dusts that are present at a worksite;
- All sources or potential sources of ignition are eliminated or controlled where an explosive atmosphere exists or is likely to exist; and
- Static charge accumulations during transfer of flammable liquids or explosive substances from one container to another are prevented by electrically bonding the containers or otherwise designed to control the presence of static electricity.

Other Planning Requirements

No worker shall enter a workplace where a flammable or explosive substance is present in the atmosphere at a level that is more than 10% of the lower explosive limit of that substance.

Good housekeeping and preventative maintenance on all equipment shall be maintained to prevent fire hazards from occurring.

Smoking must be confined to areas specifically designated by Sessler Wrecking management. Smoking is not permitted while around any active/functioning hydrocarbon clean-up/vacuuming equipment, around compressed gas cylinder storage locations or at any Sessler Wrecking or client designated “No Smoking” areas.

Oily/greasy rags, paper waste and other flammable trash will be removed and disposed of in covered metal containers or appropriately marked safety cans, or in over-pack spill containers, whenever these sources are generated, for the prevention of spontaneous combustion.

Matches or cigarette lighters should not be taken into any area where an explosive atmosphere may be present.

Fire Potential and Response Procedures

All leaks of flammable liquids will be reported immediately and repaired if practicable. If immediate repair is not possible, all spark-producing operations within the vicinity of the leak or spill will be stopped and adequate warning signs or barricade tape will be posted until the hazard is controlled or eliminated.

If a worker’s clothing is contaminated with a flammable or combustible liquid, the worker must avoid any activity where a spark or open flame may be created or exists, remove the clothing at the earliest possible time and ensure that the clothing is decontaminated before it is used again. If a worker’s skin is contaminated with a flammable or combustible liquid, the worker must wash the skin at the earliest possible time.

All fires at a Sessler Wrecking worksite shall be reported to supervisory personnel immediately. A written incident report will be filed by the immediate supervisor in charge of that area once the fire has been addressed.

Fire Extinguishing Theory

Fire is a chemical reaction that occurs when a fuel rapidly unites with oxygen in the presence of a heat source, and a flame is produced. Four elements are necessary to produce and support a fire:

- Fuel source (solid - liquid -gas)
- Heat source (a type of energy)
- Oxygen source (gas for ignition and flame support)
- Chemical chain reaction (occurs when fuel, heat & oxygen are united in the proper proportions to create a fire).

If any one of these four elements is eliminated, the fire will go out. There are four ways that a fire can be extinguished:

- Isolate, contain, separate, cover, or remove the fuel source.
- Remove the heat source by applying a cooling agent which absorbs the heat. Water is the most common cooling agent used to remove the heat from the reaction.
- Separate the oxygen from other essentials that make a fire by smothering the fire with a wet blanket, throwing soil or sand on it, or covering it with a chemical foam or water fog.
- Stop the chemical reaction by applying certain chemical substances that break up this chain reaction, such as sodium bicarbonate (baking soda) or potassium bicarbonate ("purple K") or sodium monophosphate (ABC dry chemical). Application of these chemicals will result in a reduction of the combustion rate and the fire can be extinguished.

Fire Classifications

There are 3 basic fire classification types present within Sessler Wrecking operations and most host-facility job-sites. A specific class of fire extinguishers may be required based on the type of situation. The classifications are:

CLASS "A"
Fires that involve paper, wood, cardboard, textiles, etc. Foam or water-based liquids are used to extinguish this type of fire.

CLASS "B"
Fires that involve flammable liquid such as gasoline, diesel, grease, oil, paint, solvents, etc., dry chemicals, carbon dioxide or water in a spray-fog form are used to extinguish this type of fire.

CLASS "C"
Fires involving electrical equipment. Dry chemical or carbon dioxide is used to extinguish this type of fire.

Warning: Never use water to extinguish this type of fire due to the potential for electrical shock hazards.

<u>Incipient Stage – Portable Firefighting Procedure</u>

If personnel discover a fire in its early incipient (small) stage, initiate the following procedure if on Sessler Wrecking locations: (if servicing a host-facility client, observes that client's contractor requirements concerning fire prevention.)

- Remain calm

- Report the fire to appropriate supervisory personnel
- If personnel believe the fire can be controlled through the use of a fire extinguisher and personnel are properly trained in the use of a fire extinguisher, seek out and remove the closest fire extinguisher from its securing location in the area of occurrence and put out the fire.

Miscellaneous

- Garbage that may constitute a fire hazard is stored in covered receptacles. Where garbage may constitute a fire hazard is present Sessler Wrecking shall provide covered receptacles for the garbage that are suitable to the nature of the hazard.
- A person must not enter or work at a work area if more than 20 percent of the lower explosive limit of a flammable or explosive substance is present in the atmosphere. Atmospheric testing results will be assessed before a worker is exposed.
- Hydrocarbon resistant gloves will be worn to prevent skin absorption by the hands.

Control Measures for Internal Combustion Engines in Hazardous Locations

- Sessler Wrecking must ensure that an internal combustion engine in a hazardous location has a combustion air intake and exhaust discharge that are equipped with a flame arresting device or located outside the hazardous location. Sessler Wrecking must ensure that all the surfaces of an internal combustion engine that are exposed to the atmosphere in a hazardous location are at a temperature lower than the temperature that would ignite a flammable substance present in the hazardous location or shielded or blanketed in such a way as to prevent any flammable substance present in the hazardous location from contacting the surface.
- Whenever possible, internal combustion engines should be located outside the hazardous location.
- Internal combustion engines in a hazardous location should not be running if possible.
- No worker shall undertake any servicing or maintenance of a vehicle while a flammable liquid or gas or an explosive substance is loaded into or unloaded from the vehicle or is present in the vehicle in any place other than the fuel tank.
- Any driver who operates a vehicle that contains a flammable liquid or gas, or an explosive substance shall ensure that the engine of the vehicle is shut off during the connection or disconnection of the lines for the loading or unloading of the flammable liquid, gas, or explosive substance.

Safe Storage and Handling of Compressed Gas Cylinders

Sessler Wrecking must ensure that:

- Compressed or liquefied gas containers are used, handled, stored, and transported in accordance with the manufacturer's specifications.
- A cylinder of compressed flammable gas is not stored in the same room as a cylinder of compressed oxygen unless the storage arrangements are in accordance with Ontario regulations.
- Compressed or liquefied gas cylinders, piping, and fittings are protected from damage during handling, filling, transportation, and storage.
- Compressed or liquefied gas cylinders are equipped with a valve protection cap if manufactured with a means of attachment.
- Oxygen cylinders or valves, regulators, or other fittings of the oxygen using apparatus or oxygen distributing system are kept free of oil and grease.

All compressed gas cylinders will be stored in their appropriately marked secured (chained) locations and capped when not in use. If in use, all hook-up hoses and equipment used for hot-work purposes will be inspected prior to use. Defective equipment found shall not be used, but instead, tagged out of service or repaired before being used again.

Oxygen is never to be used as a substitute for compressed air in pneumatic tools, to create pressure, for ventilating purposes or to blow out a pipeline.

All regulators and its flexible connecting hose are to be tested immediately after connections to a gas cylinder to ensure that there is no leak of the gas supply. If a leak of the gas supply develops during gas welding or an allied process, the supply of gas is immediately shut off by the worker performing the welding or allied process and the work is not resumed until the lead is repaired.

Storage compartments for compressed and liquefied gas cylinders must meet local legislative requirements.

All storage cylinders for compressed gas shall be secured in an upright position.

The control valve of a storage cylinder for compressed gas, other than a cylinder connected to a regulator, supply line or hose, shall be covered by a protective cap that is secured in its proper position.

A spent storage cylinder shall not be stored inside a building.

No storage cylinder for propane shall be placed closer than 10 feet to a source of ignition or fire.

Flammable Liquids and Substances Storage and Transport
Flammable liquids such as various fuels or solvents will be transported in appropriately marked safety cans with their contents identified. No glass container use will be allowed. Only containers approved shall be used to store flammable substances.

The use of gasoline as a cleaning agent on Sessler Wrecking property is strictly forbidden. Only low flash point liquids are permissible for use in cleaning parts and machinery. Also, no worker shall use gasoline to start a fire or use gasoline or replenish a tank on a heating device with a flammable or combustible liquid while the device is in operation or is hot enough to ignite the liquid.

All materials combustible and flammable liquids contaminated by flammable liquids are to be stored in receptacles that meet national standards. All shall be non-combustible and have close-fitting metal covers, are labeled “flammable”, and are located at least 3 feet away from other flammable materials.

When a flammable gas or a flammable liquid is handled, used, or stored, all sources of ignition must be eliminated or adequately controlled including open flame, spark-producing mechanical equipment, welding and cutting processes, smoking, static discharge and any electrical equipment or installation that is not approved for hazardous locations, as specified by local regulatory requirements and national codes.

Metallic or conductive containers used to transfer flammable liquids must be electrically bonded to each other or electrically grounded while their contents are being transferred from one container to the other.

Hot Work

Sessler Wrecking implement safe work procedures for fire and explosive hazards in the workplace, including hot work if hot work is performed in the workplace additionally, where a flammable substance is or is intended to be handled, used, stored, produced or disposed of at any Sessler Wrecking location the Safety Manager shall develop written procedures to ensure the health and safety of workers who handle, use, store, produce or dispose of a flammable substance that may spontaneously ignite or ignite when in combination with any other substance or perform hot work where there is a risk of fire.

Our site-specific procedures are to ensure that hot work is not begun until a hot work permit is issued which must include the nature of the hazard, the type and frequency of atmospheric testing required, the safe work procedures and precautionary measures to be taken, and the protective equipment required.

Sessler Wrecking requires where a flammable substance is or may be present no hot work is to be permitted or performed until suitable tests have been conducted that indicate whether the atmosphere contains a flammable substance in a quantity sufficient to create an explosive atmosphere or risk of fire. We will confirm that the work may safely be performed through suitable work steps, tests taken at intervals appropriate to the work being performed and record the results and procedures developed and implemented to ensure continuous safe performance of the work.

Any container or piping that contains or has contained a flammable substance shall be purged using an effective method to remove the flammable substance from the container or piping before any hot work is begun on that container or piping. Sessler Wrecking does not require nor permit any welding or cutting of metal that has been cleaned with a flammable or combustible liquid until the metal has thoroughly dried.

No hot tapping will occur until the Safety Manager develops a hot tap plan specific to the type or class of hot tap work being performed. There will be no exceptions to this requirement.

Welding Restrictions

All welding or allied process equipment is erected, installed, assembled, started, operated, used, handled, stored, stopped, inspected, serviced, tested, cleaned, adjusted, carried, maintained, repaired, and dismantled in accordance with the manufacturer's specifications. Additionally, the area surrounding the operation is inspected and all combustible, flammable or explosive material, dust, gas, or vapor is removed or alternative methods of rendering the area safe are implemented.

If a welding or allied process is performed above an area where a worker may be present, the supervisor shall ensure that adequate means are taken to protect a worker below the operation from sparks debris and other falling hazards.

An operator of an electric welding machine must not leave the machine unattended without removing the electrode.

All appropriate welding and ground leads are used to fasten the electric supply cable securely.

Use of Fire Extinguishers

Fire extinguishing equipment is readily available. Each work site shall be provided with readily accessible fire extinguishers adequately marked locations at a project.

Every worker who may be required to use fire extinguishing equipment shall be trained in its use.

Sessler Wrecking will ensure that portable fire extinguishers are selected, located, inspected, maintained, and tested so the health and safety of workers at the place of employment is protected.

Fire extinguishers that have been partially or completely used will be removed from service and replaced by similar equipment that has been inspected and authorized for service. Spent containers will temporarily be placed at either any work site trailer or each individual main office location.

Every fire extinguisher shall be inspected for defects or deterioration at least once a month by a competent worker who shall record the date of the inspection on the tag attached to it.

All portable fire extinguishers shall also be checked annually by a competent fire extinguisher supplier.

Portable fire extinguishers are to be selected, located, inspected, maintained, and tested so that the health and safety of workers at the place of employment is protected. Sessler Wrecking shall ensure that portable fire extinguishers are placed not more than 25 feet away from each industrial open-flame portable heating device, tar pot or asphalt kettle that is in use and each welding or cutting operation that is in progress.

All fire extinguishers shall be maintained as follows:

- Fully charged and in operable condition
- Clean and free of defects
- Readily accessible at all times

In the event of a fire, one trained worker will get the nearest fire extinguisher and use it to attempt to put the fire out. All other workers in the immediate area will prepare to evacuate if needed. All other workers in the building need to be advised that a fire is in progress.

The worker attempting to extinguish the fire will break the safety seal on the handle and pull the pin. He will then aim his extinguisher at the base of the fire and discharge it with a sweeping motion from side to side; continuing until the fire is out or the extinguisher is emptied.

Remember that a standard fire extinguisher will be emptied in about 10 to 15 seconds. If the fire is not out when the extinguisher has been completely discharged, the workers must evacuate the area.

Training

Employees are provided training on the fire safety plan. Sessler Wrecking shall ensure that:

- Designated persons and workers who have been assigned fire safety duties are adequately trained in, and implement, the fire safety plan;

- The fire safety plan is posted in a conspicuous place for reference by workers; and
- A fire drill is held at least once during each 12-month period.

Sessler Wrecking shall also provide training for:

- Where Sessler Wrecking has provided portable fire extinguishers for employees use in the workplace it also shall provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved in incipient stage firefighting.
- The safe work procedures for fire, flammable substances and explosive hazards in the workplace including hot work and how to implement the procedures developed.

Retraining

Retraining shall re-establish worker proficiency and introduce new or revised control methods and procedures, as necessary. Retraining shall be provided for all authorized and affected workers whenever there is:

- An annual basis or
- A change in job assignment or
- Sessler Wrecking has reason to believe that there are deviations from or inadequacies in the worker's knowledge or use of fire extinguishers or fire prevention procedures.

Training Documentation

- All training will be documented, and each worker's understanding will be subject to a "hands-on" test.
- Documentation will consist of; as a minimum, the worker's name, the trainer's name, the date of the training, and an outline of training provided.
- All training records will be maintained in the worker's safety file.
- All fire extinguisher inspection and maintenance records will be maintained by Sessler Wrecking management for the serviceable life of this equipment.

Purpose

The purpose of this program is to establish the minimum first aid supplies, equipment, and actions to properly respond to injuries.

Scope

This program is applicable to all Sessler Wrecking employees while engaged in work at Sessler Wrecking facilities and/or facilities operated by others.

Responsibilities

- It is the responsibility of the site manager to ensure that first aid kits are provided andmaintained.
- All employees are responsible for using first aid materials in a safe and responsible manner.
- The HSE Manager is responsible for corresponding with the Red Cross or an equivalent to keep employee training levels current.

Planning

The site manager will:

- Ensure that a minimum of one employee, with a valid certificate, shall be present to render first aid at all times if work is being performed or if medical assistance is not available within 3-4 minutes.
- Ensure that provisions shall have been made prior to commencement of a project for prompt medical attention, including transportation, in case of serious injury.
- Ensure adequate first aid supplies and equipment are easily accessible when required.
- Ensure that in areas where 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances to be used shall be conspicuously posted.

Medical Response Availability

- First aid and medical facilities will be made available and in the absence of facilities that someone trained to render first aid will be provided on the job site.
- All minor first aid is to be self-rendered. Because of the risks presented by certain bloodborne pathogens, no one is allowed to tend the minor injuries of another.
- In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first aid shall be available at the worksite to render first aid. A valid certificate in first-aid training must be obtained that can be verified by documentary evidence.
- Employees authorized to render first aid will always observe universal precautions. (Universal Precautions means that the aid giver treats all bodily fluids as if they were contaminated).
- If 911 is not available refer to the list of posted phone numbers for prearranged medical response providers. All Sessler Wrecking authorized first responders shall have a cell phone as a means of communication; otherwise, handheld radios or telephones shall be used as a means of communication.

Availability of First AidSupplies

First aid supplies shall be easily accessible when required. Always follow the manufacturer's instructions when using the materials in the first aid kit. All Sessler Wrecking first aid kits contain appropriate items determined to be adequate for the environment in which they are used and if on a construction site are stored in a weatherproof container with individual contents sealed from the manufacturer for each type of item.

Sessler Wrecking is responsible for ensuring the availability of adequate first aid supplies and to periodically reassess the availability for supplies and to adjust its inventories. First Aid kits are to be inspected:

- On the first working day of each week to verify that they are fully stocked and that no expiration dates have been exceeded, and
- Before being sent out to each job, and
- Replace any items that have exceeded their expiration dates or that have beendepleted.

Where the eyes or body of any person may be exposed to injurious corrosive materials, a safety shower and/or eye wash (suitable facilities) or other suitable facilities shall be provided within the work area. Ensure expiration dates are checked and water used in storage devices is sanitized.

An assessment of the material or materials used shall be performed to determine the type flushing/drenching equipment required. At client job sites, portable or temporary stations must be established prior to the use of corrosive materials.

Preparing for Emergency Transportation to the Nearest Health Care Facility in the Event of an Injury or Illness

- Before workers are sent to a work site, Sessler Wrecking must ensure that arrangements are in place to transport injured or ill workers from the work site to the nearest health carefacility.
- Sessler Wrecking must ensure that an ambulance service is readily available to the work site when travel conditions are normal. If an ambulance service is not readily available to the work site, or if travel conditions are not normal, Sessler Wrecking must ensure that other transportation is available that is suitable, considering the distance to be travelled and the types of acute illnesses or injuries that may occur at the work site, protects occupants from the weather, has systems that allow the occupants to communicate with the health care facility to which the injured or ill worker is being taken, and can accommodate a stretcher and an accompanying person if required to.
- Based on the first responder’s assessment of the injuries involved, decide whether the injured requires to be taken directly to a hospital’s emergency room, occupational medicine provider or administer first aid on location.
- This should include one driver of the vehicle to transport the injured person as well as an individual to provide first aid assistance if required based on the injury.

Training

Volunteers or selected employees are trained by locally approved organizations for CPR and first aid. Each of these trained and certified employees are equipped with protective gloves and other required paraphernalia per local or federal requirements.

Purpose

The purpose of this program is to establish requirements for the safe operation and use of forklifts.

Scope

This program applies to all Sessler Wrecking employees who operate a forklift in the scope of their job duties and assignments. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

NOTE: All employees are required to be trained and certified prior to operating each specific type of forklift equipment. Sessler Wrecking shall certify all authorized employees regarding competency on all types of equipment.

Definitions

Authorized Employee – A person, at least 18 years of age and who has completed the Sessler Wrecking's required safety training for the safe operations of forklifts.

Forklift (Powered Industrial Truck) – Any mechanical device used for the movement of supplies, material or finished product that is powered by an electric motor or an internal combustion engine.

Key Responsibilities

Manager/Supervisor

- Shall ensure that each powered forklift operator is competent to operate a forklift safely, as demonstrated by the successful completion of the training and evaluation program.
- Shall ensure that all forklifts are inspected before each shift and all repairs are made before the forkliftis operated.

Employees

- Shall be current on applicable training.
- Operate forklift in accordance with the forklift standards and manufacture requirements.
- Inspect forklift at the start of shift and remove from service if defects are found until they are corrected.
- Operate forklift in a safe manner.

Procedure

General

All approved forklifts shall have a manufactures identification plate attached showing all specifications of the forklift and that the forklift is accepted by a nationally recognized testing laboratory.

Modifications and additions that affect capacity and safe operation shall not be performed without the manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed to reflect the modification or addition.

If the forklift is equipped with front-end attachments other than factory installed attachments, the supervisor shall ensure that the forklift is marked to identify the attachments and show the approximate weight of the forklift and attachment combination at maximum elevation with load laterally centered.

The operator shall see that all nameplates and markings are in place and are maintained in a legible condition.

All forklifts shall be equipped with safety seat belts. All forklifts shall be equipped with a horn, backup alarm, beacon light, headlights, and taillight.

Safety Guards
Forklifts shall be fitted with an overhead rollover cage, as per manufacturers specifications.

If the type of load presents a hazard to the operator, the forklift shall be equipped with a vertical load backrest extension, as per manufactures specifications.

Operations
General

- All operators shall wear a safety seat belt when operating a forklift.
- Forklifts shall not be driven up to anyone standing in front of a bench or other fixed object.
- No person shall be allowed to stand or pass under the elevated portion of any forklift, whether loaded or empty.
- Unauthorized personnel shall not be permitted to operate forklifts.
- No riders or passengers are permitted.
- It is prohibited for arms or legs to be placed between the uprights of the mast or outside the running lines of the forklift.
- When a forklift is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set.
- Wheels shall be blocked if the forklift is parked on an incline.
- A forklift is unattended when the operator is 25 ft. or more away from the vehicle, which remains in view, or whenever the operator leaves the forklift, and it is not in view.
- When the operator of a forklift is dismounted and within 25 ft. of the forklift still in view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.
- A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, platform, or freight car.
- Forklifts shall not be used for opening or closing freight doors.
- Brakes shall be set, and wheel blocks shall be in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading.
- Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor.
- The flooring of trucks, trailers, and railroad cars shall be checked for breaks and weakness before they are driven onto.

- There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system,etc.
- An overhead guard (cages) shall be used as protection against falling objects.
- An overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application, but not to withstand the impact of a falling capacity load.
- Fire aisles, access to stairways, and fire equipment shall be kept clear.

Traveling

- The operator shall slow down and sound the horn at cross isles and other locations where vision is obstructed.
- If the load being carried obstructs forward view, the operator shall be required to travel with the load trailing.
- The operator shall be required to look in the direction of and keep a clear view of the path of travel.
- Grades shall be ascended or descended slowly.
- When ascending or descending grades in excess of 10 percent, loaded forklifts shall be driven with the load upgrade.
- On all grades the load and load engaging means shall be tilted back if applicable and raised only as far as necessary to clear the road surface.
- Under all travel conditions the forklift shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
- Stunt driving and horseplay are prohibited.
- The operator shall slow down for wet and slippery floors.
- Dock board or bridge plates shall be properly secured before they are driven over.
- Dock board or bridge plates shall be driven over carefully and slowly, and their rated capacity never exceeded.
- While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion.
- Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.

Loading

- Only stable or safely arranged loads shall be handled.
- Caution shall be exercised when handling off-center loads, which cannot be centered.
- Only loads within the rated capacity of the forklift shall be handled.
- Forklifts equipped with attachments shall be operated as partially loaded forklifts when not handling a load.
- A load engaging means shall be placed under the load as far as possible; the mast shall be carefullytilted backward to stabilize the load.
- Extreme care shall be used when tilting the load forward or backward, particularly when hightiering.
- Tilting forward with load engaging means elevated shall be prohibited except to pick up a load.
- An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack.
- When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

Operation of the Truck

- If at any time a forklift is found to be in need of repair, defective, or in any way unsafe, the forklift shall be taken out of service until it has been restored to safe operating condition.
- Fuel tanks shall not be filled while the engine is running.
- The spillage of oil or fuel shall be carefully washed away or completely evaporated and the fuel tank cap replaced before restarting engine.
- When fueling with Liquefied Petroleum Gas (LPG), precautions and handling requirements set forth in the "Safe Handling of LPG" program shall be followed.
- No forklift shall be operated with a leak in the fuel system.
- Open flames shall not be used for checking electrolyte level in storage batteries or gasoline level in fuel tanks.
- Operator must verify trailer chocks, supports, and dock plates are secured prior to loading/unloading.

Operator Qualification

- Only trained and certified operators, including supervisors, are allowed to operate the device (this includes refresher training requirements).
- The trainer shall certify in writing that each operator has been trained and evaluated as required.
- The certification shall include the name of the operator, the date of the training, the date of the evaluation and the identity of the person(s) performing the training and/or evaluation.

Maintenance and Inspection of Forklifts

- Forklifts shall be inspected prior to each shift by the operator before being placed in service and shall not be placed in service if the inspection shows any condition adversely affecting the safety of the forklift. Operators must ensure the vehicle is safe prior to operating.
- Inspections shall be made at least daily – prior to each shift. (visual – non-documented) Inspection items shall be posted on each forklift. Operators must ensure the vehicle is safe prior to operating.
- Only authorized personnel shall perform maintenance and make repairs.
- Those repairs to the fuel and ignition systems of forklifts, which involve fire hazards, shall be conducted only in locations designated for such repairs.
- Forklifts in need of repairs to the electrical system shall have the battery disconnected prior to such repairs.
- Only parts equivalent with those used in the original design shall replace all parts of any forklift requiring replacement parts.
- Forklifts shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts.
- Additional counter weighting of fork trucks shall not be done unless approved by the truck manufacturer.
- Where forklifts are used on a round-the-clock basis, they shall be inspected before each shift.
- Defects when found shall be immediately reported to the supervisor and corrected before operating the forklift.
- When the temperature of any part of any forklift is found to be in excess of its normal operating temperature, thus creating a hazardous condition, the forklift shall be removed from service and not returned to service until the cause for such overheating has been eliminated.

- Forklifts shall be kept in a clean condition, free of lint, excess oil, and grease.
- Noncombustible agents, where at all possible, shall be used for cleaning trucks.
- Low flash point (below 100 degrees F.) solvents shall not be used.
- High flash point (at or above 100 degrees F.) solvents may be used if precautions regarding toxicity, ventilation, and fire hazard are mitigated with the agent or solvent used.

Training

Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, and written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee) and operator evaluation of the operator's performance in the workplace.

All operator training and evaluation shall be conducted by authorized persons who have the knowledge, documented training, and experience to train powered industrial truck operators and evaluate their competence.

Training shall include the following topics, except in topics for locations where they are not applicable to safe operation of the truck due to type of equipment or facility conditions.

1. Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate,
2. Differences between the truck and the automobile,
3. Truck controls and instrumentation: where they are located, what they do, and how they work,
4. Engine or motor operation,
5. Steering and maneuvering,
6. Visibility (including restrictions due to loading),
7. Fork and attachment adaptation, operation, and use limitations,
8. Vehicle capacity,
9. Vehicle stability,
10. Any vehicle inspection and maintenance that the operator will be required to perform,
11. Refueling and/or charging and recharging of batteries,
12. Operating limitations,
13. Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate,
14. Surface conditions where the vehicle will be operated,
15. Composition of loads to be carried and load stability,
16. Load manipulation, stacking, and unstacking,
17. Pedestrian traffic in areas where the vehicle will be operated,
18. Narrow aisles and other restricted places where the vehicle will be operated,
19. Hazardous (classified) locations where the vehicle will be operated,
20. Ramps and other sloped surfaces that could affect the vehicle's stability,
21. Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust,
22. Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation, and

23. The requirements of CFR 1910.178 (Powered Industrial Trucks).

Mandatory refresher training shall be provided when unsafe operations are observed, after an incident, if operating a different vehicle type, changes in conditions or any time Sessler Wrecking feels an operator requires refresher training.

Purpose

This program is written to be in compliance with local regulatory requirements and provide directives to managers, supervisors, and employees about their responsibilities in the operations and management of Sessler Wrecking facilities as related to the indicated general safety requirements that apply.

This program applies to all employees of Sessler Wrecking, temporary employees and any contractors working for Sessler Wrecking. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Key Responsibilities

Sessler Wrecking Safety Manager

- The designated Safety Manager is responsible for developing and maintaining the General Safety Requirements program. These procedures are kept in the designated safety manager's office.

Site Manager

- Responsible for the implementation and maintenance of the plan for their site and ensuring all assets are made available for compliance with the plan.

Employees

- All shall be familiar with this procedure and the local workplace General Safety Requirements program.
- Follow all requirements, report unsafe conditions, and follow all posted requirements.
- Shall use the safeguards, safety appliances and personal protective equipment while following all safe work practices and procedures for the workplace.

Competency and Training

- Workers shall be competent to operate equipment and perform job tasks. A competent worker means adequately qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision. Work that may endanger a worker must be completed by a worker who is competent to do the work or by a worker who is working under the direct supervision of a worker who is competent to do the work. All workers must be trained in procedures until they are competent. Sessler Wrecking shall permit only qualified workers by training or experienced workers to operate equipment and machinery.
- Training must include: procedures to be taken in the event of a fire or other emergency, the location of first aid facilities, identification of prohibited or restricted areas, precautions to be taken for the protection of the worker from physical, chemical or biological hazards, any procedures, plans, policies and programs that Sessler Wrecking is required to develop and any other matters that are necessary to ensure the health and safety of the worker while the worker is at work.
- Sessler Wrecking shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury

Daily Toolbox Safety Meetings

- Toolbox Safety Meetings will be held by the on-site Supervisor or Safety Manager prior to the start of work every workday.
- Meetings will include topics/risk specific to the anticipated operations for that specific day to include JHA review.
- Previous safety concerns, near misses, or incidents will be reviewed as well.
- All employees in attendance will be documented by the Supervisor or Safety Manager as individual sign-in.

Housekeeping

- Each work site shall be kept clean and free from materials or equipment that could cause workers to slip or trip or fall.
- A floor or other surface used by any worker shall be kept free of obstructions, hazards and accumulations of refuse, snow, or ice.
- Sessler Wrecking requires that a worksite be sanitary and kept as clean as is reasonablypracticable.
- Equipment will be put in the proper place when finished using it.
- Soiled rags shall be placed in fireproof metal containers.
- Sessler Wrecking vehicles will be free of food, chemicals or other contaminants and keptclean.
- A reasonable supply of potable drinking water shall be kept readily accessible at a project for the use of workers.

Illumination

- Whenever workers are present at a worksite Sessler Wrecking will provide lighting that is sufficient to protect the health and safety of workers and suitable for the work to be done at the worksite.
- Employees may not enter spaces containing exposed energized parts unless illumination is providedthat enables the employees to work safely.
- Sufficient lighting for all work areas including special tasks, confined spaces and restrictedareas will be maintained.
- Minimum safe distances to prevent fire or explosion from the energy source will bemaintained.
- The types of lighting equipment permitted in specific work locations will be based on potential atmosphere hazards.

Impairment

- No person shall enter or remain at any workplace of employment while the person's behavior or ability to work is affected by alcohol, intoxicating beverages, drugs, or other substance so as to so as to create a nuisance or if his or her abilities are impaired so as to endanger any person, or to create an undue risk to workers, endanger the person or anyone else.

Improper Conduct

- All workers shall engage in proper activity or behavior. Improper behavior that might create or constitute a hazard to any person is not acceptable. Improper activity or behavior includes horseplay, scuffling, fighting, practical jokes, and unnecessary running or jumping.

Industrial Hygiene

- Where a worker is exposed to a potential hazard of injury to the eye due to contact with a biological or chemical substance, an eyewash fountain shall be provided.
- A worker who may be exposed to a biological, chemical, or physical agent that may endanger the worker's safety or health shall be trained to use the precautions and procedures to be followed in the handling, use and storage of the agent, in the proper use and care of required personal protective equipment, and in the proper use of emergency measures and procedures.
- No food, drink or tobacco shall be taken into, left, or consumed in any room, area, or place where any substance that is poisonous by ingestion is exposed.
- Protective clothing or other safety devices that has been worn next to the skin shall be cleaned and disinfected prior to being worn by another worker.
- Workers who handle or use corrosive, poisonous or other substances likely to endanger their health shall be provided with washing facilities with clean water, soap, and individual towels.

Inspections

- Sessler Wrecking shall ensure that frequent and regular inspections of the workplace, jobsites, materials, equipment and of work processes and procedures by a competent person to identify any risk to the safety or health of any person at the workplace.
- Sessler Wrecking shall ensure that every dangerous occurrence is investigated as soon as is reasonably possible.
- Sessler Wrecking must ensure that if a risk is identified we will correct any unsafe condition as soon as is reasonably practicable and, in the interim, take immediate steps to protect the safety and health of any person who may be at risk.

Safe Equipment Maintenance

- Sessler Wrecking has a duty to ensure our work site maintenance, systems of work and working environments ensure, as far as is reasonably practicable, the health, safety, and welfare at work of our workers.
- All equipment must be maintained at intervals that are sufficient to ensure the safe functioning of the equipment. All equipment is to be maintained, safe to perform, adequate strength for its purpose and free from obvious defects. Damaged and faulty equipment reporting procedures must be inplace.
- Where a defect is found in equipment Sessler Wrecking will ensure that steps are taken immediately to protect the health and safety of any worker who may be at risk until the defect is corrected and the defect is corrected by a competent person as soon as is reasonably practicable.
- Any machinery, tool, material, or equipment which is not in compliance with any applicable OSHA requirement is prohibited. The machine, tool, material, or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

- Any worker who knows or has reason to believe that equipment under the workers control is not in a safe condition shall immediately report the condition of the equipment to Sessler Wrecking and repair the equipment if the worker is authorized and competent to do so.
- Sessler Wrecking prohibits and will not require or permit compressed air to be directed towards a worker for the purpose of cleaning clothing or personal protective equipment used by that worker, or for any other purpose if the use of compressed air may cause dispersion into the air of contaminants that may be harmful to workers.
- No worker is allowed to smoke in an enclosed place of employment, worksite, or work-related area except in an area designated for smoking.

Purpose

The purpose of this program is to ensure the safe use of hazardous chemical substances and to comply with the requirements of OSHA HCS 2012.

Introduction

In 2012, OSHA revised the Hazard Communication Standard (HCS) to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). As a result, this Hazard Communication Program (HCP) has been revised to comply with the requirements of the OSHA HCS 2012.

It spells out how Sessler Wrecking will inventory chemicals stored and used, obtain, and use Safety Data Sheets, maintain labels on chemical substances and train employees about the hazards of chemicals they are likely to encounter on the job.

Preparation of this program indicates our continuing commitment to safety among our employees in all of our locations.

- Each facility is expected to follow this program and maintain its work areas in accordancewith these requirements.
- Employees, their designated representatives, and government officials must be provided with copies of this program upon request.
- In addition to the program, other information required as part of our hazard communication effort is available to workers upon request.
- Asking to see this information is an employee's right.
- Using this information is part of our shared commitment to a safe, healthy workplace.

Scope

This program is applicable to all Sessler Wrecking employees who may be exposed to hazardous chemical substances. When work is performed on a non-owned or operated site, the operator’s program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator’s program does not exist or is less stringent.

Responsibilities

A written hazard communication program be developed, implemented, and maintained at each workplace. A written hazard communication program shall be developed, implemented, and maintained at each workplace that describes how labels and other forms of warning, Safety Data Sheets and employee information will bemet.

Safety Manager or Designee

The Safety Manager, or designee, is responsible for administering the hazard communication program. This person is also responsible for:

- Reviewing the potential hazards and safe use of chemicals.
- Maintaining a list of all hazardous chemicals and a master file of SDSs.
- Ensuring that all containers are labeled, tagged, or marked properly.
- Providing new-hire and annual training for employees.
- Maintaining training records.
- Identifying hazardous chemicals used in nonroutine tasks and assessing their risks.
- Informing outside contractors who are performing work on Sessler Wrecking property about potential hazards.
- Reviewing the effectiveness of the hazard communication program and making sure that theprogram satisfies the requirements of all applicable federal, state, or local hazard communication requirements.

Employees

- Employees are responsible for following the requirements in the Hazard Communication Program.
- Any employee who transfers any material from one container to another is responsible for labeling the new container with all required information.
- All employees are responsible for learning the requirements of this section and for applying them to their daily work routine.
- Identifying hazards before starting a job.
- Reading container labels and SDSs.
- Notifying the supervisor of torn, damaged, or illegible labels or of unlabeled containers.
- Using controls and/or personal protective equipment provided by the company to minimizeexposure.
- Following company instructions and warnings pertaining to chemical handling and usage
- Properly caring for personal protective equipment, including proper use, routine care and cleaning, storage, and replacement.
- Knowing and understanding the consequences associated with not following the Sessler Wrecking policy concerning the safe handling and use of chemicals.
- Participating in Sessler Wrecking training.

Procedure

List of Hazardous Chemicals

Sessler Wrecking shall maintain a list of hazardous chemicals on the job site. A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate Safety Data Sheet shall be maintained.

The Hazardous Chemical List is updated as necessary and at least annually by the Safety Manager or their designee. The Hazardous Chemical List must be available for review upon request.

Safety Data Sheets (SDS)

SDSs must be obtained for each required chemical. Chemical manufacturers are responsible for developing SDSs. Sessler Wrecking shall have an SDS for each chemical used.

The purchasing of any potentially hazardous chemical products from any supplier that does not provide an appropriate Safety Data Sheet in a timely fashion is prohibited.

SDSs are accessible and maintained electronically at Velocity EHS Chemical Management Platform. However, they should be available in case of an emergency. SDS must be made available, upon request, to employees, their designated representatives, the Assistant Secretary, and the Director.

The Safety Data Sheet must be kept in the SDS library for as long as the chemical is used by the facility. Electronic

access (telephone, fax, internet, etc.) may be used to acquire and maintain SDS libraries andarchives.

The Safety Manager is responsible for seeing that the Chemical Inventory List inventory is maintained, is current and is complete. He/she will review the Chemical Inventory List at least annually. When a hazardous material has been permanently removed from the workplace, its SDS is to be removed from the Chemical InventoryList.

SDSs for hazardous materials to which Sessler Wrecking employees have been exposed must be maintained after the employee leaves the employment of Sessler Wrecking.

Methods to be Used to Inform Employees of the Hazards of Non-Routine Tasks

The methods that Sessler Wrecking will use to inform employees of the hazards of non-routine tasks (i.e., the cleaning of reactor vessels, etc.) and the hazards associated with chemicals contained in unlabeled pipes in their work areas include:

- Conducting a Job Hazard Assessment (JSA).
- Employees will be advised of methods and special precautions, PPE and the hazards associated with chemicals and the hazards associated with chemicals contained in unlabeled pipes in their work areas.
- In the unlikely event that such tasks are required, the supervisor, or designee, will provide a SDS for the involved chemical.

The Use and Care of Labels and Other Forms of Warning Container labels should contain the following information:

- Product identifier
- Signal word

- Hazard statement
- Pictogram(s)
- Precautionary statement(s), and
- Name, address and telephone number of the chemical manufacturer, importer, or other responsible party.

The Manager will ensure that all hazardous chemicals used or stored in the facility are properly labeled.

Damaged labels or labels with incomplete information shall be reported immediately.

Workplace labels or other forms of warning will be legible, in English and prominently displayed on the container or readily available in the work area throughout each work shift.

If employees speak languages other than English, the information in the other language(s) may be added to the material presented as long as the information is presented in English as well.

Sessler Wrecking will use the GHS labeling system for secondary containers.
Portable containers into which hazardous chemicals are transferred from labeled containers and that are intended for the immediate use of the employee who performs the transfer do not require a label.

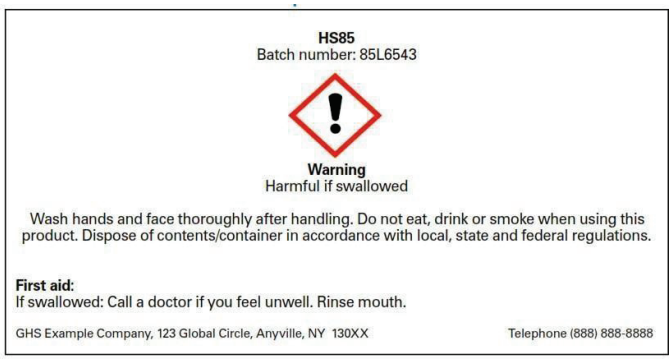
If the portable container will be used by more than one employee or used over the course of more than one shift, the container must be labeled.

Received from vendors that are not properly labeled must be rejected.

Pictograms and Hazards



Example Label



Multi-Employer Job Sites and/or Multi Work Site

The following specific methods for providing other employer information concerning hazardous chemicals at job sites, methods of providing SDS sheets, methods of precautionary measures to be taken and methods of providing information on labeling systems:

Multi-Work Sites

Where employees must travel between workplaces during a work shift (multi job sites), the written program may be kept at a primary job site. If there is no primary, then the program should be sent with employees.

Multi-Employer Job Sites

A pre-job briefing shall be conducted with the contractor prior to the initiation of work on the site.

- During this pre-job briefing, contractors shall notify Sessler Wrecking and present current copies of Safety Data Sheets and label information for every hazardous chemical brought on-site.
- Sessler Wrecking shall notify and provide required SDS and label information for all hazardous chemicals the contractor may encounter on the job.
- The facilities labeling system and any precautionary measures to be taken by the contractor during normal conditions and emergencies shall be addressed.
- By providing such information to other employers, Sessler Wrecking does not assume any obligations that other employers have for the safety of their employees.

Training

Employees shall be provided with information and training. Employees shall be provided with effective information and training on hazardous chemicals in their work area at the time of their initial assignment and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

Additional training will be provided whenever a new chemical hazard is introduced into the work area. To reinforce the importance of handling chemicals properly when performing new or non-routine tasks supervisors will conduct supplementary training as needed.

Formal training will be conducted by facility employees or individuals who are knowledgeable in the Hazard Communication program.

The Hazard Communication Program documented training shall, as a minimum, include:

- Requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 (General Industry) or 29 CFR 1926.59 (Construction Industry).
- Operations in the work area where hazardous chemicals are present.

- Location and availability of the hazard communication program, chemical inventory list and SDSs.
- Methods and observations used to detect the presence or release of a hazardous chemical in the work area, such as monitoring devices, visual appearance or odor of hazardous chemicals when being released.
- Explanation of the labels received on shipped containers.
- Explanation of the workplace labeling system.
- Explanation of the SDS, including order of information and how employees can obtain and use the appropriate hazard information.

The Manager shall ensure records of employee training are maintained.

Implementation Requirement

Per OSHA Requirements

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and safety data sheet (SDS) format.	Employers
June 1, 2015* December 1, 2015	Compliance with all modified provisions of this final rule, except: The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers

1.0 Purpose

To provide guidelines for identifying, assessing, and controlling workplace hazards;
To ensure the potential hazards of new processes and materials are identified before they are introduced into the workplace;
To identify the jobs/tasks which require risk assessment.

2.0 Key Responsibilities

As specified within this program Sessler Wrecking foreman, supervisor, or project manager must assess a work site and identify existing or potential hazards before work begins at the work site or prior to the start of a new work site.

3.0 Hazard and Risk Identification

3.1 The hazard identification process should be used for routine and non-routine activities as well as new processes, changes in operation, products, or services as applicable.

3.2 The Safety Manager shall conduct a baseline worksite hazard assessment which is a formal process in place to identify the various tasks that are to be performed and the accompanying identified potential hazards. The results are included in a report of the results of the hazard assessment and the methods used to control or eliminate the hazards identified. The hazard assessment report must be signed and have the date on it.

3.3 Inputs into the baseline hazard identification include, but are not limited to:

- Scope of work;
- Legal and other requirements;
- Previous incidents and non-conformances;
- Sources of energy, contaminants and other environmental conditions that can cause injury;
- Walk through of work environment;
- Hazards identifications (as examples) are to include:
- Working Alone
- Thermal Exposure
- Isolation of Energy
- Hearing Protection
- Musculoskeletal Disorders
- Bloodborne Pathogens
- Confined Spaces
- Driving
- General Safety Precautions
- And any other established policy or procedure by Sessler Wrecking or its clients
- Any other site-specific work scope
- Formal policies are in place to identify potential hazards by the use of JSA, JHA, FLRA, work permits, site, or company audits, daily or pre-job hazard assessments, worksite inspections, toolbox meetings, incident notices, safety observations and incident investigations.

All identified hazards are then assessed for risk and risk controls are assigned within the worksite hazard assessment for that specific hazard.

Affected employees and/or subcontractors are actively involved and participate in the hazard identification process.

Employees must be actively involved in the hazard identification process. If subcontractors are performing work at the location, they should be included. Identified hazards must be reviewed with all affected employees.

Unsafe hazards must be reported immediately and addressed by the supervisor. The supervisor discusses the worksite hazard assessment with employees at the respective work location during the employee's documented orientation.

When the Formal Hazard Identification and Risk Assessment Process is Used

Hazard assessments should be performed before work begins to formally identify and assess hazards. A Job Hazard Analysis (JHA), or Job Safety Analysis (JSA), should be developed for all routine tasks.

Formal workplace inspections should be performed on a regular basis. Hazard assessments and JHAs/JSAs should be updated whenever changes occur to processes, equipment, and/or facilities.

The respective supervisor or project manager advises the Safety Manager when additional hazards are introduced into the workplace in order to revise planning and assessment needs.

Risk Assessment

Hazards are classified and ranked according to risk. Sessler Wrecking has established a formal system for classifying and ranking hazards according to risk. Risk may be determined by analyzing the probability of the hazard causing harm, the frequency the hazard is encountered, and the potential consequences of impact with the hazard. A risk matrix has been developed to assist employees with risk assessment.

Following risk assessment steps each risk assessed becomes classified as low, medium, or high in accordance with the Sessler Wrecking Risk Assessment Matrix shown below.

The risk level of the hazard is recorded with the associated work task within the site specific HSE plan for the job site.

SESSLER WRECKING RISK ASSESSMENT MATRIX

CONSEQUENCE					FREQUENCY				
					A	B	C	D	E
Severity	People	Assets	Environment	Reputation	Not Done	Rarely	Once a week	Several Times in a Week	Multiple Times in a Day
0	No health effect	No damage	No effect	No impact					
1	Slight health effect	Slight damage	Slight effect	Slight impact					
2	Minor health effect	Minor damage	Minor effect	Limited impact					
3	Major health effect	Localized damage	Localized effect	Considerable impact					
4	Single fatality	Major damage	Major effect	National impact					
5	Multiple fatalities	Extensive damage	Massive effect	Global impact					

Key	Manage for continuous improvement (Low)	Incorporate risk reduction measures (Medium)	Intolerable (High)

Risk Controls

Controls are implemented to reduce the risk of harm. The hierarchy of controls should be used to mitigate hazards. When a hazard is identified, the first attempt to eliminate the hazard. If elimination is not practicable, use engineering controls. If engineering controls are not practicable, implement administrative controls. If the hazard cannot be adequately controlled using engineering and/or administrative controls, employees must use Personal Protective Equipment. A combination of engineering controls, administrative controls and Personal Protective Equipment is usually best.

Hazards will be assessed and corrected in a timely manner.

No work will begin before the worksite assessment is completed. Additionally, no risk assessed as High (Intolerable) shall be performed.

Emergency Control of Hazards

Only those employees competent in correcting emergency controls of hazards may be exposed to the hazard and only the minimum number of competent employees may be exposed during hazard emergency control. An example is a gas leak in a building. Only those personnel with training in fire safety, gas supply shut off and other related controls will attempt to resolve the emergency control of a hazard. Sessler Wrecking will make every possible effort to control the hazard while the condition is being corrected or under the supervision of client emergency response personnel in every emergency.

Certification of Hazard Assessment
The Safety Manager completes and signs the certification of hazard assessment for the worksite hazard assessment (also see PPE Program) and includes it within the site specific HSE plan. Hazard assessments are reviewed annually and updated when new tasks are to be performed that have not been riskassessed.

Job Safety Analysis (JSA)
For those jobs with the highest injury or illness rates, jobs that are new to our operation, jobs that have undergone major changes in processes and procedures or jobs complex enough to require written instructions will have a Job Safety Analysis performed. Completed JSAs are available from the Safety Manager.

Site Specific HSE Plan (SSSP)
Each work location has a site specific HSE plan. Each employee reporting to a location shall receive a documented orientation from a Sessler Wrecking supervisor that includes the SSSP for that site. The SSSP contains the Sessler Wrecking Health and Safety Policy, site specific safety requirements as well as a PPE matrix and a signed site- specific worksite hazard assessment for that location, which the Sessler Wrecking has a responsibility to provide.

Review Process

Hazard controls are reviewed to ensure they do not create any new hazards. Each year the hazard assessment program will be reviewed and shall include a review process of the corrective measures utilized to correct any identified hazard in order to ensure no new hazards are derived from the corrective measures.

The review shall include a management of change consideration as well.

The safety committee shall be involved in the review process as well if present.

Training

Employees are provided with training in hazard identification and risk assessment. All employees are trained in the hazard identification and risk assessment process including the use and care of proper PPE, how to complete FLRA, JHAs, etc.

WORKSITE HAZARD ASSESSMENT FORM

CERTIFICATE OF HAZARD ASSESSMENT STATEMENT FOR _*form shall be signed*_ **SITE**

I certify a worksite hazard assessment was performed for this facility on *date* by the Sessler Wrecking Safety Manager. *(Signature on File)*

Task: Indicate Task Group (*Additional Tasks shall be listed in each site specific HSE plan)*

TASKS	RISK LEVEL	HAZARDS	ENGINEERING OR ADMINISTRATIVE CONTROLS	PPE (Refer to PPE Matrix)
List individual task	***Use Risk Matrix***	***Identify hazards associated with task***	• ***List procedures that apply*** • ***List appropriate engineering controls*** • ***List procedures or other administrative controls***	***List appropriate PPE***
Example: Washing Parts	MED	Chemical Exposure (Skin, Eyes, Body)	• Sessler Wrecking PPE Procedure • No smoking;	Chemical gloves, splash proof goggles chemical apron
			•	
			•	
			•	
			•	
			•	
			•	

JOB SAFETY ANALYSIS FORM

Location / Dept:		**Date:**	**New?** ☐	**Revision** ☐	**JSA NO:**
Task			**Supervisor:**		
			Analysis by:		
Team Members			**Reviewed by:**		
			Approved by:		

Specific rules and procedures to be followed (Safe Work Practice Number_____):

Sequence of Basic Job Steps	Potential Injury or Hazards	Recommendations to Eliminate or Reduce Potential Hazards.

CHECK ITEMS REQUIRED TO DO THIS JOB:

Safety Glasses		Leather Gloves	☐	Face Shield		Fire Extinguisher	☐	Atmospheric Testing			
Hard Hats		Work Vest	☐	Goggles (type?)		Lockout/Tagout	☐	Traffic Control			
Safety Shoes		Fall Harness	☐	Flame Resistant Clothing	☐	Warning signs	☐	Other			

INSTRUCTIONS FOR COMPLETING THE JOB SAFETY ANALYSIS FORM

Select an employee to help you with the JSA: someone who is experienced in the job, willing to help and a good communicator. The employees play an important role in helping you identify job steps and hazards. In summary, to complete this form you should consider the purpose of the job, the activities it involves, and the hazards it presents. In addition, observing an employee performing the job, or "walking through" the operation step by step may give additional insight into potential hazards. Here is how to do each of the three parts of a Job Safety Analysis:

SEQUENCE OF BASIC JOB STEPS

Examining a specific job by breaking it down into a series of steps or tasks will enable you to discover potential hazards employees may encounter.

Each job or operation will consist of a set of steps or tasks. For example, the job might be to move a box from a conveyor in the receiving area to a shelf in the storage area. To determine where a step begins or ends, look for a change of activity, change in direction or movement.

Picking up the box from the conveyor and placing it on a hand truck is one step. The next step might be to push the loaded hand truck to the storage area (a change in activity). Moving the boxes from the truck and placing them on the shelf is another step. The final step might be returning the hand truck to the receiving area.

Be sure to list all the steps needed to perform the job. Some steps may not be performed each time; an example could be checking the casters on the hand truck. However, if that step is generally part of the job, it should be listed.

POTENTIAL HAZARDS

A hazard is a potential danger. The purpose of the Job Safety Analysis is to identify ALL hazards – both those produced by the environment or conditions and those connected with the job procedure. To identify hazards, ask yourself these questions about eachstep:

Is there a danger of the employee striking against, being struck by, or otherwise making injurious contact with an object?

Can the employee be caught in, by or between objects? Is there a potential for slipping, tripping, or falling?

Could the employee suffer strains from pushing, pulling, lifting, bending, or twisting?

Is the environment hazardous to safety and/or health (toxic gas, vapor, mist, fumes, dust, heat, or radiation)?

Close observation and knowledge of the job is important. Examine each step carefully to find and identify hazards – the actions, conditions, and possibilities that could lead to an accident. Compiling an accurate and complete list of potential hazards will allow you to develop the recommended safe job procedures needed to prevent accidents.

RECOMMENDED ACTION OR PROCEDURE

Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the hazards that could lead to an accident, injury, or occupational illness.

Begin by trying to: (1) engineer the hazard out; (2) provide guards, safety devices, etc.; (3) provide personal protective equipment; (4) provide job instruction training; (5) maintain good housekeeping; (6) ensure good ergonomics (positioning the person in relation to the machine or other elements).

List the required or recommended personal protective equipment necessary to perform each step of the job.

Give a recommended action or procedure for each hazard.

Serious hazards should be corrected immediately. The JSA should then be changed to reflect the new conditions.

Finally, review your input on all three columns for accuracy and completeness with affected employees. Determine if the recommended actions or procedures have been put in place. Re-evaluate the job safety analysis, as necessary.

Purpose

This requirement covers emergency and post-emergency response operations standards, to include training for personnel responding to releases or substantial threats of releases chemical or petroleum products without regard to the location of the hazard.

Even though there is a specific section devoted to hazardous materials and emergency response (29 CFR 1910.120), this section does not encompass all work procedures around emergency response and 29 CFR 1910 and 29 CFR 1926 continue to apply in every respect during emergency response operations.

If there is an apparent conflict or overlap, the provision that is more protective of employee health and safety shall apply. Emergency response efforts on land or water to releases of chemicals or petroleum products originating from Sessler Wrecking facilities or in the course of transportation will comply with the requirements of 29 CFR 1910.120(q). The primary concern in emergency response is the safety and security of responding personnel.

Scope

This section applies to all employees and independent contractors employed by and/or contracted to Sessler Wrecking when responding to chemical releases.

Definitions

Emergency response: A response effort by employees from outside the immediate release area or by other designated responders (e.g., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of crude oil or petroleum products.

Post emergency response: That portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and clean-up of the site has begun.

Health hazard: Chemicals which are carcinogens, toxic agents, reproductive toxins, irritants, corrosives, sensitizers, heptaotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. It also includes stress due to temperature extremes

Requirements

Written Safety and Health Program and Emergency Response Plan

Sessler Wrecking and any contractors or subcontractors shall develop and implement a written pre-incident safety and health program to handle anticipated emergencies prior to the commencement of emergency response operations for their employees who are expected to be involved in any product spill emergency and post emergency response operations.

The program shall be designed to identify, evaluate, and control safety and health hazards and to provide for safe response efforts to product spill emergency and post emergency response operations. These programs shall be described in controlled manuals identified as contingency plans or hazardous materials handling procedures. The plan shall be in writing and available for inspection by employees, their representatives and OSHA representatives.

The following elements must be included in either a specific site safety plan or a combination of plans addressing the response activity:

- Pre-emergency planning and coordination with outside parties
- Personnel roles, lines of authority, training, and communication
- Emergency recognition and prevention
- Safe distances and places of refuge
- Site security and control
- Evacuation routes and procedures
- A decontamination procedure shall be developed by the Sessler Wrecking safety office, communicated to employees through training and implemented through drills before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists.
- Emergency alerting and response procedures
- Critique method to evaluate the response and assure follow-up
- Personal protective equipment and spill control, containment, and recovery equipment
- Site and worker monitoring to ensure protective actions are commensurate with the conditions at the site.

Engineering controls, work practices and PPE shall be used to reduce and maintain exposure limits. Feasible engineering controls include the use of pressurized cabs or control booths on equipment and/or the use of remotely operated material handling equipment.

Procedure

Use of the following safety and control procedures will be used by those in charge at the scene to ensure the safety and health of personnel at spill locations.

Person Discovering the Spill

- Survey and Secure the Area. Evaluate the seriousness of the situation in regard to protecting personnel and the public. Do not approach the spill if you can smell hydrocarbons or potential chemical sources.
- Notify your supervisor as soon as possible. Remember, any device you use to call in spill notice may not be intrinsically safe. Place your call from a safe distance.
- If the situation requires, stay at the scene and control access at a safe distance from the spill until the initial response team arrives. The spill area will become subject to regulatory controls with restricted access

Initial Spill Control Actions

- Initial spill control actions designed to halt the spread of a spill, direct its movements, or minimize the area affected by the spill shall not be initiated in the immediate spill area until all of the following occur:
    - A complete site safety analysis
    - Air monitoring shall be used to identify and qualify airborne levels of hazardous substances. The monitoring will address initial entry, periodic monitoring, possible IDLH conditions and wherever exposure may be a possibility.

- Gas detector readings are 10% or less of the lower explosive limit (LEL). If the readings are above 10% of the LEL, spill control actions shall be terminated in the immediate area and moved to an area where LEL conditions are less than 10%.

Initial Approach and Gas Testing

- Gas testing personnel shall be trained to competently operate their equipment and other site-specific requirements.
- Combustible gas detectors (LEL meters) must have current calibrations and be function tested prior to an approach to a spill site.
- At a minimum, the oxygen, LEL and permissible exposure level (PEL) must be evaluated throughout the regulated area at as many points around the spill perimeter as possible. These levels shall be monitored periodically throughout the work shift to detect changes in airborne hazards that may result from work activities, changing weather conditions, etc.
- Approach the incident site.
  - Perform a function test and check the zero reading on the gas detector.
  - Don the respirator.
  - Observe the readings on the gas detectors as you approach the spill site.
  - Continue until one of the following conditions occurs.
    - You can see all that you need to observe, or
    - The gas detector reads 10% or more of the LEL, or
    - Liquid oil or gas condensates are encountered.
    - CAUTION Care must be taken to keep the gas detectors warm and prevent rough handling.
    - NOTE If any of these conditions are exceeded, do not proceed any closer to the spill perimeter.
    - NOTE Decontamination units, first aid kits, and eye flushing supplies shall be functional and on-site prior to attempting contact with liquid oil or gas condensates.
- After the initial observations are performed, the site conditions shall be reported to the Incident Commander.
- Mark or flag an exclusion area (hot zone) around the spill site to further control access.

Safety Procedures for Exclusion Areas

- Personnel shall be given a safety briefing on the specific hazards and hazard control procedures prior to entering the spill site.
- Decontamination units, first aid kits, and eye flushing supplies shall be functional and on-site prior to attempting contact with spill materials.
- To minimize personnel exposure and reduce potential ignition sources, where possible, all initial approaches to the suspected spill site will be from the upwind direction.
- Personnel shall not approach the site or attempt gas testing without wearing appropriate respiratory protection.

Personal Protective Equipment (PPE) and Chemical Protective Clothing

- Respiratory Protection - During spill response operations when gas detectors read 10% or more of the LEL, trained gas testing personnel shall measure PEL levels to determine appropriate respiratory protection levels.
- Skin Protection - The following PPE is recommended to minimize dermal exposure to chemicals:
    - Hands: neoprene, nitrile, or butyl rubber gloves
    - Feet: neoprene, nitrile, or butyl rubber boots
    - Body: coated tyvek or PVC rain suits (as necessary)
    - Eye Protection - At a minimum, safety glasses must be worn. If a splash hazard to the eyes is present, chemical goggles or a face shield with chemical goggles shall be used. Eye protection is not required if a full-face respirator is worn.
    - NOTE: Either one-piece or two-piece chemical (magnum 445) suits can be used. Gloves and boots can be taped to the arms and legs of the suits as needed. The flaps of a two-piece suit can be taped as well. Heavy duty duct tape is recommended

Other Considerations

- The purpose of personal protective clothing and equipment is to shield or isolate individuals from the chemical, physical, and biological hazards associated with handling crude oil. No single combination of protective equipment and clothing is capable of protecting against all hazards.
- Consider the following:
    - The use of PPE can itself create significant worker hazards, such as heat stress, physical and psychological stress, and impaired vision, mobility, and communication.
    - Equipment and clothing that provide an adequate level of protection shall be used.
    - Overprotection, as well as under protection, should be avoided where possible.

Post-Emergency Response Cleanup or Decontamination Procedures

A decontamination procedure shall be developed, communicated to employees, and implemented before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists. The procedures shall be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances.

All employees leaving a contaminated area shall be appropriately decontaminated and all contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated. Engineering controls, work practices and PPE shall be used to reduce and maintain exposure limits.

Sessler Wrecking does not provide removal of contaminated substances such as soil or other elements of the natural environment.

Decontamination procedures shall be monitored by the Sessler Wrecking safety department to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies

Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they shall be provided and meet the requirements of 29 CFR 1910.141. Decontamination shall

be performed in geographical areas that will minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment. Take into consideration ground water, wind direction, construction material, barriers and fencing, signage, and training.

PPE and equipment shall be decontaminated, cleaned, laundered, maintained, or replaced as needed to maintain their effectiveness. Employees whose non-impermeable clothing becomes wetted with hazardous substances shall immediately remove the clothing.

Unauthorized employees shall not remove protective clothing or equipment from change rooms.

General Safety/Physical Hazards

During training drills, spill responses, and remediation operations, the physical working environment of personnel shall be continually evaluated. Exposure to either hot or cold weather conditions along with long working hours could adversely affect both the psychological and physiological condition of those involved. Continued exposure may result in physical discomfort, loss of efficiency, and a higher susceptibility to accidents and injuries.

Personnel must be constantly alert to signs of distress and eliminate or protect against accident causes. There is a need to constantly review methods and procedures for routine work and emergency response situations so that all personnel may function as safely and effectively as possible.

Supervision shall keep the following procedures and safety precautions in mind when working with petroleum and petroleum products and as decisions are made in how the work is to be conducted:

- A job shall be planned, and all personnel briefed as to the procedures to be followed and the responsibilities of each person.
- Supervision shall remain on the job at all times or designate a qualified person to take their place if called away.
- When responding to hydrocarbon spills or gas leaks, the hazardous area shall be defined. No personnel or equipment shall be permitted in the area of a spill until the hazards associated with the contaminated area have been clearly defined by a qualified person.
- Before moving to the job site, supervision should check tools and safety equipment (including personal protective equipment), to ensure everything is safe, usable, and all required tools and safety equipment are available
- Vehicles, heavy equipment, hand tools, and power equipment shall not be moved into a spill area until adequate precautions have been taken. When power equipment is moved into a spill area to expedite repairs, it should be removed from the area as soon as work with it is completed. Personnel who are not required should be kept out of the work area.
- Use of matches, lighters, and smoking materials shall be in a place designated as safe by supervision.
- Upon completion of equipment repairs, necessary operating checks should be made before placing the unit in service.
- The senior official at an emergency response site is the most senior official on the site who has the responsibility for controlling operations at the site.
- Medical Surveillance – Any emergency response person who exhibits signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency shall be provided with medical consultation at no cost to them. This shall include all employees who are or may be exposed

to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.

Training

Employees will be trained in the area they are working in. The training should be based on the duties and functions regarding HAZWOPER requirements.

The Sessler Wrecking new hire orientation program trains all new Sessler Wrecking employees and independent contractors so they will know what to do in case they witness or discover a chemical release. They are instructed to leave the area and take no further action beyond notifying the Sessler Wrecking facility operations personnel of the release.

Training for employees expected to participate in an emergency or post-emergency response shall be completed before they take part in response operations. Sessler Wrecking and contractor personnel shall receive initial and refresher training. The level of training received will be commensurate with their assigned duties and functions and take place in the area they are working in.

Initial Emergency Response Training

Who Needs Emergency Response Training?

- Support Personnel: This designation applies to Sessler Wrecking or contractor personnel who are supporting in the operation of equipment or material (such as general laborers, equipment operators, mechanized earth moving operators or crane and hoisting equipment operators), and who are needed temporarily to perform immediate emergency support work that cannot reasonably be done in a timely manner by Sessler Wrecking employee responders. Support personnel who will be or may be exposed to the hazards at an emergency response scene shall be trained on the use of personal protective equipment and also will cover work practices which minimize hazardous risks and safe use of engineering controls & equipment.

- First Responder Awareness Level: Sessler Wrecking personnel who are likely to witness or discover a hazardous substance release and have been trained to initiate an emergency response sequence by notifying Sessler Wrecking facility operations personnel or other proper authorities of the release. Personnel at this level must receive initial training or have had enough experience to objectively demonstrate competency. Annual refresher training or demonstration of competency is also required. First Responder Awareness Level employees shall have sufficient training or experience to objectively demonstrate competency in the following areas:

    - An understanding of what hazardous substances are, and the risks associated with them in an incident.
    - An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.
    - The ability to recognize the presence of hazardous substances in an emergency.
    - The ability to identify the hazardous substances if possible.

- An understanding of the role of the first responder awareness individual in the client's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.
- The ability to realize the need for additional resources, and to make appropriate notifications.

- First Responder Operations Level: Sessler Wrecking personnel who are identified in contingency plans as responders to releases or potential releases of hazardous materials -- as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release -- shall be trained to this level. Their function is to contain the release from a safe distance and help it from spreading. All personnel at this level must receive 8 hours of initial training or have had sufficient experience to objectively demonstrate competency. Annual refresher training or demonstration of competency is also required. Certification is required.

- Hazardous Materials Technicians: Sessler Wrecking personnel, who are identified in contingency plans as responders to releases or potential releases of hazardous materials for the purpose of stopping the release, shall be trained to this level. Technicians have the knowledge of how to implement emergency response plans, know the classification, identification, and verification of known or unknown substances, functions with an assigned role in the incident command system, how to select and use proper PPE, perform advanced containment, and understands decontamination and toxicology. All personnel at this level must receive at least 24 hours of training equal to first responder operations level. Annual refresher training or demonstration of competency is required. Certification is required.

- Hazardous Materials Specialists: All Sessler Wrecking and personnel working as field Safety Specialist shall be trained to this level. Material Specialists receive at least 24 hours of training at the technical level and have the ability to develop a site and safety control plan. Annual refresher training or demonstration of competency is also required. Certification is required.

- On-Scene Incident Commander: The Incident Commander must have at least 24 hours of training equal to the first responder operations level and know how to implement the program and system, PPE requirements, hazard and risk assessment, state and federal regulations and all elements of decontamination. Certification is required.

Post-Emergency Response Training

For chemical spills, a minimum of four hours of training for post-emergency response workers who have job duties and responsibilities with a low magnitude of risk shall occur.

Refresher Training

- Employees trained for Initial Emergency Response Training must receive annual refresher training of sufficient content and duration to maintain their competencies or shall demonstrate competencies in those areas at least annually on or before the initial training date of expiration. Sessler Wrecking must keep records of methods used for all employee training or competency demonstrations.

- Participation in drills, completion of approved response training modules, and on-the-job training based on the duties and functions each employee is expected to perform during an emergency response may be substituted for, or used in conjunction with, formal classroom training to demonstrate competency. If demonstrated competency is used in lieu of or in conjunction with classroom training, then Sessler Wrecking must keep a record of the methodology used to demonstrate competency.

Trainers and Training Material

- The Safety Manager shall designate who has the responsibility to approve trainers and training materials used in Sessler Wrecking provided training for employees who are identified in contingency plans as responders to hazardous material spills, emergency, and post-emergency response operations. All instructors shall have the training and or academic credentials and instructional experience to demonstrate competency.

1.0 INTRODUCTION

To effectively protect employees' hearing from hazards arising out of certain job tasks, various types of personal protective equipment must be used. The preferred method of hearing protection is to eliminate or reduce potential hazards. Whenever it is not feasible to reduce the noise levels or duration of exposures to those specified in Table 5.04-1, Permissible Noise Exposures, SESSLER WRECKING employees shall wear hearing protectors.

2.0 PROCEDURES

Specifications

The Managers will be responsible for evaluatinghearing protectors for attenuation by according to 29 CFR 1910.95 Appendix B. The hearing protectors must attenuate employee exposure at least to an eight-hour time-weighted average of 85 decibels, A-weighted.

Training

Employees shall be training annually in the proper use of each type of hearing protection

Selection and Fitting

Each type of hearing protection will be evaluated for the specific noise environments for which the protector will be used. A variety of hearing protectors will be available (plugs and muffs) to employees exposed to an eight-hour time-weighted average of 85 decibels. An attenuated noise reduction TWA rating of less than 85 decibels will be achieved by all varieties deemed acceptable.

Issuance of Hearing Protectors

Hearing protection may be obtained from the Project Coordinator or Supervisor. Each employee is responsible for bringing theirs to the jobsite, as well as wearing them.

Use

1. Formable plugs should be rolled and compressed into a very thin cylinder. While compressed, insert the plug well into the ear canal. Reach around the head to pull the ear outward and upward during insertion.
2. Pre-molded plugs should be inserted by reaching around the back of the head to pull the ear outward and upward while inserting the plug until it feels like its sealed.
3. Earmuffs must fully enclose the ears to seal against the head. Adjust the headband so the cushions exert even pressure around the ears. Pull hair back and out from beneath the cushions.
4. The fit of ear plugs can be checked by pressing firmly cupped hands over your ears while listening to a steady noise. With properly fitted plugs the noise levels should be about the same whether or not the ears are covered.

Care and cleaning

1. Keep formable plugs and earmuff cushions clean and free from material that can irritate the ear canal. Formable plugs and earmuff cushions may be washed in a mild detergent and warm water. Squeeze excess water from the plugs and air dry. Discard plugs if they harden, or do not return to their original size and shape.

2. Earmuff cushionsnormally need replacing twice ayear ormore - whenever they become stiff, cracked, or do not seal.

Project Supervisors and Foremen on the job site will remind personnel to wear hearing protection if employees are exposed to hazardous noise. Hazardous noise can be recognized when one has to raise the voice to be heard within three feet of the listener.

TABLE 5.04-1 - PERMISSIBLE NOISE EXPOSURES

Duration per day, hours	*Sound level, dBA, slow response*
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 orless	115

Purpose

The purpose of this program is to provide direction to managers, supervisors, and employees about their responsibilities as related to safe work procedures pertaining to thermal exposure.

Key Responsibilities

Sessler Wrecking Safety Manager

- The designated Safety Manager is responsible for developing and maintaining the thermal exposure program. These procedures are kept in the designated safety manager's office.

Site Manager

- Responsible for the implementation and maintenance of the program for their site and ensuring all assets are made available for compliance with the plan.

Employees

- All shall be familiar with this program.
- Follow all requirements, wear designated PPE, report unsafe conditions, and follow all posted requirements.

Control Measures to Protect Employees from Heat and Cold Stress

When a workplace or work process exposes a worker to conditions that may create a risk to the worker's safety or health because of heat or cold, Sessler Wrecking must implement safe work procedures and control measures to ensure that the threshold limit values for thermal stress established by the ACGIH in its publication, Threshold Limit Value for Chemical Substances and Physical Agents and Biological Indices, are followed.

Heat Stress

If a worker is or may be exposed to heat stress Sessler Wrecking must implement engineering controls to reduce the exposure of workers. If engineering controls are not practicable, Sessler Wrecking must reduce the exposure of workers to levels below those listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard by providing administrative controls, including a work-rest cycle or personal protective equipment if the equipment provides protection equally effective as administrative controls.

Workers showing symptoms of heat stress must be removed from the heat and provided with first aid. If a worker shows signs or reports symptoms of heat stress or strain, the worker must be removed from the hot environment and treated by an appropriate first aid attendant, if available, or by a physician.

Additional control measures include:

- New employees should acclimatize before assuming a full workload. It is advisable to assign about half of the normal workload to a new employee on the first day of work and gradually increase on subsequent days.
- Potable water is provided to workers to prevent heat stress. If a worker is or may be exposed to high temperatures, Sessler Wrecking must provide and maintain an adequate supply of cool potable water close

to the work area for the use of a heat exposed worker. On average, about one liter of water each hour may be required to replace the fluid loss.

- Supervisors will provide frequent reminders to employees to drink frequently.
- Every morning there will be a short tailgate meeting to remind workers about the importance of frequent consumption of water throughout the shift during hot weather.
- When drinking water levels within a container drop below 50%, the water shall be replenished immediately, or water levels should not fall below the point that will allow for adequate water during the time necessary to effect replenishment.
- Disposable/single use drinking cups will be provided to employees or provisions will be made to issue employees their own cups each day.
- Supervisors will set up an adequate number of umbrellas, canopies, or other portable devices at the start of the shift and will relocate them to be closer to the crew, as needed.
- Working hours will be modified to work during the cooler hours of the day, whenpossible.
- When a modified or shorter work-shift is not possible, more water and rest breaks willbe provided.
- Supervisors will continuously check all employees and stay alert to the presence of heat related symptoms.
- Supervisors will carry cell phones or other means of communication, to ensurethat emergency services can be called and check that these are functional at the worksite prior to each shift.
- Every morning, if the crews are moving to different locations, workers will be reminded about the address and directions to the worksite in case it is necessary to inform medical responders and emergency procedures.
- Wear loose clothing that permits sweat evaporation but stops radiant heat. Use cooled protective clothing for extreme conditions.

Cold Stress

If a worker is or may be exposed to low temperatures Sessler Wrecking must implement effective engineering controls to reduce the exposure hazard. If the above action is not practicable, Sessler Wrecking must reduce the exposure hazard by providing effective administrative controls or personal protective equipment if the equipment provides protection equally effective as administrative controls. Examples include:

- Engineering Controls – heated supplied air equipment, etc.
- Administrative Controls - a work-rest cycle, warm up sheds, etc.
- Personal Protective Equipment – arctic cold weather clothing, etc.
- For continuous work in temperatures below the freezing point, heated warming shelters such as tents, cabins or rest rooms should be available. The work should be paced to avoid excessive sweating. If such work is necessary, proper rest periods in a warm area should be allowed and employees should change into dry clothes.
- New employees should be given enough time to get acclimatized to cold and protective clothing before assuming a full workload.
- For work below the freezing point, metal handles and bars should be covered by thermal insulating material. Also, machines and tools should be designed so that they can be operated without having to remove mittens or gloves.
- Clothing should be selected to suit the temperature, weather conditions (e.g., wind speed, rain), the level and duration of activity and job design. Clothing should be worn in multiple layers which provide better protection than a single thick garment. Almost 50 percent of body heat is lost through the head. A wool knit cap or a liner under a hard hat can reduce excessive heat loss.

- Clothing must be dry. Moisture should be kept off clothes by removing snow prior to entering heated shelters.
- If fine manual dexterity is not required, gloves should be used below 40°F (4°C) for light work and below 20°F (-7°C) for moderate work. For work below 0°F (-17°C), mittens should be used. Cotton is not recommended. It tends to get damp or wet quickly and loses its insulating properties. Wool and synthetic fibers, on the other hand, do retain heat when wet.
- Felt-lined, rubber bottomed, leather-topped boots with removable felt insoles are best suited for heavy work in cold since leather is porous, allowing the boots to "breathe" and let perspiration evaporate.
- Liner socks made from polypropylene will help keep feet dry and warmer by wicking sweat away from the skin. Always wear the right thickness of socks for your boots.
- In extremely cold conditions, where face protection is used, eye protection must be separated from the nose and mouth to prevent exhaled moisture from fogging and frosting eye shields or glasses.

Workers showing symptoms of cold stress must be removed from the cold and provided with first aid. If a worker exposed to cold shows signs or reports symptoms of cold stress or injury, the worker must be removed from further exposure and treated by an appropriate first aid attendant, if available, or a physician.

Training

Workers are provided training on thermal stress. When a workplace or work process exposes a worker to conditions that may create a risk to the worker's safety or health because of heat or cold, Sessler Wrecking must ensure that the worker is provided with information, instruction, and training in the symptoms of thermal stress and the precautions to be taken to avoid injury from thermal stress.

Training shall be documented.

Purpose

The purpose of this program is to outline the procedures for safe operations and the training requirements regarding hoisting and lifting devices, including all rigging that is designed, constructed, installed, maintained, and operated to perform safely.

Scope

This program is applicable to all employees who may utilize hoisting, rigging, and lifting equipment.

It applies to all Sessler Wrecking employees who operate hoists and rigging equipment in the scope of their job duties and assignments. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Key Responsibilities

Managers and Supervisors

- For ensuring only trained personnel operate the equipment.
- Establish and maintain a daily, monthly, and annual inspection program.
- Establish a recordkeeping log for safety checks, maintenance, and repairs.
- Are responsible to ensure that employees and contractors are trained and qualified on the proper operations and have been trained in rigging safety by a competent person. Modifications or additions which affect the safe operation of the equipment may only be made with the manufacturer's writtenapproval.
- Are responsible to see that all provisions of this program are followed and that rigging inspections are performed, and the equipment is in safe operating condition.

Employees

- Personnel are responsible for visually checking the equipment they are using and reporting any observable wear, needed repairs or damage to their supervisor. They shall also report all equipment malfunctions immediately.
- Employees are responsible for following the requirements of this program.

Procedure

Operating controls shall be plainly marked to indicate the direction of travel.

All manufacturer procedures applicable to the operational function of equipment must be complied with. All manufacturer procedures applicable to the operational functions of equipment, including its use with attachments, must be complied with.

Procedures applicable to the operation of the equipment be readily available in the cab at all times. The operator shall have access to procedures applicable to the operation of the equipment. Procedures include rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions, and operator's manual.

Operator Qualification

Operators must be determined to be qualified before they are permitted to utilize hoisting and rigging equipment. Only those employees qualified by training or experience shall be allowed to operate equipment and machinery.

Load Chart

Each hoist shall have a legible load chart showing the rated capacity in all permitted working positions and configurations of use, manufactures name, model, serial number and year of manufacture or shipment date permanently marked or noted clearly, permanently posted on the equipment, weatherproofed and conspicuous on the equipment and shall be kept legible at all times. The load chart will be issued to the equipment operator, who must have it available at all times when operating the equipment.

Modifying Equipment

Modifications or additions that may affect the capacity or safe operation of the equipment must not be made without written approval from the manufacturer or approval from a registered professional engineer. The manufacturer must approve all modifications/additions in writing. A registered professional engineer must be qualified with respect to the equipment involved and must ensure the original safety factor of the equipment is not reduced.

Prior to Lifting

- All loads shall be hooked or slung under the direction of a competent employee.
- Prior to operating any equipment, the operator must be familiar with all recent entries in its logbook.
- The operator must carry proof of training.
- Before the start of each shift or use, an operator must inspect the equipment. Check that the hoist was inspected for that work shift, and the control and safety devices were tested for that work shift to detect any defect, malfunction, or hazardous condition. All safety devices must be in proper working order before operation begins. Safety devices are required to be on all equipment and must be in proper working order before operations begin. If any of the devices are not in proper working order the equipment must be taken out of service and operations must not resume until the device is working properly again.
- A fire extinguisher must be immediately available in the cab of each hoistingequipment.
- The operator has the authority to stop and refuse to handle loads whenever there is a safety concern. Whenever there is a safety concern, the operator must have the authority to stop and refuse to handle loads until a qualified person has determined that safety has been assured.
- When the operator of a hoist does not have a clear and unobstructed view of the boom, jib, load line, load hook and load throughout the whole range of the hoisting operation, the operator must act only on the directions of a qualified, designated signaler who has a clear view of the things the operator cannot see. The operator of the hoist must stop the operation of the equipment on receiving a stop signal from any person.
- Operators of hoisting equipment shall disregard signals from anyone except designated signal persons but, in an emergency, other employees may give a stop signal.
- Equipment shall be installed and used in accordance with the manufacturer's instructions.

- No employee shall ride or be permitted to ride on loads, hooks or similar equipment unless specifically authorized by his or her supervisor.

Marking Boundaries

Sessler Wrecking must address safety measures to be used when the equipment has the potential to strike and injure an employee or pinch/crush an employee against any other object. Sessler Wrecking identifies hazard areas by marking the boundaries of the swing radius with warning lines, railings, or similar barriers. Employees or other people are not allowed within the barrier when operations are taking place. The operations will immediately be required to stop movement if someone enters the swing radius area.

Critical Lifts

Any critical lifts/engineered lifts and required permits shall be based on jurisdictional requirements (federal, state, local, etc.). Specific details related to OSHA requirements for Crane, Derrick and Hoist Safety can be seen at:

https://www.osha.gov/SLTC/cranehoistsafety/standards.html

Overhead Power Lines

A pre-operation hazard assessment will be performed to identify the work zone and determine if any part of the equipment could reach closer than 20 feet to a power line. The work zone shall be identified by demarcating boundaries such as flag and range limiting devices or defining the work zone as 360 degrees around the equipment up to the maximum working radius. The hazard assessment must determine if any part of the equipment could get closer than 20 feet to a power line.

Sessler Wrecking will ensure measures must be taken if determined that any part of the equipment, load line or load could get closer than 20 feet to a power line. If it is determined that any part of the equipment, load line or load could get closer than 20 feet to a power line then at least one of the following measures must be taken:

- Ensure the power lines have been deenergized and visibly grounded.
- Ensure no part of the equipment, load line or load gets closer than 20 feet to the powerline.
- Determine the line's voltage and minimum approach distance permitted in Table A below.

TABLE A—MINIMUM CLEARANCE DISTANCES

Voltage (nominal, kV, alternating current)	**Minimum Clearance Distance** (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000	(as established by the utility owner/operator or registered professional engineer who is a qualified personwith respect to electrical power transmission and distribution).

Note: The value that follows "to" is up to and includes that value. For example, over 50 to 200 means up to and including 200kV.

Assembling/Disassembling Equipment

The manufacturer instructions and prohibitions must be followed when assembling and/or disassembling equipment. The manufacturer's procedures and prohibitions must be complied with when assembling and disassembling equipment.

A competent and qualified person must direct the assembly/disassembly of equipment. Sessler Wrecking will ensure the assembly/disassembly of equipment must be directed by a competent and qualified person.

Handling the Load

Size of Load

The rated capacity of a hoist must not be exceeded, except for rated load test. The working load shall not be exceeded and shall be determined by the original manufacturer of the equipment, a registered professional engineer, or other persons whose qualifications are acceptable to local regulatory requirements.

Attaching the Load

- The load shall be attached to the hook by means of slings or other suitable and effective means which shall be properly rigged to ensure the safe handling of the load.
- Chain and rope slings shall be free of kinks or twists before use.
- Baskets, tubs, skips or similar containers used for hoisting bulk materials shall be loaded so as not to exceed their safe carrying capacity.
- The hoist rope shall not be wrapped around the load.
- The load shall not be moved without checking the balance and the brakes. Brakes are checked by raising the load a few inches and applying the brakes.

Load Lifting Manual

Safe lifting procedures can be found in the Lifting Handbook located in the operations office as designated for each work site by the Manager.

Safe Lifting

- If the operator of a lifting device has any doubts as to the safety of employees in the vicinity of the lift, the operator must not move any equipment or load until the operator is assured that the working conditions are safe. He or she shall report the circumstances to his or her supervisor who then shall be responsible for determining the action to be taken.
- Loads will be carried as close to the grade as possible and tag lines shall be rigged as necessary to control swinging of the load.
- Prior to moving a load ensure that the travel path of the load is free and clear of any undesirable obstructions.
- A suspended load shall not be left unattended by an employee.
- Ensure all employees who may be affected by the lift are aware of the hazards and are adequately protected.

- Sessler Wrecking must ensure that work is arranged, if it is reasonably practicable, so that a load does not pass over employees. An operator of a lifting device must not pass the load on the device over employees unless no other practical alternative exists in the circumstances and the employees are effectively warned of the danger by an audible alarm or other effective means. The operator of a lifting device that is travelling with a load must ensure that the load is positioned as close to the ground or grade as possible.
- A person working at a workplace must not stand or pass beneath a suspended load unless the employee has been effectively warned of the danger and the operator of the lifting device knows the employee is under the suspended load.
- Release the load only after the stability of the load has been verified and loads shall be safely landed and supported before unhooking.

If a hoist is designed to be operated with outriggers or other stabilizing devices Sessler Wrecking shall ensure:

- The outriggers or other stabilizing devices are used in accordance with manufacturer's instructions.
- Are set on a solid footing or pad.
- Have their controls if any readily accessible to the operator and in a suitable position for safe operation.
- The area around the outriggers or other stabilizing devices is kept free of obstruction.
- There is a proper minimum clearance between any moving part of the equipment and any obstacle near the base of the hoist.
- Where there is a danger of an employee being trapped or crushed by any moving part of the equipment, the area around the base of the equipment is barricaded to restrict the entry of employees.

Logbook Procedure

The logbook will be readily available at all times to the operator and to another employee concerned with the maintenance and safe operation of the equipment. The operator shall be responsible for recording defects, operating difficulties, the need for maintenance and all maintenance and alteration work performed. If the operator requests, they shall be given a copy of the logbook.

When not being operated the logbook will be located in the operations office as designated for each work site by the Manager.

All logbook entries shall, on a regular basis, be signed by the person who performs the inspection, maintenance or calibration and review.

The logbook will include the following information:

- The date and time any work was performed on the hoist.
- Length of time in lifting service including hours of service.
- All defects and deficiencies and when they were detected.
- Details on all inspections, examinations, calibrations, checks, and tests.
- Repairs or modifications performed or maintenance history.
- The record of certification.
- Details on any incident that may affect the safe operation of the equipment.

Inspections

Each hoist and rigging piece of equipment must be inspected and maintained at a frequency and to the extent required to ensure that every component is capable of carrying out its original design function with an adequate margin of safety and is maintained in good working order. Inspections shall also be conducted at regular intervals as recommended by the manufacturer and by law.

If any defects that would affect the safe operations of equipment is found a Warning or "out of order" signs shall be placed on the equipment, also on the floor beneath or on the hook where visible from the floor.

Records of inspection and maintenance must be kept by the equipment operator and other persons inspecting and maintaining the equipment, for the following types of lifting equipment:

- A hoist
- A hoist used to support an employee
- A mobile crane, boom truck or sign truck
- A side boom tractor or pipe layer
- A construction material hoist
- A chimney hoist

Load Test Records

Load test records will be furnished showing procedures outlined in Appendix E of the standard.

The following inspections shall occur at the indicated frequency:

Initial / New Equipment

Before being placed in service, new hoisting equipment, or hoisting equipment which has had modifications in the design or has undergone major repairs, shall be inspected and proof tested under the direction of a competent person who shall give the written warranty of the safe capacity of the equipment.

Daily Pre-Use

A visual inspection of the equipment will be conducted by a competent person prior to each shift. A competent person must conduct a visual inspection of equipment prior to each shift. The inspection must consist of observation of apparent deficiencies. Some inspection items shall include control mechanisms, pressurized lines, hooks and latches, wire rope, electrical apparatus, tires (when used), and ground conditions. The manufacturer's guidelines shall be followed.

The following will be tested at the beginning of each shift by the competent operator:

- Limit switches
- Brakes
- Circuit breakers
- Other safety devices

Any defects found during inspection or use must be recorded in the inspection and maintenance record system and be reported immediately to the supervisor, who must determine the course of action to be taken. If a defect affects the safe operation of the equipment must not be used until the defect has beenremedied.

Monthly

Sessler Wrecking will ensure monthly inspections of equipment by a competent person are documented. Equipment must be inspected monthly by a competent person. The manufacturer's guidelines shall be followed. The inspection must be documented. Documentation must include the following:

- items checked,
- results of inspection,
- name and signature of the inspector.

Documentation must be retained for 3 months. (Documented monthly inspection is not required if the daily inspection is documented and records are retained for 3 months).

Any defects must be corrected before the equipment is used. The report must be dated and signed by the person performing the inspection.

Quarterly

Once a quarter a more detailed inspection must be made of all hoisting equipment at each facility. After completing the quarterly inspection, a report must be completed and signed by the person performing the inspection and the report will be returned promptly to the Safety Manager.

Yearly

Once each year a more detailed inspection must be made of all hoisting equipment at each facility. After completing the annual inspection, a report must be completed and signed by the person performing the inspection and the report will be returned promptly to the Safety Manager.

Rigging

All rigging work shall be assembled, used, maintained, and dismantled under the direct supervision of a competent and qualified employees trained in safe rigging practices, in accordance with manufacturer's specifications and with the code of signals authorized by local regulatory guidelines for controlling hoisting operations.

Only trained and experienced workers can attach or detach lifting equipment to loads or lifting loads. Personnel with training and experience who have completed a rigger training program shall apply.

Qualifications for Riggers - Training should incorporate familiarization with rigging, hardware, slings, and safety issues associated with rigging, lifting loads and lift planning. Training should include classroom, hands-on training, and exams. Hands-on should include proper inspection, use, selection, and maintenance of loose gears (slings, shackles, hooks, etc.).

Qualifications for Signal Persons – Sessler Wrecking must ensure that each signal person meets the qualification requirements prior to giving any signals. This requirement must be met by using either Option (1) or Option (2) below:

- Option (1) Third party qualified evaluator. The signal person has documentation from a third-party qualified evaluator showing that the signal person meets the qualification requirements.

- Option (2) Sessler Wrecking qualified evaluator. The Sessler Wrecking qualified evaluator assesses the individual and determines that the individual meets the qualification requirements and provides documentation of that determination. An assessment by our qualified evaluator under this option is not portable--other employers are not permitted to use it.

Sessler Wrecking must make the documentation for whichever option is used available at the site while the signal person is employed. The documentation must specify each type of signaling (e.g., hand signals, radio signals, etc.) for which the signal person meets.

If subsequent actions by the signal person indicate that the individual does not meet the qualification requirements Sessler Wrecking must not allow the individual to continue working as a signal person until re- training is provided and a re-assessment is made.

Qualification Requirements. Each signal person must:

- Know and understand the type of signals used. If hand signals are used, the signal person must know and understand the Standard Method for hand signals.
- Be competent in the application of the type of signals used.
- Have a basic understanding of equipment operation and limitations, including equipment dynamics involved in swinging and stopping loads and boom deflection from hoisting loads.
- Demonstrate that he/she meets the requirements through an oral or written test, and through a practical test.

Qualifications for Maintenance and Repair Employees - Maintenance, inspection and repair personnel are permitted to operate the equipment only where all of the following requirements are met:

- The operation is limited to those functions necessary to perform maintenance, inspect the equipment, or verify its performance.
- The personnel either operate the equipment under the direct supervision of an operator who meets the requirements operator qualification and certification) or are familiar with the operation, limitations, characteristics, and hazards associated with the type of equipment.

Maintenance and repair personnel must meet the definition of a qualified person with respect to the equipment and maintenance/repair tasks performed.

Rigging Breaking Strength and Load Rating

The safe working-load on ropes, chains, slings, and fittings shall not exceed the safe working-load recommended by the manufacturer.

Rigging fittings must be marked with the manufacturer's identification, product identifier and the working load limit (WLL) or sufficient information to readily determine the WLL. The WLL of existing fittings not identified must be determined by a qualified person, marked on the fitting and such fittings must be removed from service by January 1, 2001.

Rigging shall not be subjected to a load of more than 10 percent of the breaking strength of the weakest part of the rigging, if an employee is being raised or lowered 20 percent of the ultimate breaking strength of the weakest part of the rigging, and if the rigging is fatigue rated and an employee is not being raised or lowered the maximum load must not exceed 25 percent of the ultimate breaking strength.

Sessler Wrecking may use a dedicated rigging assembly designed and certified for a particular lift or project by a professional engineer, but the dedicated rigging assembly must be re-rated before it is used for another lift or project.

The maximum load rating of the rigging, as determined by the rigging manufacturer or a professional engineer must be legibly and conspicuously marked on the rigging. If it is not practicable to mark the rigging the maximum load rating of the rigging must be available to the employees at the work site.

Wire Rope and Sling Inspections, Replacement and Maintenance

All Sessler Wrecking rigging and rigging equipment to be used during a work shift is to be inspected thoroughly prior to each period of continuous use during the shift to ensure the rigging is functional and safe by a competent person. All deteriorated or defective equipment will be immediately removed from service if it does not meet the below inspection requirements or rejection criteria.

Slings

- A wire rope sling with a swaged or poured socket or a pressed fitting must be permanently identified with its working load limit, the angle upon which the WLL is based and the name or mark of the sling manufacturer.
- An alloy steel chain sling must be permanently identified with the size, the manufacturer's grade and the WLL, the length and number of legs, and the name or mark of the slingmanufacturer.
- Synthetic fiber web slings must be permanently identified with the manufacturer's name or mark, manufacturer's code, or stock number, working load limits for the types of hitches permitted, and type of synthetic web material or be removed from service if any of these requirements are not met.
- A sling shall be permanently removed from service if it is damaged or worn.
- All slings are to be clearly labeled to indicate the slings maximum load or the slings maximum load is made readily available to employees.
- A sling must be stored to prevent damage when not in use.
- When a sling is applied to a sharp edge of a load, the edge or the sling must be protected to prevent damage to the sling

Hooks

- A worn or damaged hook must be permanently removed from service and Sessler Wrecking shall not require or permit an employee to use a hook that is worn, damaged, deformed, cracked or otherwise defective or where the throat opening has been increased or the tip has been bent more than 10% out of plane from the hook body, or any dimension of the hook has been decreased by 10% or any damage exceeds any criteria specified by the manufacturer. **Note**: This is a higher standard than required in some locations.
- All hooks shall be clearly labeled with the maximum load of the hook in a location where an employee using the hook can easily see the rating or the hooks maximum load is made readily available toemployees.
- A hook will have a safety latch, mousing, or shackle if the hook could cause injury if it is dislodged while in use.

All devices shall be visually inspected prior to use and removed from service for any of the following conditions:

- Nylon slings with:
  - Abnormal wear.
  - Torn stitching.
  - Broken or cut fibers.
  - Discoloration or deterioration.

- Wire rope slings with:
  - Kinking, crushing, bird caging, or other distortions.
  - Evidence of heat damage.
  - Cracks, deformation, or worn end attachments.
  - Hooks opened more than 10% at the throat.
  - Hooks twisted sideways more than 10 degrees from the plane of the unbenthook.

- Alloy steel chain slings with:
  - Cracked, bent, or elongated links or components.
  - Cracked hooks.
  - Shackles, eye bolts, turnbuckles, or other components that are damaged or deformed.

Operational Procedures

- Rigging shall not be subjected to loads more than outlined in legislative requirements. Sessler Wrecking will ensure the maximum load rating of the rigging is available to the employees at the worksite.
- Wire rope, alloy steel chain, synthetic fiber rope, metal mesh slings, and synthetic fiber slings shall meet the requirements of ASME Standard B30.9-2006, Safety Standard for Cableways, Derricks, Hoists, Hooks, Jacks and Slings (or current version). Below-the-hook lifting devices, other than slings shall meet the requirements of ASME Standard B30.20-2006, Below the Hook Lifting Devices (or current version).
- Loads to be unhooked by an employee must be safely landed and supported before the rigging is detached.
- The determination of the working load limit (WLL) of a sling assembly must ensure that the WLL of any individual component of the assembly is not exceeded.
- All slings used to hoist a load and the slings fittings and attachments must be in compliance with legislated standards and capable of supporting at least 10 times the load to which the slings fittings, and attachments may be subjected where they are used to support an employee, and at least five times the maximum load to which they may be subjected in any other case.
- No shackles shall be subjected to a load greater than the maximum load indicated on the shackle, and all shackle pins are installed to prevent accidental withdrawal, and a bolt is never used in the place of a properly fitted shackle pin.
- All hooks shall have a safety latch, mousing, or shackle if the hook could cause injury if it is dislodged while in use.
- Where an employee may be endangered by the rotation or motion of a load during hoisting one or more tag lines must be used to control the rotation or motion of the load and the tag lines will be of sufficient length to protect the employees from any overhead hazard and the tag lines are not removed from the load until the load is securely landed.

Rigging a Load

- Determine the weight of the load - do not guess.
- Determine the proper size for slings and components.
- Do not use manila rope for rigging.
- Ensure that shackle pins and shouldered eyebolts are installed in accordance with the manufacturer's recommendations.
- Ensure that ordinary (shoulder less) eyebolts are threaded to at least 1.5 times the bolt diameter.
- Use safety hoist rings (swivel eyes) as a preferred substitute for eye bolts wherever possible.
- Pad sharp edges to protect slings.
- Remember that machinery foundations or angle-iron edges may not feel sharp to the touch but could cut into rigging when under several tons of load.
- Wood, tire rubber, or other pliable materials may be suitable for padding.
- Do not use slings, eyebolts, shackles, or hooks that have been cut, welded, or brazed.
- Install wire-rope clips with the base only on the live end and the U-bolt only on the dead end.
- Follow the manufacturer's recommendations for the spacing for each specific wire size.
- Determine the center of gravity and balance the load before moving it.
- Initially lift the load only a few inches to test the rigging and balance.

Signaling

A signal person must be provided if the operator's view is obstructed, if site specific safety concerns require it, or if the operator determines that it is necessary. A signal person must be provided for the following situations:

- The point of operation is not in full view of the operator,
- The view is obstructed when the equipment is traveling, or
- The operator or the person handling the load determines it is necessary due to site specific concerns.

Signals to the operator shall be in accordance with the standard hand. Specific requirements include:

- Each movement of equipment shall be proceeded by distinctive signals clearly discernible to all employees endangered by the movement and clearly distinguishable by the operator of the equipment controlled, and a signal which is not understood clearly by the operator of equipment shall be acted upon by him or her as though it were a stop signal.
- An employee shall not cause a signal to be given for the movement of equipment unless he or she has ensured that he or she and all employees within the area for which he or she is responsible are not endangered by the movement.
- Only a designated employee shall cause a signal to be given for the movement of equipment, but employees may cause a stop signal to be given and this signal shall be obeyed promptly and without question.
- An employee designated to direct the movement of equipment shall not be otherwise occupied while the equipment is in motion and he or she shall be prepared to signal to stop during the motion.
- A signaling device that functions unreliably or in a way that might constitute a hazard to an employee shall be removed from service immediately.
- Signals shall be discernible or audible at all times.
- Some special operations may require addition to or modification of the basic signals.

- For all such cases, these special signals shall be agreed upon and thoroughly understood by both the person giving the signals and the operator and shall not be in conflict with the standard signals.

Training Requirements and RefresherTraining

Training should include the use of fire extinguishers. Training shall also include:

- Documentation of employee, date of training and subject matter, including method used to test knowledge of material.
- No employee shall operate equipment covered by this program until training has been complete and management has approved and designated him or her as a qualified operator.
- Maintenance of training records be kept at a local or central location. Sessler Wrecking is responsible for any employee training required. Documentation of training shall be furnished to those employees whose work location varies.

Sling Inspection Form

Date of Inspection	Serial number of sling	Type of sling (2-legged, 3 legged, etc.)	Type of material (chain, wire rope, synthetic)	Date purchased	Date placed into service	Date of last inspection	Sling Condition (Excellent, Good, Bad) Note: a sling with a Bad rating must be removed from service.	Date repaired (if applicable)	Date removed from service	Inspected by:

Purpose

The purpose of the program is to prescribe rules and establish minimum requirements for the construction, care, and use of the common types of ladders.

All ladders that are purchased and placed into service; or any ladders that are engineered, manufactured, and installed on any Sessler Wrecking equipment shall follow the requirements set forth by this program.

Scope

This program is applicable to all employees who may utilize ladders. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Key Responsibilities

Managers and Supervisors

- Managers and supervisors are responsible for ensuring that all employees and/or contractors have been trained in the use and inspection of ladders in accordance with the manufacturers' guidelines.
- Managers and supervisors are responsible for ensuring that all employees and contractors are aware that if an inspection discovers a defect, the ladder shall not be used and taken out of service.

Employees

- Employees shall inspect ladders prior, during and at the completion of each use to ensure the condition of the ladder and the safety of its occupants.
- Employees are responsible for following this program and reporting any damage or repairs that may be needed to their supervisor.

Procedure

Ladders should not be used if a safer means of accessing an elevated work area is available. Sessler Wrecking shall ensure that workers do not use a ladder to enter or leave an elevated or sub-level work area if the area has another safe and recognizable way to enter or leave it.

If work cannot be done from a ladder without hazard to a worker, a work platform must be provided. A worker must not carry up or down a ladder, heavy or bulky objects or any other objects which may make ascent or descent unsafe.

Inspection, Care and Safe Work Practices of Ladders

Ladders shall have the correct load capacity for the task and not be loaded beyond the maximum intended load for which they were built nor in excess of the manufacturer's rated capacity. Weight includes the combined weight of the climber and his tools/equipment. Ladders are rated as the following:

- I (holds 250 lbs)

- I-A (holds 300 lbs)
- II (holds 225 lbs)
- III (holds 200 lbs)

Inspection

Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use. Monthly formal inspections shall be documented. The following requirements apply:

- A ladder must be inspected before use on each shift, and after any modification and any condition that might endanger workers must be remedied before the equipment is used.
- Ladder rungs, cleats and steps shall be parallel, level and uniformly spaced.
- If an extension ladder is used by a worker must be equipped with locks that securely hold the sections of the ladder in the extended position.
- No ladder shall be lashed to another ladder to increase its length.
- A stepladder shall have legs that are securely held in position by metal braces or an equivalent rigid support.
- A manufactured portable ladder must be marked for the grade of material used to construct the ladder and the use for which the ladder is constructed.
- Portable single or extension ladders shall be equipped with a non-slip type base or shall be held, tied, or otherwise secured to prevent slipping.
- A ladder found to be broken or defective may not be used until it has been repaired and restored to its original design specifications. Any ladder that has developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use."
- If a ladder is tipped over, it shall be inspected by a competent person for side rail dents or bends, or excessively dented rungs; check all rung to side rail connections; check hardware connections; check rivets for shears.
- Ladders with loose, broken, or missing rungs, split side rails or other hazard producing defects shall not be used. Improvised repairs shall not be made.
- All wood parts shall be free from sharp edges and splinters;sound and free from accepted visual inspection from shake, or other irregularities. Wooden ladders must not be painted.

Care

- Ladders shall be maintained in good condition at all times, the joint between the steps and side rails shall be tight, all hardware and fittings securely attached, and the movable parts shall operate freely without binding or undue play.
- Metal bearings of locks, wheels, pulleys, etc., shall be frequently lubricated.
- Frayed or badly worn rope shall be replaced. Safety feet and other auxiliary equipment shall be kept in good condition to ensure proper performance.
- Rungs shall be kept free of grease and oil.
- Ladders shall be stored in a well-ventilated area in a manner to prevent sagging and warping.

Safe Work Practices

- Ladders shall be used only for the intended purpose for which they weredesigned.

- Ladders used when servicing energized electrical equipment must be non-conductive. Sessler Wrecking shall ensure that a ladder used during the servicing of energized or potentially energized electrical equipment is made of non- conductive material. Metal ladders or wire reinforced wooden ladders shall not be used in proximity to energized electrical equipment.
- The ladder shall be secured at the top or held by another person at the base to preventmovement.
- Portable ladders in use are secured against movement and placed on a stable base. A worker must ensure that a portable ladder is secured against movement and placed on a base that is stable.
- Incline of Portable Ladders - Portable ladders are placed against the top support at a minimum 4:1 incline. A worker must ensure that the base of an inclined portable ladder is no further from the base of the wall or structure than one quarter of the distance between the base of the ladder and the place where the ladder contacts the wall.
- Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height.
- Ladders shall not be used in a horizontal position as platforms, runways, orscaffolds.
- Ladders shall not be used by more than one worker at a time.
- The upper supports of ladders used to access elevated work areas must extend a minimum of one meter above the elevated surface. A worker must ensure that the side rails of a portable ladder extend at least 1 meter above a platform, landing, or parapet if the ladder is used as a means of access to the platform, landing, or parapet.
- Ladders shall not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded.
- If a ladder is used in a high traffic area, barricades shall be placed to avoid accidental displacement due to collisions.
- Performing work from the top two rungs of a portable ladder is prohibited. A worker must not perform work from either of the top two rungs, steps, or cleats of a portable ladder unless the manufacturer's specifications allow the worker to do so.
- The employee shall maintain a three (3)-point grip on the ladder at all times and carry tools/equipment on a belt or hoist up. Do not carry anything in your hands that could cause injury in case of fall.
- The employee shall face the ladder while ascending or descending.
- The bracing on the back legs of stepladders is designed solely for increasing stability and not for climbing.
- The ladder shall not be moved while occupied.

Training

All employees will be trained for this ladder safety program contents prior to using a ladder.

PURPOSE

The purpose of this program is to ensure the protection of all employees from the hazards of lead in the job site in accordance with OSHA's standard for lead-in-construction, title 29 CFR 1926.62. Protection will be achieved by assessing all jobs for the potential of employee exposure to lead, reducing the exposure by implementing engineering control, work practices (including housekeeping and industrial hygiene practices), and/or administrative controls, training and biological monitoring of employees exposed to lead, and making employees aware of any areas of potential lead exposures.

RESPONSIBILITIES

The company Director of Health and Safety and/or management are solely responsible for all facets of this program and have full authority to make necessary decisions to ensure the success of this program. This authority includes hiring personnel and purchasing equipment necessary to implement and operate the program.

Sessler Wrecking has expressly authorized the Safety Officer to halt any operation of the company where there is danger of serious personal injury.

INITIALASSESSMENT

All jobs performed by Sessler Wrecking have the potential for occupational exposure to lead if hot work, cutting, blasting, grinding, and/or chipping are to be performed. Lead may be found in jobs involving, but not limited to:

- Painted steel structures
- Tanks painted or unpainted, that processed or stored leaded gasoline, associated piping, and equipment.
- Paints on some masonry structures.

OSHA has determined that 30 ug/m3 of airborne lead shall be the ACTION LEVEL (AL) at which employers begin to implement controls to protect employees from lead exposure.

OSHA has similarly determined that 50 ug/m3 shall be the PERMISSIBLE EXPOSURE LIMIT (PEL) for employees over the time-weighted average (TWA) of 8 hours. Employers shall not expose employees to airborne concentrations of lead greater than this level.

OSHA has identified presumed minimum exposure levels for tasks (i.e., grinding, welding, cutting, burning, rivet busting, etc.) OSHA also identifies minimum levels of protection that are required during these activities. Sessler Wrecking must provide this level of protection, at a minimum, until we have determined through initial assessment/baseline air monitoring, that our level of exposure is less than that presumed level.

If the initial determination or subsequent air monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat air monitoring in accordance with this paragraph at least every 6 months. The employer shall continue air monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee.

Once the results of air monitoring have been received, they will be given to the employee in writing in accordance with 29CFR1926.62. Any modifications to this plan will be based on the results of the air monitoring.

ENGINEERINGCONTROLS

Any jobs having occupational exposure to lead should be assessed for the possibility of adapting work practices to reduce the exposure. Such practices include the use of extended torch handles, exhaust ventilation, substitution, removal, reducing hot work requirements, reducing the number of cuts when hot work is the only option and using a hydraulic shear to cut steel or cutting pieces into longer lengths or larger pieces.

Respirators shall be used during the time period necessary to install or implement engineering or work practice controls and in emergencies.

WORKPRACTICES

Housekeeping - at the end of each workday all accumulations of lead dust and lead containing debris shall be vacuumed up with a HEPA vacuum or wetted down with water before it is swept up. Personnel involved with this clean-up operation will be provided with suitable respiratory protection and protective clothing to prevent contact with lead.

In addition, all lead containing debris and contaminated items shall be placed into appropriate containers. Containers shall be properly labeled as lead containing waste. These measures are especially important as they minimize additional sources of exposure that engineering controls generally are not designed to control.

PERSONAL HYGIENE

Special attention must be given to personal hygiene to significantly reduce lead exposure through ingestion and minimize contamination of employee's families and personal effects. Sessler Wrecking will provide washing facilities and a clean changing area. These facilities will meet the sanitation requirements in accordance with 29 CFR 1926.51(f).

Changing areas will be used to change from clean street clothes into clean working clothes, donning respirators prior to beginning work, and dressing into street clothes after work. A separate area for the removal and storage of contaminated clothing will be provided. This separation is essential in preventing cross contamination of the employees clothing. Also, a separate eating area outside the work area will be provided.

It is the responsibility of the job site superintendent to ensure that all employees who work with lead, either clean by a HEPA vacuum or remove their protective clothing and wash their hands and face prior to eating, smoking, drinking, or applying cosmetics, and that these actions are never permitted in the work area.

PERSONAL PROTECTION

Although engineering and work practice controls are the primary means of protection of workers; these are often not enough. Whenever these controls are not able to reduce the employee's exposure to lead at or below the PEL of 50ug/m^3 respirators and protective clothing must be utilized.

Respirators will be provided in accordance with Sessler's Respirator program. These respirators will be put on prior to entering the work area, after being fit tested, and will remain on until the employee has exited the work area. Respirators should be damp wiped to remove loose particle contamination.

Protective clothing (i.e., coveralls, gloves, and eye protection) will be provided to the employee at no cost. Coveralls may be of the disposable type. Non-disposable coveralls will be replaced if necessary. All protective clothing will be HEPA vacuumed to remove loose particle contamination prior to leaving the work area. Under no circumstance will contaminate work clothes be allowed to leave the work site.

EMPLOYEE MEDICAL SURVEILLANCE/REMOVAL PROGRAM

BLOOD TEST

Employees who will be participating in activities constituting a potential exposure to lead will undergo Blood Lead/ZPP testing as follows:

Blood Lead/ZPP testing will be performed initially (one time) for new employees, and then annually when they are expected to be exposed to lead activities (> 30 ug/m3) for less than 30 days in a 12-month period. The blood samples/analyses are performed by/under the supervision of a licensed physician. Within five working days after the receipt of biological monitoring results, the employer shall notify the employee in writing of his or her Blood Lead Level.

If employees currently monitored under this medical surveillance program are exposed to lead activities (> 30 ug/m3) for more than 30 days in a 12-month period, the frequency of Blood Lead testing will increase to every two months for six months and every six months afterward.

If a Blood Lead Level is at or above 30 ug/dl, the competent person and/or project management must investigate the cause.

If a Blood Lead Level is at 40 ug/dl but below 50 ug/dl, Blood Lead testing must be done every 2 months until two consecutive Blood Lead tests indicate levels below 40 ug/dl. The affected employee will be removed from the lead environment until levels drop below 40 ug/dl in accordance with 29 CFR 1926.62(k).

If a Blood Lead Level is at or above 50 ug/dl, another blood test must be done within 2 weeks of receiving the results from the first Blood Lead sampling with levels over 50 ug/dl and then monthly until two consecutive samples indicate levels below 40 ug/dl. The affected employee will be removed from the lead environment until levels drop below 40 ug/dl in accordance with 29 CFR 1926.62(k). A Blood Lead Level at or above 50 ug/dl is an OSHA Recordable Illness.

MEDICAL EXAMS

Sessler Wrecking shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. The medical evaluation shall obtain the information required by regulatory requirements.

The medical evaluation prior to fit testing will be confidential, conducted during normal working hours, be at a convenient time and location, be understandable and the employee will be given a chance to discuss the results with the PLHCP.

At a minimum, Sessler Wrecking shall provide additional medical evaluations that comply with the requirements of this program if:

- An employee reports medical signs or symptoms that are related to ability to use a respirator;
- A PLHCP, supervisor, or the respirator Program Administrator informs Sessler Wrecking that an employee needs to be re-evaluated;
- Information from the respiratory protection program, including observations made during fit testingand program evaluation, indicates a need for employee re-evaluation; or
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

The employee using a physician chosen by the employee may request a second opinion. Employees may also request a medical exam if any one of the following holds true:

- Employees have developed signs or symptoms commonly associated with lead intoxication.
- Employee desires medical advice concerning the effects of current or past exposure to lead on his/her ability to have a healthy child.
- The employee is pregnant and is or has worked in a lead environment within the last 12 months.
- Employee has difficulty breathing with a respirator.
- Employee is requesting a second opinion.

The contents of the medical exam will be in accordance with 29 CFR 1926.62(j)(3)(ii).

HEALTH EFFECTS

Common symptoms of acute lead poisoning are loss of appetite, nausea, vomiting, stomach cramps, constipation, difficulty in sleeping, fatigue, moodiness, headache, joint or muscle aches, and anemia. Long term (chronic) overexposure to lead may result in severe damage to the blood-forming, nervous, urinary, and reproductive systems.

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to Lead:

- Contact can irritate the eyes.
- Lead can cause headache, irritability, reduced memory, disturbed sleep, and mood and personality changes.
- Exposure can cause an upset stomach, poor appetite, weakness, and fatigue.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to Lead and can last for months or years:

- Lead is a PROBABLE CARCINOGEN in humans. There is some evidence that Lead and Lead compounds cause lung, stomach, brain and kidney cancers in humans and they have been shown to cause kidney cancer in animals.
- Many scientists believe there is no safe level of exposure to a carcinogen.

Reproductive Hazard

- Lead may be a TERA TOG EN in humans since it is a teratogen in animals.
- It may decrease fertility in males and females and damage the developing fetus and the testes (male reproductive glands).

Other Effects

- Repeated exposure to Lead can cause Lead poisoning. Symptoms include metallic taste, poor appetite, weight loss, colic, nausea, vomiting, and muscle cramps.
- Higher levels can cause muscle and joint pain, and weakness.
- High or repeated exposure may damage the nerves causing weakness, "pins and needles," and poor coordination in the arms and legs.
- Lead exposure increases the risk of high blood pressure.
- Lead may cause kidney and brain damage, and damage to the blood cells causing anemia.
- Repeated exposure causes Lead to accumulate in the body. It can take years for the body toget rid of excess Lead.

CHELATINGAGENTS

Prophylactic chelation (used to keep Blood Lead Levels from getting higher) even if physician prescribed is not allowed at any time.

Therapeutic or diagnostic chelation may be prescribed by a licensed physician and performed under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring. Employees will be notified in writing prior to any chelation therapy.

This type of therapy is only prescribed when severely high levels of lead are in the body. This treatment is similar to chemotherapy for the treatment of cancer. It can be painful depending upon the individual's tolerance to pain.

TRAINING

All employees will be properly trained with regards to the proper handling of lead contaminated material prior to any job assignment where there is a potential for exposure and annually thereafter. Before any activity involving potential lead, contamination and exposure begins, Sessler Wrecking employees must receive training in accordance with 29 CFR 1926.62 – Lead in Construction. Training will be repeated annually or earlier if needed.

All employees will receive respiratory training during their initial health and safety training class and on at least an annual basis, if required for their job classification. Training shall address employee knowledge of respirators, fit, use, limitations, emergency situations, wearing, fit checks, maintenance and storage, medical signs and symptoms of effective use and general requirements of the OSHA standard. The training must be provided before requiring the employee to use the respirator.

RETRAINING

Retraining shall be administered annually, and when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete;
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

SIGNS

Employees shall abide by any signs/labels/assessment reports indicating the presence of lead containing materials. Appropriate work practices must be followed to ensure the lead containing materials are not disturbed unless disturbing lead containing materials is part of the Scope of Work.

Signs will be placed in all work areas where there is exposure in excess of the PEL. OSHA has stated that sign posting is needed to help inform employees of possible exposure to lead and possible need to don personal protective equipment. Wordage will be as follows:

DANGER

LEAD WORK AREA

MAY DAMAGE FERTILITY OR THE UNBORN CHILD CAUSES DAMAGE TO THE

CENTRAL NERVOUS SYSTEM

DO NOT EAT, DRINK, OR SMOKE IN THIS AREA

Recordkeeping

Records of all employees involved in any lead project will be kept at the office of Sessler Wrecking for a period of 30 years. Records are available to each employee. Records of objective data used in assessing an employee's exposure are also to be maintained for a period of 30 years and in accordance with 29 CFR1910.1020.

Records will be treated confidentially and maintained on file in the Sessler Wrecking corporate office by the Safety Department.

Purpose

The purpose of this program is to establish procedures for affixing appropriate lockout/tagout equipment to energy isolating devices and to otherwise disable machines or equipment to prevent unexpected energization, start up or release of stored energy to prevent injury or incident.

Scope

This program covers the servicing and maintenance of machines and equipment where the unexpected energization or start-up of the machine or equipment, or the release of stored energy could cause an incident. This program establishes minimum performance requirements for the control of such hazardous energy. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Definitions

Affected employee - An employee whose job requires them to operate or use a machine or equipment on which servicing, and maintenance is being performed under lockout/tagout, or whose job requires the employee to work in an area in which such servicing or maintenance is being performed.

Authorized employee - A person that performs lockout/tagout procedures on machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes authorized when that employee's duties include performing servicing or maintenance covered under thisprogram.

Capable of being locked out - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized - Connected to an energy source or containing residual or stored energy.

Energy isolating device - A mechanical device that physically prevents the transmission or release of energy including, but not limited to, the following:

- A manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors and no pole can be operated independently, a line valve, a block and any similar device used to block or isolate energy.
- Push buttons, selector switches and other control circuit type devices are not isolatingdevices.

Energy source - Any source of gas, electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy sources.

Hot tap - A procedure used in the repair, maintenance and service activities that involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or other appurtenances

Lockout - The placement of a lockout device on an energy isolating device in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device - A device that utilizes a positive means, such as either a key or combination type lock, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal operation - The utilization of a machine or equipment to perform its intended operation.

Servicing and/or maintenance - Workplace activities such as constructing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines and equipment, where the employee may be exposed to an unexpected energization or start-up of the equipment or release of a hazardous energy source.

Tagout: - The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device - A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until tagout device is removed.

Key Responsibilities

Managers and Supervisors

- Responsible to enforce this plan and to see that all their employees and contractors that are affected by lockout/tagout procedures, have the knowledge and understanding required for safe application, usage, and removal of all energy controls and devices.
- Ensure employees are competent as demonstrated by being qualified, suitably trained and with sufficient experience to safely perform work without supervision or with only a minimal degree of supervision.

Employees

- Employees who are affected by this program are required to receive training on an annual basis.
- Are required to follow the provisions of this program and no employee shall perform work on machinery, equipment or powered mobile equipment to be serviced, repaired, tested, adjusted, or inspected until energy sources are isolated, the machinery, equipment, or powered mobile equipment is tested to verify that it is inoperative, and the worker is satisfied that it is inoperative.

General

Sessler Wrecking shall establish and implement written procedures.

Only an authorized employee or employees performing the servicing or maintenance shall perform lockout or tagout.

If machinery or equipment is shut down for maintenance or to be serviced, repaired, tested, adjusted, cleaned, maintained, or adjusted or driving of piles where the work will expose employees to energy sources or contact with moving parts could injure employees, no work may be done until:

- All parts and attachments have come to a complete stop and secured against inadvertent movement.
- Where the work will expose workers to energy sources, the hazard has been effectively controlled
- All hazardous energy at the location at which the work is to be carried out has been isolated by activation of an energy isolating device and the energy isolating device is secured, or the machinery, equipment, or powered mobile equipment has been otherwise rendered inoperative in a manner that will prevent its accidental activation and provides equal or greater protection.
- Energy isolating devices have been applied, locked out and rendered any hazardous condition safe as required by local regulatory requirements.
- The employee(s) is assured that it is inoperative.

When lockout of energy isolating devices is required, the devices must be secured in the safe position using locks in accordance with procedures that are made available to all workers who are required to work on the machinery or equipment.

Power tools may be maintained, repaired, tested, or adjusted without applying isolation control if the work does not put the employee at risk by isolating the energy source from the power tool, dissipating any residual energy in the power tool and the energy source remains isolated during the activity.

If work is to be done that may endanger a worker, Sessler Wrecking shall ensure that the work is done by a worker who is competent to do the work. Workers who may be required to use safety equipment shall be competent in the application, care, use, maintenance, and limitations of that equipment.

Lock Out Tag Out Devices

Once all energy isolating devices have been activated to control hazardous energy each worker involved in work at each location requiring control of hazardous energy secures each energy isolating device with a personal lock.

Lockout Device - If an energy source can be locked out a device that utilizes a lock to hold an energy isolating device in a safe position shall be used.

Locks

- Each site shall have the same type of lock as specified by Sessler Wrecking.
- Are made available to all employees who are required to work on the machinery or equipment and shall be provided at the expense of Sessler Wrecking.
- Combination locks must not be used for lockout. Each personal lock must be marked or tagged to identify the person applying it.

Keys

Sessler Wrecking shall:

- Issue to each employee who is required or permitted to work on a machine a lock that is operable only by that employee's key or a duplicate key,

- Designate an employee to keep the duplicate key,
- Ensure that the duplicate key is accessible only to the designated employee,
- Ensure that the lock used has a unique mark or identification tag on it that identifies the employee to whom the lock is assigned, and
- Ensure that a logbook is kept recording the use of the duplicate key and the reasons for that use each time the duplicate key is used.

Tagout Device – If an energy source cannot be locked out with a lockout device, then a tagout device shall be used. A tagout device is a warning only level of protection and shall be weather and chemical resistant, standardized in color with clear written warning of hazardous energy; i.e. Do Not Operate, Do Not Start, Do Not Energize, etc. Each site shall have the same style of tags specified by Sessler Wrecking. Each tag will identify the employee who attached it.

Requirements for Tags
If a tag is used as a means of communication, the tag:

- Shall be made of non-conducting material,
- Shall be secured to prevent its inadvertent removal,
- Shall be placed in a conspicuous location,
- Shall state the reason the switch is disconnected and locked out,
- Shall show the name of the employee who disconnected and locked out the switch, and
- Shall show the date on which the switch was disconnected and locked out.

Unable to Stop Equipment

In the rare case that the manufacturer's specifications require the machinery, equipment or powered mobile equipment to remain operative while it is being serviced, repaired, tested, adjusted, or inspected, or there are no manufacturer's specifications and it is not reasonable practicable to stop or render the machinery, equipment or powered mobile equipment inoperative Sessler Wrecking shall develop and implement written procedures and controls that ensure the machinery, equipment or powered mobile equipment can be serviced, repaired, tested, adjusted or inspected safely only by qualified and authorized to do the work. If it is not practicable to shut down machinery or equipment for maintenance, only the parts which are vital to the process may remain energized and the work must be performed by workers who are qualified to do the work, have been authorized by Sessler Wrecking to do the work and have been provided with and follow written safe work procedures.

Either of the cases above requires a written authorization to proceed from senior management due to the increased risk exposure.

No person shall deactivate a lock-out process that does not use a lock and key except the person designated.

Energy Control Procedures

Each manager or supervisor is responsible for developing specific step-by-step shutdown and start up procedures for a particular machine or piece of equipment in their respective area. Any source of gas, electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy sources must be identified.

- A machine must be locked out and tagged out prior to performing maintenance activities. The power supply to electrical installations, equipment or conductors shall be disconnected, locked out of service, and tagged before any work is done, and while it is being done, on or near live exposed parts of the installations, equipment, or conductors.
- A written, step-by-step isolation procedure for shutdown and start up shall be prepared for each type of machine or piece of equipment.
- This procedure shall include:
    - Equipment number if assigned.
    - Equipment location.
    - Potential Energy Source(s) (i.e., steam, electrical, hydraulic, tension, gravity, gas pressure,etc.)
    - Location of isolating controls (i.e., breaker switches, valves, etc.)
    - Quantity of isolating controls
    - Quantity of locks required to isolate the equipment
    - Other hardware is required to isolate the equipment (i.e., chains, valve covers, blocks,etc.)
    - List any residual energy required to be dissipated before workbegins.

<u>Specific Sequence for Application of Energy Control</u>

1. Notification

Authorized employees must notify all other affected employees of the application and removal of lockout/tagout devices. Notification shall be given before the controls are applied and before they are removed from the machine or equipment.

2. Preparation for Shutdown

Before an authorized or affected employee shuts down a machine or equipment, the authorized employee shall have the knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means (locks) to control the energy sources.

3. Machine or Equipment Shutdown

The machine or equipment shall be shut down using the procedures established for that machine or piece of equipment. The shutdown shall be orderly to avoid any additional hazards to employees as a result of the stoppage.

4. Machine or Equipment Isolation

All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

5. Lockout/Tagout Devices and Application

- Each authorized employee shall have the proper number of locks and devices to be able to independently of each other perform proper lockout/tagout procedures for machines or equipment that they may be working on.
- Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.
- Each lockout and tagout device shall include the name of the individual placing the device.
- Lockout devices shall be affixed in a manner to hold the energy isolating devices in a safe or off position.

- Tagout devices shall be affixed in a manner that will clearly indicate that the operation or movement of isolating devices to the safe or off position and prohibiting the operation of the control device.
- Tagout devices used with energy isolating devices with the capability of being locked out shall be fastened at the same point at which the lock would have been attached. If a tag cannot be directly attached to the energy isolation device, it shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
- Each energy source shall be locked out completely isolating the equipment.
- If more than one employee is involved, the employee who disconnected and locked out the power supply shall communicate the purpose and status of the disconnecting and locking out.
- Isolating machines or equipment shall include, but are not limited to:
  - Pumps, compressors, generators, electric distribution, storage tanks, etc.
  - Each type of equipment, including isolating pipes and pipelines, to be isolated shall have specific documented procedures for isolation, i.e., for compressors: suction, discharge, power, starting, fuel, dumps shall be closed, locked, and tagged out properly.
  - For pipes and pipelines see #8.

6. Stored Energy and the Possibility of Re-accumulation

Sessler Wrecking will verify that all potential energy sources are released prior to performing maintenance activities. Before beginning the work, each worker shall determine if energy sources have been properly de- energized and locked out.

7. Isolating Pipes and Pipelines Requirements

If piping, a pipeline, or a process system containing a harmful substance under pressure is to be serviced, repaired, tested, adjusted, or inspected Sessler Wrecking shall ensure that no worker performs such work on the piping, pipeline, or process system until flow in the piping, pipeline, or process system has been stopped or regulated to a safe level and the location at which the work is to be carried out is isolated and secured.

In order to ensure that harmful substances under pressure are not released Sessler Wrecking will utilize the following methods (with Disconnection/Misalign as the preferred method):

- Blinding - Install full-rated blind(s).
- Disconnection/Misalign - This involves physically removing part of the equipment, or misaligning piping. Isolation devices shall then be attached as close to the energy source as possible and listed on the Energy Isolation Log.
- Double Block and Bleed - This involves three valves: two block valves and a bleed valve in between. For Energy Isolation purposes, all three valves shall be tagged with a “Danger” tag and listed on the Energy Isolation Log. In addition, the two block valves shall be locked.
- Single Block - This involves closing one block valve, then applying locks and tags. Note, this option requires the prior approval of the supervisor.

Note: Control valves shall not be used for energy isolation.

Remote operated valves, designed for positive pressure containment, can be used provided they are disconnected from all Energy Sources and manually closed.

Multiple Groups of Workers

If more than one worker is involved, the worker who disconnected and locked out the power supply shall communicate the purpose and status of the disconnecting and locking out.

- A tailgate meeting shall be conducted to review the written group lockout procedure and other information as required for safe work to continue. The written group lockout procedure must be conspicuously posted at the place where the system is in use.
- An authorized employee will isolate the equipment.
- All employees will then place their locks on the device's group lockout or tagout device after they have verified the procedure.

Release from Lockout/Tagout

When servicing or maintenance is completed or when Lockout / Tagout devices must be temporarily removed, the equipment requires testing and the machine or equipment is ready for testing or to return to normal operating conditions, the following steps shall be taken, in this order:

- Check the machine or equipment and the immediate area surrounding the machine or equipment to ensure that all nonessential items such as tools have been removed and that the machine or equipment components are operationally intact.
- Check the work area to verify that no employee is in danger before an employee removes the securing devices and the machinery, equipment, powered mobile equipment, piping, pipeline or process systems is returned to operation.
- Remove the Lockout/Tagout device
- Energize and proceed with testing
- Deenergize and reapply control methods including Lockout / Tagout devices
- Document the procedure by use of the completed isolation log and provide it to supervisor forfiling.

Removal of Locks

A person must not remove a personal lock or other securing device unless the person is the worker who installed it. In an emergency, or if the worker who installed a lock or other securing device is not available, a worker designated (supervisor or manager in charge who will be responsible for its removal) by Sessler Wrecking may remove the lock or other securing device in accordance with a procedure that includes verifying that no worker will be in danger due to the removal.

Sessler Wrecking shall ensure that securing devices are not removed until each involved worker is accounted for, any personal locks placed by workers are removed, and the following procedures are implemented to verify that no worker is in danger before a worker removes the securing devices and the machinery, equipment, powered mobile equipment, piping, pipeline, or process system is returned to operation.

The following procedures shall be followed to allow for the emergency removal of a lock that another person has applied:

- If the key(s) cannot be made available, the employee who requests removal of the lock shall contact their supervisor.
- Every reasonable effort shall be made by the manager or supervisor to contact the authorized employee who applied the lock to obtain the key(s).

- The manager or supervisor shall ensure that the machinery or equipment can be operated safely before removing the lock and no employees will be in danger if it is removed.
- The competent person removing the lock shall document the lock(s) were removed with permission by manager or supervisor.
- All reasonable efforts will be made by supervisor to notify that employeetheir lock has been removed and ensuring that the authorized employee is notified at the start of his or her next shift if the employee's personal lock(s) have been removed since the employee's previous shift.
- If the equipment is client owned, the supervisor or employee requesting to remove the lock(s) shall contact the client to get the lock removed. Clients must remove their lock(s).
- NOTE: Sessler Wrecking employees shall not remove any client locks.

Shift or Personnel Changes

In the event shift or personnel changes occur during maintenance and/or repair activities, the designated Sessler Wrecking employee in charge shall take the necessary steps to maintain the continuity of the lockout/tagout protection. This includes maintaining that all provisions in this procedure are adhered to and the transfer of lockout/tagout devices between authorized employees is accomplished in an orderly manner.

Procedures must be implemented for shift or personnel changes, including the orderly transfer of control of locked out energy isolating devices between outgoing and incoming workers.

Contractors

Contractors performing lockout procedures on Sessler Wrecking property shall comply with this procedure. Contractors shall supply their own locks.

Sessler Wrecking shall initially lock out Sessler Wrecking machines and equipment before the contractor will be allowed to apply their own lock in addition to the one assigned to Sessler Wrecking.

Annual Audits

Each year the manager or supervisor, or his representative, will perform an inspection of the Lockout Tagout Program in their respective areas to verify the effectiveness of the program. An authorized employee other than the one(s) utilizing the energy control procedure being inspected shall perform the audit and shall verify that:

- Each authorized and/or affected employee has been trained as required.
- Any new equipment added has specific lockout procedures developed and documented.
- Current procedures are adequate for performing complete isolation of equipment and resulting in a zero-energy state.
- The annual audit will be certified in writing and a copy of the audit maintained on file atthe manager's/supervisor's office.

Training

Sessler Wrecking shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:

- The recognition of applicable hazardous energy (lockout/tagout) sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- The purpose and use of energy control procedures.
- When tagout systems are used, employees shall also be trained in the following limitations of tags:
    - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
    - When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
    - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.
    - Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
    - Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
    - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

Retraining

Retraining shall be conducted whenever a periodic inspection reveals, or whenever Sessler Wrecking has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures. The retraining shall re-establish employee proficiency and introduce new or revised control methods and procedures, as necessary.

Training Documentation

Sessler Wrecking shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

SPECIFIC EQUIPMENT LOCKOUT PROCEDURES

Department_____

Equipment No._____

Energy Source_____

Procedure for Shutdown and Isolation:

(List number of steps required to isolate machine or equipment - write N/A on lines not used or add additional steps if necessary)

STEP NO.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Additional Information: _____
_____
_____
_____

Prepared by:_____ Date:_____

(This procedure to be communicated to all authorized and affected employees and kept on file at location of machine or equipment)

SAMPLE TAG

WARNING

MINIMUM LOCK/OUT – TAG/OUT PROCEDURES

Inlet Suction Block Valve Discharge Block Valve
Fuel Gas Valve Start Gas Valve
Liquid Dump Line Blow Down (Lock Open)

When working on this compressor package the following items must be **LOCKED OUT & TAGGED OUT**. Residual pressure must be blown down. Open all valves on surge bottles and piping to relieve any pressure that may be trapped.

Side Stream (For Units Set up with Side Streams)

When working on the compressor each person must lock and tag the compressor package!

ISOLATION LOG

Date of Isolation:

Description of Work:

List of Equipment out of Service:

Necessary Requirements of Clear Isolation:

Authorized Employee Signature: _____

Person Continuing Work Signature: _____

Locks/Tags for GROUP LOCKOUT or Multiple Locks/Tags

Lock # or Tag	Date Installed	Date Removed	Print Name (for Group Lockout)	Signature

(If additional space is needed, please attach an additional page)

ANNUAL AUDIT OF THE CONTROL OF HAZARDOUS ENERGY PROGRAM

I certify that an audit of the Sessler Wrecking Lockout Tagout Program was conducted, and that each employee has been trained in the recognition and procedures to lockout equipment they may be required to work on or may be affected by.

I further acknowledge that the current procedure is adequate to safely lock out equipment in this department for servicing and maintenance.

Department: _____

Manager (orrepresentative): _____

Date:_____

Original to file: _____

- **PURPOSE AND SCOPE**
  - The purpose of this procedure is to ensure that all employees are aware of the requirements for the operation of mobile equipment.

- **GENERAL INFORMATION**
  - All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, will have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.
  - A safety tire rack, cage, or equivalent protection will be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.
  - Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks will be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end loader buckets, dump bodies, and similar equipment will be either fully lowered or blocked when being repaired or when not in use. All controls will be in a neutral position, with the motors stopped and brakes set, unless work being performed requiresotherwise.
  - Whenever the equipment is parked, the parking brake will be set. Equipment parked on inclines will have the wheels chocked and the parking brake set.
  - The use, care and charging of all batteries will conform to the requirements of Subpart K of 29 CFR 1926.
  - All cab glass will be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this subpart.
  - All equipment covered by this subpart will comply with the requirements of 1926.550(a)(15) when working or being moved in the vicinity of power lines or energized transmitters.
  - Only authorized personnel will be allowed to operate mobile equipment.
  - All equipment must be inspected and documented on a daily basis, prior to the operation of the equipment.
  - Passengers are prohibited from riding on equipment, unless a passenger seat equipped with a working seatbelt is included in the design of the equipment, which safely accommodates passengers.
  - The operator of a gasoline or diesel vehicle shall shut off the engine before filling the fuel tank and shall ensure that the nozzle of the fuel hose makes contact with the filling neck of the tank. No one shall be on the vehicle during fueling operations except as specifically required by design. There shall be no smoking or open flames in the immediate area during fueling operations.

- **RESPONSIBILITIES AND PROCEDURES**
  - These rules apply to, but are not limited to, the following types of earthmoving equipment: scrapers, loaders, excavators, crawlers or wheel tractors, bulldozers, off highway trucks, skid steers, graders, agricultural and industrial tractors, and similar equipment. All equipment will only be operated only in the manner in which it is designed and intended for.

- At the beginning of each shift, the operator shall inspect and check the assigned equipment, reporting immediately to his/her supervisor any malfunction of the clutch or of the braking system, steering, lighting, or control system and locking/tagging out the equipment if necessary. Inspections must be documented and kept on file at the Branch office.

- Seat belts will be provided on all equipment covered by this section and will meet the requirements of the Society of Automotive Engineers, J386-1969, Seat Belts for Construction Equipment. Seat belts for agricultural and light industrial tractors will meet the seat belt requirements of Society of Automotive Engineers J333a-1970, Operator Protection for Agricultural and Light Industrial Tractors.

- Seat belts need not be provided for equipment which is designed only for standup operation.

- Seat belts must be worn by operators prior to start-up of vehicle and during anytime at which the vehicle engine isrunning.

- Hard hats and eye protection are required for the operators of all equipment that does not have adequate canopy protection.

- Equipment operators shall use access routes provided by the manufacturer to get on or off equipment. Three points of contact shall be maintained at all times while accessing equipment via steps or ladders.

- No employee will move or cause to be movedconstruction equipment or vehicles upon any access roadway or grade unless the access roadway or grade is constructed and maintained to accommodate safely the movement of the equipment and vehicles involved.

- Every emergency access ramp and berm used by an employee will be constructed to restrain and control runaway vehicles.

- The operator shall not load the vehicle/equipment beyond its established load limit and shall not move loads which because of length, width, or height that have not been centered and secured for safe transportation.

- All earthmoving equipment mentioned in this section will have a service braking system capable of stopping and holding the equipment fully loaded, as specified in Society of Automotive Engineers SAE-J237, Loader Dozer-1971, J236, Graders-1971, and J319b, Scrapers-1971. Brake systems for self-propelled rubber tired off highway equipment manufactured after January 1, 1972, will meet the applicable minimum performance criteria set forth in the following Society of Automotive Engineers Recommended Practices:

  - Self-Propelled SAE J319b-1971
  - Self-Propelled Graders SAE J236-1971
  - Trucks and Wagons SAE J166-1971
  - Front End Loaders and Dozers SAE J237-1971

- Pneumatic tired earth-moving haulage equipment(trucks, scrapers, tractors, and trailing units)whose maximum speed exceeds 15 miles per hour, will be equipped with fenders on all wheels to meet the requirements of Society of Automotive Engineers SAE J321a-1970, Fenders for Pneumatic Tired Earthmoving Haulage Equipment

- All bi-directional machines, such as rollers, compactors, front-end loaders, bulldozers, and similar equipment, will be equipped with a horn, distinguishable from the surrounding noise level, which will be operated as needed when the machine is moving in either direction. The horn will be maintained in an operative condition.

- No Project Supervisor or Project Foreman will permit earth moving or compacting equipment which has an obstructed view to the rear to be used in reverse gear unless the equipment has in operation a reverse signal alarm distinguishable from the surrounding noise level or an employee signals that it is safe to do so.

- Scissor points on all front-end loaders, which constitute a hazard to the operator during normal operation, will be guarded

- Tractors covered in part A of this section will have seat belts as required for the operators when seated in the normal seating arrangement for tractor operation, even though backhoes, breakers, or other similar attachments are used on these machines for excavating or other work.

- The safety requirements, ratios, or limitations applicable to machines or attachment usage covered in Power Crane and Shovel Associations Standards No. 1 and No. 2 of 1968, and No. 3 of 1969, will be complied with, and will apply to cranes, machines, and attachments under this part

- No modifications or additions which affect the capacity or safe operation of the equipment will be made without the manufacturer's written approval. If such modifications or changes are made, the capacity,operation, and maintenance instruction plates, tags, or decals will be changed accordingly. In no case will the original safety factor of the equipment be reduced.

- If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck will not exceed its capacity.

- Steering or spinner knobs will not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering hand wheel to spin. The steering knob will be mounted within the periphery of the wheel.

- All high lift rider industrial trucks will be equipped with overhead guards which meet the configuration and structural requirements as defined in paragraph 421 of American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks.

- All industrial trucks in use will meet the applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation, as defined in American National Standards Institute B56.1-1969, Safety Standards for Powered Industrial Trucks.

- Industrial trucks will meet the requirements of 1926.600 and the following:
  - Lift trucks, stackers, etc., will have a rated capacity clearly posted on the vehicle so as to be clearly visible to the operator.
  - When auxiliary removable counterweights are provided by the manufacturer, corresponding alternate rated capacities will also be clearly shown on the vehicle. These ratings will not be exceeded.

- **GROUND PERSONNEL**
  - Ground personnel shall approach the working zone of mobile equipment only when they have announced their presence to the operator.
  - Before approaching the work zone ground personnel must make eye contact with the operator of any mobile equipment
  - Ground personnel must avoid the strike zone of any portion of the moving parts of any mobile equipment or “pinch points”.
  - When ground personnel are in proximity to any portion of the moving parts of any mobile equipment or “pinch points”, the operator of the equipment must stop and lock out the controls of the equipment. If the controls are not equipped with a lockout mechanism the engine must be turned off and the brakes must be applied.

PURPOSE AND SCOPE

The Near Miss and Hazardous Condition reporting and evaluation process is a tool that the Sessler Companies use to help prevent the occurrence of accidents that lead to injuries or property damage. Reporting a Near Miss (also known as "near hit") or precursor is an essential part of a Behavior Based Safety program because it facilitates safety recognition and ownership in the workplace. The information provided in a Near Miss Report enables the Sessler Companies to communicate to all workers in all locations about potentially hazardous conditions or behaviors with recommended or self-corrected actions.

The purpose of this procedure is to define the process for reporting, documenting and follow- up on Near Miss incidents and hazardous conditions.

DEFINITIONS

Accident: An on-the-job injury or substance exposure that results in a detrimental health effect to a Sessler Companies employee.

An unsafe condition, which if not corrected, could lead to an incident. Incident: An event that results in an accident, near miss or property damage.

Near Miss: Incident or behavior where no personal injury was sustained, property was not damaged and there was no threat to the environment, but where, given a slight shift in time or position, damage and/or injury easily could have occurred.

Precursor: an unsafe condition that could cause an accident or an accident waiting to happen.

GENERAL INFORMATION

Every near miss is an incident that did not and now, will not happen. The distribution of near miss reports provides workers with a heads-up about potential scenarios in their workplaces that could avoid future accidents and injuries.

Any work-related illnesses and injuries shall be reported in accordance with the Health and Safety procedure on Injury and Illness Reporting and Investigation.

All employees should report any near miss incident or hazardous condition immediately to their Manager/Supervisor and /or Safety Manager. The report should contain recommended corrective actions they feel would eliminate the hazard or behavior.

This reporting should be done on the Safety Suggestion / Near Miss Report Form.
Evaluation / Follow-up

- Whenever a near miss or a hazardous condition is reported, an investigation shall be conducted by one of the Safety Managers to determine the root cause andcorrective action(s) to prevent re-occurrence.
- The Safety Manager will review and evaluate each Near Miss and document it in the Near Miss Report.
- The Safety Manager will contact the Near Miss submitter to ensure that completeand accurate information is collected.
- The Safety Manager will contact the submitter to ensure that corrective actions are developed and promptly followed through.
- The Safety Manager will provide the submitter with a status of the corrected action and document the date of this on the bottom of the Safety Suggestion / Near MissForm.
- Submitter's name is placed in the monthly drawing once for each Near Missor Hazardous Condition Reported

RESPONSIBILITIES

Employees

- Report any near miss incident or hazardous condition to a Safety Manager, Project Manager or Site Supervisor as soon as possible after occurrence or it is brought to your attention.
- Complete Safety Suggestion / Near Miss Report Form and submit to a Safety Manager, Project Manager or Site Supervisor.
- Assist the Safety Manager, Project Manager or Site Supervisor and theSafety Manager in conducting the investigation and providing corrective action(s).

Safety Manager/Project Manager/Site Supervisor

- Instruct employees to report all near miss incidents, actions, and hazardous conditions to their Manager/Supervisor as soon as possible after occurrence or employee is first aware.
- Handle near miss incidents occurring to contract employees, subcontractors, or visitors in the same manner as for Sessler employees.
- Assist employees with completing Safety Suggestion / Near Miss Report Form.

- Report any near miss incident or hazardous condition occurring in their areas to the Safety Manager within 2 hours.
- Submit Safety Suggestion / Near Miss Report Form to the Safety Manager. Track the completion of corrective action(s) and seek prompt closure.
- Provide feedback to employees once corrective action(s) have been implemented.

Safety Manager

- Review Safety Suggestion / Near Miss reports.
- Promptly conduct an investigation into the near miss incident or report of hazardous condition in order to determine root cause and corrective action(s).
- Assist the Manager/Supervisor and employees with investigating the incident and recommend corrective action(s) if necessary.
- Review corrective actions to ensure that they have been implemented and are effective.
- Provide timely feedback to the submitter on the status of recommended corrective actions.
- Maintain database of completed Safety Suggestion / Near Miss Report Forms and corrective actions.

Purpose

The purpose of this program is to provide a process to minimize employee-hearing loss caused by excessive occupational exposure to noise.

Where an employee's occupational noise exposure equals or exceeds 85dBA Sessler Wrecking shall inform employees of the hazards of occupational noise exposure and take all reasonably practicable steps to reduce noise levels in all areas where the employee may be present, required or permitted to work and will minimize the employees' occupational noise exposure to the extent that is reasonably practicable and document the steps taken.

Scope

This program is applicable to all employees who may be present or exposed in areas to noise in excess of 85 decibels. When work is performed on a non-owned or operated site, the client's program shall take precedence and shall be abided by. However, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when a client's program does not exist or is less stringent. If Sessler Wrecking has no control over the noise source at a client location, we will abide by the client's signage and instruction.

Key Responsibilities

Managers and Supervisors

- Ensure requirements of this program are established and maintained.
- Ensure employees are trained and comply with the requirements of this program.

Employees

- Wear hearing protection when required, attend the training, and cooperate with testing and sampling.

If a noise exposure assessment confirm that employees are exposed to excessive noise at a work site Sessler Wrecking shall have a written procedure to develop and implement a written noise management program that includes policies and procedures.

Noise Management and Hearing Conservation Program

If noise in the workplace exceeds the noise exposure limits and workers are exposed to excess noise Sessler Wrecking shall develop and implement an effective noise control and hearing conservation program and policies. Sessler Wrecking must ensure that the noise management program includes the following:

- a plan to educate workers in the hazards of exposure to excess noise and to train workers in the correct use of control measures and hearing protection;
- the methods and procedures to be used when measuring or monitoring worker exposure tonoise;
- the posting of suitable noise hazard warning signs in any work area where the noise level exceeds 85 dBA;
- the methods of engineered noise control to be used;
- the selection, use and maintenance of hearing protection devices to be worn byworkers;
- the requirements for audiometric testing and the maintenance of test records;

- an annual review of the policies and procedures to address the effectiveness of the education and training plan, the need for further noise measurement, and the adequacy of noise controlmeasures.

General Requirements

- Sessler Wrecking shall implement a hearing conservation plan developed and appoint a supervisor to oversee the plan.
- All employees who work in areas where the exposure to noise levels are 85 decibels Lex or greater, must wear hearing protection.
- Where a worker's occupational noise exposure equals or exceeds 85dBA, Sessler Wrecking shall inform the worker of the hazards of occupational noise exposure, take all reasonably practicable steps to reduce noise levels in all areas where the worker may be required or permitted to work, minimize the workers' occupational noise exposure to the extent that is reasonably practicable and document the steps taken.

Monitoring Procedures to be Used When Exposure Limits Exceed the Established Level

A noise survey and monitoring program is conducted when exposure limits exceed the established level. When information indicates that employee exposure may equal/exceed the jurisdictional levels, Sessler Wrecking shall implement a monitoring program to identify employees to be included in the hearing conservation program.

For work performed at a client's location Sessler Wrecking must ensure that employees observe posted noise signage and implement controls as needed. Any measurement of sound levels in the workplace that is done in order to determine what protective measures are appropriate shall be done without regard to any use of personal protective equipment.

A clearly visible warning sign shall be posted at every approach to an area in the workplace where the sound level regularly exceeds 85 dBA.

In every area where workers are required or permitted to work, and the noise level may frequently exceed 80dBA, Sessler Wrecking shall ensure that the noise level is measured in accordance with an approved method. A competent person must evaluate the sources of the noise and recommend corrective actions. The measurements, evaluation and recommendations are to be documented.

To evaluate noise exposure in terms of possible hearing damage, it is necessary to know the overall sound level, the exposure time of the individual in hours per day and the length of time the individual has worked in the area being surveyed. This data shall be supplemented by the following:

- Name of area and location
- Date and time of survey
- Name of person conducting survey
- Description of instrument used model and serial number
- Environmental conditions
- Description of people exposed

A plot of noise levels must be made for owned facilities. The plot must be filed or posted at the facility. Sessler Wrecking shall evaluate hearing protector attenuation for specific noise environments. The adequacy of

hearing PPE shall be re-evaluated whenever noise exposure increases to the point that the PPE provided may no longer provide adequate protection. Sessler Wrecking shall then provide more effective PPE where necessary.

All sound measuring equipment must be calibrated before and after each survey.

Records of sound measuring equipment calibration and noise level surveys conducted at the place of employment shall be kept at the place of employment as long as Sessler Wrecking operates.

Sound Level Surveys

- All owned facilities that are suspected of having noise levels exceeding 85 decibels must be screened.

Exposure Surveys:

- A representative sampling of employees shall be conducted to determine the exposure to noise over a period of time.
- Noise dosimeters must be capable of integrating all continuous, intermittent, and impulsive sound levels from 80 dB to 130 dB and must be calibrated so a dose of 50% corresponds to a time weighted average of 85 dB.

Conditions and Engineering Controls

When employees are required to work in areas in which noise levels exceed the exposure limit for permissible noise exposure Sessler Wrecking shall first take appropriate measures to reduce the noise intensity to approved levels.

Engineering controls are used to reduce noise whenever practicable. Sessler Wrecking shall take all measures reasonably necessary in the circumstances to protect workers from exposure to hazardous sound levels. Sessler Wrecking shall protect workers from exposure to a sound level greater than the limit without requiring them to use and wear personal protective equipment.

Sessler Wrecking shall ensure that all new places of employment are designed and constructed so as to achieve the lowest reasonably practicable noise level, any alteration, renovation, or repair to an existing place of employment is made so as to achieve the lowest reasonably practicable noise level, and all new equipment to be used at a place of employment is designed and constructed so as to achieve the lowest reasonably practicable noise level.

The following is a sample list of conditions encountered that require protection for sound levels. Each work site has other conditions based on equipment and work scope:

- Band Saw 104 dBA
- Blower 99 dBA
- Concrete Saw 112 dBA
- Chain Saw 110 dBA
- Compressed Air 92 dBA
- Fire Alarms 95 dBA 17
- Front End Loader 95 dBA

- Miter Saw 109 dBA
- Pneumatic Staking 103 dBA
- Pressure Washer 100 dBA
- Radial Arm Saw 103 dBA
- Sprayer, 1,000 gal. 101 dBA
- Tables Saw 93 dBA
- Wet/Dry Vac 94 dBA

Audiometric Testing

- Sessler Wrecking shall establish and maintain an audiometric testing program by making audiometric testing available to all employees whose exposures equal or exceed jurisdictional levels.
- Sessler Wrecking must provide for establishment of a baseline audiogram and recurring testing for each exposed employee.
- Sessler Wrecking will, at its expense, provide the employee who is exposed to noise that exceed noise exposure limits an initial audiometric baseline test as soon as is reasonably practicable but not later than 70 days after the employee is initially exposed to noise levels 85 decibels or greater and a further test at least once every 12 months after the initial baseline test.
- A qualified (authorized by local regulatory requirements) third party shall perform all audiometric testing, evaluation, reporting and retesting. Test results shall be supplied to the employee and if required to regulatory authorities and to others as required by local regulatory requirements.
- Audiometric testing shall be preceded by a period of at least 14 hours during which there is no exposure to workplace sound levels in excess of 80 decibels.
- This requirement may be met by the use of hearing protectors that reduce the employee noise exposure level below 80 decibels.
- An otoscopic exam is required before an audiogram is initiated. A qualified person shall examine the ear canal for any ear infections or canal irregularities that might affect the audiogram or rule out the use of earplugs.

Annual audiograms shall be evaluated as follows:

- Each audiogram shall be compared to the employees' baseline audiogram to ensure the test was valid and to determine if a standard threshold shift has occurred.
- If a standard threshold shift is determined, the employee will be retested within 30 days.
- The retest results will be considered as the annual audiogram.
- Employees shall be informed of their audiometric test results within 30 days of determination.
- If the employee has sustained a standard threshold shift, after retesting, that employee shall be notified and retrained and refitted for appropriate hearing protection and the employee shall be referred for additional medical evaluation if indicated.

Records

Sessler Wrecking must keep records of:

- The annual hearing test results for each worker, which must be kept at the place of employment as long as Sessler Wrecking operates.

- Employee audiograms are considered medical/exposure records and shall be kept and treated as confidential and will not be released to anyone without the written permission of the employee or as otherwise required by law.
- The education and training provided to workers.
- Results of noise exposure measurementstaken.

Hearing ProtectionEquipment

Hearing protectors are used where engineering controls are not practicable to ensure workers are not exposed to noise that exceeds 85 dBA over an 8-hour time period. Sessler Wrecking shall ensure that no worker is exposed to a sound level greater than an equivalent sound exposure level of 85 dBA. Workers shall wear and use personal protective equipment appropriate in the circumstances to protect them from exposure to a sound level greater than the limit.

This applies if engineering controls:

- are not in existence or are not obtainable,
- are not reasonable or not practical to adopt, install, or provide because of the duration or frequency of the exposures or because of the nature of the process, operation, orwork;
- are rendered ineffective because of a temporary breakdown of such controls;or
- are ineffective to prevent, control, or limit exposure because of an emergency.

Earmuffs and earplugs shall be made available to the employee in sizes and configurations that will be comfortable for the employee. These hearing protection devices shall be made available to all employees exposed to an 8-hour time-weighted average of 85 dB at no cost to employees.

Annual Program Review

Sessler Wrecking shall conduct an annual evaluation of the program to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

Sessler Wrecking shall regularly consult employees required to use hearing protection to assess the employees' views on this program's effectiveness and to identify any problems. Any problems that are identified during this review shall be corrected. Factors to be assessed include, but are not limited to:

- Hearing protection devices (fit, effectiveness, comfort)
- Monitoring of employee hearing test for threshold shifts in order to re-evaluate specific work areas to see if there is any correlation with conditions and test results.
- Effectiveness of and content of training.
- The employee safety committee shall be involved in the annual review.

Training

A training program shall be established for all employees who are exposed to action level noise and to inform employees, on an annual basis, of the effect of noise on hearing; the purpose of hearing protectors, including the advantages, disadvantages, and alternatives of various types, including instructions on selection, fitting,

maintenance, use and care in accordance with the manufacturer's specifications and the purpose of audiometric testing and an explanation of test procedures.

If occupational noise is between 80-85 dBA Sessler Wrecking shall train the employee in the selection, use and maintenance of hearing protection and the requirement to wear it.

Training shall be updated to be consistent with changes in the work process and PPE requirements.

All staff shall have a copy of this program and it shall be posted on the worksite and a copy made available to all employees, their representatives, and regulatory agencies.

PURPOSE AND SCOPE

This plan has been developed in part as a response to the spread of pandemic outbreak and/or situation among human populations across the globe. This plan is intended to prepare SESSLER WRECKING for an pandemic outbreak and/or situation, a real threat that has always existed and will continue for the foreseeable future.

Pandemic outbreak and/or situation is not currently present. Our goal is two-fold: (1) to plan for and implement 'prevention' processes – simple awareness and infection control practices and habits; (2) to prepare for possible onset of pandemic outbreak and/or situation and the need for immediate responses. Pandemic preparedness is a process, not an isolated event. To be "prepared," we must develop specific capabilities in staff and their families. Our Pandemic Preparedness Plan is intended to guide our development of appropriate procedures, prepare staff, and establish a state of readiness, in case a pandemic occurs.

1. GENERAL INFORMATION

1. Since 1997, the World Health Organization and many national health agencies have been monitoring the incidence of a particularly deadly form of avian flu known as H5N1. This form of influenza is currently spreading across the world's bird population. While this flu has not had widespread human impact, it has killed more than half of those humans who have been infected. It is important to plan for the possibility that this form of influenza will become a more widespread human problem. Nationwide, states, communities, organizations, and individuals have been urged to plan responses to a possible worldwide "pandemic flu." This plan outlines the steps and procedures that SESSLER WRECKING will take in response to the emergence of a pandemic flu.

2. Influenza, or "flu," in humans is a highly contagious disease that is usually spread through droplets of moisture caused by coughing or sneezing. Flu is caused by various forms of virus. As the virus attacks our bodies, it causes any of a variety of symptoms, the most usual of which include Fever, Headache, Runny Nose, Body Aches, Cough, Sore Throat, Extreme Fatigue, Stomach, and Intestinal Discomfort.

3. "Flu" season comes every year, usually in the winter. Normally, approximately 10% of the population is affected by flu symptoms. For most people, it is unpleasant, but not life-threatening. However, approximately 35,000 people die each year in the United States from symptoms or complications of the flu.

4. "Influenza Virus A," one class of viruses, is known as "avian flu" or "bird flu" because it is hosted by wild birds – the reservoir in nature for all subtypes of Influenza Virus A. The flu does not, generally, cause major symptoms of illness in infected birds. Some human flu epidemics are caused when humans working with birds become infected by a form of flu that

can be easily transmitted from human to human. This is a source of the seasonal or annual spread of human flu that we have come to expect.

- All Influenza Virus A flu is "bird flu."
- However, not all bird flu attacks humans,
- Not all bird flu that attacks humans becomes easily transmitted betweenhumans.
- Not all bird flu transmitted to humans will cause deadly epidemic or pandemic.

Scientists distinguish and name varieties of Influenza A viruses by combining the names and numbers used to describe two surface proteins that are part of the biological make-up of the virus: An "H" number that tells which form of the protein *hemagglutinin* is present, and an "N" number to tell which form of the protein *neuraminidase* is present. There are 16 known H- forms and 9 known N-forms. A particular variant of influenza A is labeled, for example, H2N2 or H2N3.

5. The Influenza A variant of most current concern is "H5N1." In 1997, a human in Southeast Asia was identified as having died of this strain of flu, transmitted from a bird. According to the World Health Organization, through July 2006, 230 cases of human infection by H5N1 have been identified. More than half (132) of those persons have died. To date, the strain has not been passed between humans – only from bird to human. The incidence among humans remains very low. However, the H5N1 strain has been identified as being widespread in bird populations, now reaching across all of Asia, most of Europe, and into Africa. Wild bird migration patterns make it likely that H5N1 will spread to wild bird populations throughout the world, perhaps as early as Autumn 2006, perhaps within a year or so. The current concern is that this flu might mutate into a variety that remains deadly to humans and is transmittable from human to human.

6. We speak of a "pandemic" flu when a new strain of flu virus appears for which there is low human immunity and high human-to-human contagiousness. Normally, forms of flu change only a little from year to year – minor mutations of the previous year's variety of flu virus. Human's infected during a recent flu season retain an immunity because their immune systems "recognize" the slightly changed new flu strain and attack invading viruses, killing them.

7. Influenza Virus A sometimes recombines (or mutates through a process called *antigen shift*) into a form that is a sudden, large change of form. If a human population has not recently experienced a similar form, its immune systems do not recognize the virus, do not attack, and the virus enters the body successfully and begins its spread. When immunity is low within a population, the disease spreads rapidly. If it spreads over a wide portion of the globe, we call this episode of flu a "pandemic flu."

8. In the last century, there have been notable pandemic flu episodes - in 1918, 1957, and 1968. The 1918 flu – "The Great Influenza" (as a recent book titles it), an H1N1 Influenza Virus A - erupted during the last year of World War I. It caused especially strong symptoms and extremely high mortality rates. The worldwide death toll in 1918 can only be estimated. Between 20 million and 50 million people died the world over. It is this episode which gives us our "worst case" images of what a pandemic flu could be.

9. The main priorities of the plan are to minimize death and morbidity, maintain essential business operations, and facilitate a return to normal operations.

10. SESSLER WRECKING will reduce the impact of a pandemic on operations through the identification of personnel, equipment, facilities, supplies, and other resources that may be needed during a pandemic.

11. SESSLER WRECKING will establish a protocol for coordinating a response.

12. This plan will be integrated into other Emergency Response Plans developed by SESSLER WRECKING.

13. This plan will be reviewed on an periodic basis to ensure continued suitability, adequacy, and effectiveness.

Resources

- Centers for Disease Control and Prevention – http://www.cdc.gov
- OSHA – http://www.osha.gov/publications/OSHA pandemic health

2. PROCEDURES AND REPONSIBILITIES

2.1 Planning Assumptions

The U.S. Center for Disease Control makes the following assumptions and projections for pandemic flu planning:

- Typical incubation period of two days
- Persons who become infected may transmit for a full day prior to the onset of symptoms.
- On average, two secondary infections occur as a result of transmission from someone who is ill.
- In a community, a pandemic "wave" will last approximately 6-8 weeks.
- Absenteeism from work may reach 40% at the peak of the pandemic wave.

- At least two pandemic waves are likely to occur.

Experience during the "Great Influenza" of 1918 demonstrates that it is possible during a pandemic that:

- The health care system will be swamped by sick people seeking assistance.
- The undertaking/funereal industry, too, can be overwhelmed.
- State and national emergency delivery systems may be overwhelmed and unable to address local needs in a timely manner.
- Fear may run rampant within a community under pandemic siege. Community assistance and neighborly support may break down completely.

This pandemic plan recognizes these past experiences and future possibilities. Our assumptions, drawn from the above, include:

- Absenteeism of workers could be in the 30-40% range.
- Workers may not be absent due to family care needs.
- Workers may simply not report due to fear of becoming infected.
- We may experience the loss of suppliers (utilities, garbage removal, food distributors, etc.)
- Government proclamations and fuel shortages may create travel restrictions.
- Businesses may close.
- Litigation may emerge from any number of the above circumstances.

2.2 Introduction to Plan Organization: The Plan Matrix

Our plan of action is organized within categories drawn from a matrix that combines a nationally recommended categorization of phases of management of emergency responses – the "National Incident Management System (NIMS)" and a framework adapted from the Pandemic Planning template of six "functions" or dimensions of planning and action that are inter-related, but distinct. We introduce these phases and functions briefly, then include a copy of the resulting matrix and summary of key planning and response tasks within each phase and function. Detailed actions are delineated in the "pull out" section at the end of this plan document.

2.3 Four Phases of NIMS Emergency Response

1. Mitigation/Prevention – What we should be " doing "always." The actions listed below are things that we can and should be doing to minimize the likelihood of the targeted hazard or condition becoming an emergency.

2. Preparedness – What we should be "doing now." The actions listed below are things that we can and should be doing to be prepared in case of the emergency

condition coming into being. These are actions for which there is not likely to be adequate time or resources to complete after the emergency situation begins to occur.

3. Response – What we should be "doing when the emergency occurs." These are actions that we should be ready to take, and should take, beginning as soon as we are aware of the emergency conditions for which we have planned. The indicators for various levels of emergency response to a pandemic are detailed below.

4. Recovery – What we should be "doing after the emergency conditions pass." These are actions that we should be ready to take, and should take, when the emergency "response" period is over. In the case of pandemic outbreak and/or situation, this does not necessarily mean that there will be further cases of an outbreak and/or situation, but the high incidence and continuing spread will have subsided.

2.4 Six Components of Pandemic Planning

1. Awareness/Education – actions to assure that all parties are informed and understand what is occurring and how they can contribute to making the situation better.

2. Infection Control – actions taken to prevent or lessen the spread of the influenza virus. These actions will, of course, also improve control of other related infections.

3. Surveillance – actions taken within SESSLER WRECKING to participate in the identification and reporting of potential or actual cases of an outbreak and/or situation during a pandemic. These actions will be taken in coordination with public health officials.

4. Health Concerns – actions taken by SESSLER WRECKING staff that are involved in the direct provision of health care or taken in coordination with community health providers.

5. Continuity of Operations (COOP) – actions taken to ensure that critical SESSLER WRECKING system functions will continue during periods of high absence or breakout.

6. Collaboration/Communication – actions taken to link SESSLER WRECKING services with other community agencies involved in the local/regional pandemic planning and response activities.

2.5 Process For Periodic Plan Update

This plan shall be reviewed at least annually by the Leadership of SESLER WRECKING to determine the need to revise or include updates reflective of significant new information, new collaborative agreements, or revised actions to be taken within any of the phases or functions delineated in this plan. The results of this review shall be communicated to the Owners at the beginning of each fiscal year, with appropriate action recommended to the Owners for approval.

In order to maintain readiness prior to or during a pandemic outbreak, the Leadership of SESSLER WRECKING is authorized to make timely additions or revisions to the written plan and, as necessary, to communicate those changes and initiate training or re-training to appropriate staff. It is the responsibility of the Leadership, when such additions or revisions to the plan are undertaken, to report to the Owners at the earliest possible time and to seek Ownership approval for continuation of the Leadership-initiated changes.

2.6 Actions To Be Taken/Resources To Be Used Within Each Phase of Pandemic Outbreak and/or Situation Response

MITIGATION AND PREVENTION
[THESE ACTIONS SHOULD BE TAKEN IMMEDIATELY AND THEN CONTINUE]

To mitigate or prevent the effects of Pandemic outbreak and/or situation, the actions outlined in the accompanying table will be taken upon adoption of this plan, and thereafter.

PREPAREDNESS
[THESE ACTIONS SHOULD BE TAKEN AT THE POINT THAT THE FIRST CASE OF SUSPECTED PANDEMIC OUTBREAK AND/OR SITUATION ENTERS THE UNITED STATES]

To prepare for Response to a Pandemic outbreak and/or situation, the following actions outlined in the accompanying table will be taken upon adoption of this plan, and thereafter, in accord with the schedule outlined below.

RESPONSE
[THESE ACTIONS SHOULD BE TAKEN WHEN THE FIRST CASE(S) OF SUSPECTED PANDEMIC OUTBREAK AND/OR SITUATION ARE REPORTED IN OUR COUNTY]

Upon receiving reports from local public health officials that there are cases of pandemic outbreak and/or situation within the county (region), the SESSLER WRECKING "response/service" system will be initiated when required and/or applicable. We include Attachments A through G as guidance tools/actions

(a) when significant outbreak, and (b) when required/requested by governing entities.

RECOVERY

[THESE ACTIONS SHOULD BE TAKEN WHEN THE "PANDEMIC" HAS ENDED]

When a pandemic is declared as "ended" by public health officials, cases of an outbreak may still occur within the population. In its wake, a pandemic may leave persons suffering a variety of health and emotional conditions. During Recovery, the actions outlined in the accompanying table will be taken.

ATTACHMENT A
Key Internal Contact Persons

Owners:

address:
phone: fax:
email:
home phone:

Executive Vice Owners:
address:

phone: fax:
email:
home phone:

Operations Manager:

address:
phone: fax:
email:
home phone:

SHE Director:

address:
phone: fax:
email:
home phone:

ATTACHMENT B
Key External Contact Persons

County Public Health Official

name:
address:
phone: fax:
email:
alternate phone:

County Emergency Management Official

name:
address:
phone: fax:
email:
alternate phone:

Hospital

name:
address:
phone: fax:
email:

Ambulance Service

name:
address:
phone: fax:
email:

Police

name:
address:
phone: fax:
email:

ATTACHMENT C
MITIGATION & PREVENTION CHECKLIST

MITIGATION & PREVENTION ACTIVITIES
[THESE ACTIONS SHOULD BE TAKEN IMMEDIATELY AND THEN CONTINUE]

Responsibility	Person Responsible	Status
AWARENESS/EDUCATION		
Prepare Staff: Train staff as role models for each other regarding infection prevention habits. (Identify trainers, complete training). (See also "Infection Control" below.)		
Inform staff and families re: infection control: Teach infection control, present at staff meetings; send information regarding healthy infection prevention habits.		
Post and distribute infection control and pandemic outbreak and/or situation basic information: Healthy Habits/Infection Control Information: Acquire or prepare posters, flyers, and related materials defining "healthy habits" that support infection control. Post flyers and reminders of healthy habits – "cover your cough," "stop the spread of germs," and related topics. [Post in each restroom and other appropriate building sites.] Acquire/ prepare, post, and distribute such materials in as many home-languages served by your LEA as is possible.		
Post and distribute infection control and pandemic outbreak and/or situation basic information: Pandemic Outbreak and/or Situation Information: Distribute "Pandemic Outbreak and/or Situation" information and "Getting Ready for Pandemic Checklist (for Families)" to staff. Acquire/ prepare such materials in as many home-languages served by your LEA as is possible and distribute, as appropriate.		
Publish articles in staff newsletters and on web pages on infection control.		
INFECTION CONTROL		
Establish, promote, and evaluate Sanitation and Disinfection Procedures a. Routinely inspect health & safety of SESSLER WRECKING facilities b. Clean shared work areas at least daily c. Maintain good cleanliness and ventilation d. Make accessible soap, paper towels & sinks or hand sanitizer e. Display hand washing & cough etiquette posters f. Maintain adequate extra supplies and develop system for dispersal g. Implement procedures for control & disposal of infectious waste h. Supply/provide disinfectant		

i. Labeled for activity against bacteria & viruses ii. EPA-registered hospital disinfectant iii. ¼ cup chlorine bleach with gallon of cool water i. Develop policies for transporting ill staff		
Train Staff : Infection Control a. Curriculum for staff Resources for Basic Readiness/Pandemic Readiness Activities i. American Red Cross-Family Disaster Plan & Personal Survival ii. Centers for Disease Control & Prevention iii. Emergency Preparedness Guide b. Universal Precautions i. Blood-borne Pathogen c. Social Distancing d. Avoid touching eyes, nose & mouth e. No sharing utensils or cups, etc. f. Stay home when sick g. Personal Protection Equipment i. N-95 Masks (need to be fit-tested for individuals) ii. Gloves h. Limit spread of germs & prevent infection i. Stay home when sick ii. Fact Sheet on Pandemic Outbreak and/or Situation Symptoms & what i. Vaccine, if applicable j. Identify essential staff-provide with PPE including N-95 respirators		

ATTACHMENT D
PREPAREDNESS CHECKLIST

PREPAREDNESS
[THESE ACTIONS SHOULD BE TAKEN AT THE POINT THAT THE FIRST CASE OF SUSPECTED PANDEMIC OUTBREAK AND/OR SITUATION ENTERS THE UNITED STATES]

Responsibility	Person Responsible	Status
AWARENESS/EDUCATION		
Re-Distribute "Pandemic Outbreak and/or Situation" information and "Getting Ready for Pandemic Checklist (for Families)" to staff (in appropriate home languages)		
Plan and begin to publish articles on signs and symptoms of outbreak and infection control in staff newsletters, on web pages, and [other locally appropriate sites].		
Send information to staff and share information in staff meetings and new staff orientation reviewing outbreak symptoms and indicators.		
INFECTION CONTROL		
Replenish supplies and review Sanitation and Disinfection Procedures a. Routinely inspect health & safety of SESSLER WRECKING facilities b. Clean shared work areas at least daily c. Maintain good cleanliness and ventilation d. Make accessible soap, paper towels & sinks or hand sanitizer e. Display hand washing & cough etiquette posters f. Maintain adequate extra supplies and develop system for dispersal g. Implement procedures for control & disposal of infectious waste h. Supply/provide disinfectant i. Labeled for activity against bacteria & viruses ii. EPA-registered hospital disinfectant iii. ¼ cup chlorine bleach with gallon of cool water		
Develop written policies and procedures for exclusion of staff due to illness		
Stay home when sick		
SURVEILLANCE		
Staff Illness a. Track staff absences i. SESSLER WRECKING Response to Pandemic Flow Chart ii. Absences beyond 10% with respiratory symptoms iii. Baseline % of staff absent on daily basis b. Report absences in accord with any inter-agency agreements b. Review travel information at www.pandemicflu.gov/travel/ c. Screen visitors for illness		
Conduct Risk/Vulnerability Assessment (What risks are unique for SESSLER WRECKING) i. Multiple parents/families traveling to affected countries ii. Large number of foreigners iii. Near airport/train station/bus station-parents working there		

Develop Disease Confinement Procedures a. Procedures for Dealing with Ill Staff i. Develop specific pandemic preparedness plan for medical response ii. When to contact DOH iii. Written procedures for exclusion b. Quarantine & Isolation i. Formulate plan for quarantine of staff ii. Plan for employees who cannot leave work: food, blankets, medications, food, etc. iii. Plan alternate means of educating employees quarantined at home		
Keep Abreast of Activity in the Community a. Monitor CDC, World Health Organization (WHO) b. Participate in hazard & risk assessments for your area		
HEALTH CONCERNS		
Identify & assess SESSLER WRECKING resources to provide for physical and mental health needs; Review and compile list of resources available for mental health and grief counseling services, including employee assistance services, partnering community mental health services, etc.		
Identify and Address SpecialNeeds a. Review Health Needs ofStaff i. Keep a list & assess needs, i.e., supplies & medications b. Procedures to identify at-risk staff c. Volunteer roster- buddy with special needs staff		
Continue to stock extra gloves, surgical masks, N95 respirator masks, and appropriate cleaning supplies.		
CONTINUITY OF OPERATIONS		
Administrative Team Monitoring: Begin regular [or "timely"] senior staff briefings to monitor preparedness, identify lessons learned, and make necessary changes to the preparedness and response plan.		
Assess and prepare for identifiable staff risks and needs: - Identify staff who, due to health condition or pregnancy, will not be able to be present at assigned office after outbreak has been identified. Provide this information to Human Resources for consideration when seeking substitutes. - Review and update staff emergency contact lists. - Assign staff to identify (and report) someone that can and will check up on them in case of an illness.		
Define critical functions which must be maintained and minimum staffing needs (numbers and skills) Plan possible re-assignments under pandemic (3-deep principle), continue cross-training (include emergency response functions in this planning)		
Define and plan for contractual issues; agree on contract addenda that will prevail during declared pandemic periods		
Project and plan for financial impact Plan for continuity of payroll functions		
Plan alternate dining services to avoid large gatherings during pandemic - stockpile food		

Develop and adopt liberal leave policies for persons with sick family members during declared pandemic disease periods		
List suppliers the LEA interacts with on routine basis; make arrangements with alternate supplier(s)		
Provide training to "Critical Incident Team" members regarding the Response and Recovery elements of this plan		
COMMUNICATION/COLLABORATION		
Collaborate with Community for Resources 1. Identify Key Stakeholders a. Faith-basedorganizations b. Neighboringjurisdictions c. Volunteerorganizations d. Local businesses e. Local officials f. Fire g. Law enforcement h. Emergency Management Agency (EMA)-County EMA Coordinators http://www.pema.state.pa.us/pema/cwp/view.asp?a=354&q=252367 i. Emergency Management Services (EMS) j. Public health k. Medical, health & behavior care providers. 2. Care for Families of Volunteers a. Need a plan to care for the families ofvolunteers b. Assess the family needs		
Develop Collaborative Links to County Emergency Response Plan 1. Be Familiar with the NIMS Model a. Establish SESSLER WRECKING Emergency Response Team 2. Collaborate with Community EMAs, Police, Fire, etc. a. Provide copies of plan to these agencies for review b. Be sure to update plan if building renovated c. SESSLER WRECKING plan to community plan d. Plan for multiple waves of illness (estimate 2-3months/wave) e. Designate incident commander for SESSLER WRECKING f. Form Emergency Preparedness Team for each branch g. Ask for volunteers & assign responsibilities h. Drills, tabletop exercises and other practice activities 3. Communication a. Provide information to staff regarding plan b. Hold company-wide meetings to address concerns c. Plan for alternate means of communication (redundancy) d. Determine who will keep track of updating communication lists e. Plan for rumor control f. Designate public information officer (PIO) g. Anticipate simple, consistent messages needed for targeted audiences, develop template letters and press releases in advance h. Template letters & press releases inadvance i. Procedures for staff release		

j. Promote use and understanding of common terminology across SESSLER WRECKING		
Develop (at least preliminary) "recovery" surveillance, referral, communication plans with partnering community agencies and service providers.		

ATTACHMENT E
RESPONSE CHECKLIST

RESPONSE – A. PANDEMIC PRESENT,
BUT BUSINESS REMAIN OPEN
[THESE ACTIONS SHOULD BE TAKEN WHEN THE FIRST CASE(S) OF SUSPECTED PANDEMIC OUTBREAK ARE REPORTED IN THE COUNTY]

Responsibility	Person Responsible	Status
AWARENESS/EDUCATION		
Send information to staff reviewing outbreak symptoms and indicators, procedures for sending ill staff home.		
Provide information to staff on prevention procedures, and provide information as to SESSLER WRECKING status		
Provide updates to staff on the extent of infection at the site and anticipated changes in conditions or associated procedures.		
INFECTION CONTROL		
Implement Procedures for Prevention of Disease Transmission a. Cancel non-essential public gatherings b. Avoid crowded social environments c. Limit non-essential travel d. Maintain 1-yd spatial separation between individuals e. Clean especially inanimate objects (phones, keyboards) f. Dispose of mask when wet		
Implement Disease Confinement Procedures (see also Health Concerns below) i. Health room procedures ii. Quarantine procedures iii. Exclusion/transportation		
Implement Staff Evacuation, As Necessary		
Promote Voluntary Quarantine Among Staff a. Stay home until fever & coughing have resolved b. Voluntary home quarantine if anyone ill in household		
SURVEILLANCE		
Monitor illness of staff a. Monitor those with temperatures above 100.4 & one or more of the following: cough, sore throat, or shortness of breath & history of contact with domestic poultry or known or suspected case of H5N1 or in an H5N1 affected country within 10 days of symptoms. b. Alert DOH to substantial increases in absenteeism-Process under development-watch website for updates.		Health staff
Monitor community/state/country/world situation a. Monitor situation through CDC, WHO & US Dept. of Health & Human Services (DHHS) websites b. Monitor situation through HAN		
Monitor effects of cumulative stress on caregivers. Work with Human Resources/Critical Incident Team] to provide support.		

HEALTH CONCERNS		
Providing for Physical Health Care a. Essential staff provided with N-95 respirators b. Provide rest places for those that tire easily or are in recovery c. Provide physical assessments if needed & make appropriate community health referrals d. Monitor sufficient infection control supplies & replenish as needed e. Monitor high risk groups (pregnant women; those with compromised immune systems, <65 with underlying condition, 65 & older)		
Providing for Mental Health Care a. Anticipate emotional trauma b. Reunion meeting before leaving SESSLER WRECKING on day of crisis-unstructured time to share c. Be vigilant about ripple effects on staff d. Reinforce message about post-traumatic stress disorder-how to recognize & prevent e. Mobilize the Crisis Recovery Team that provides emotional-psychological support f. Open "Safe Rooms" for counseling to be provided g. Provide mental health assessments if needed & make appropriate community health referrals h. Monitor effects of cumulative stress on caregivers i. Modify work roles & responsibilities or add volunteer staff as needed. j. Contact/ coordinate delivery of grief counseling, emotional counseling support, as needed.		
Reporting: a. Record each incident of staff exhibiting symptoms of outbreak , using forms provided. b. When absences are phoned in, ask, and note those absent due to outbreak symptoms. c. Report from SESSLER WRECKING branches to central office site [person] daily. d. Report to public health officials daily/ weekly as instructed by public health system		
Continue to stock extra gloves, surgical masks, N95 respirator masks, and appropriate cleaning supplies.		
CONTINUITY OF OPERATIONS		
Follow Incident Command emergency chain of command, including filling of administrative positions when absences are caused by illness.		
Modify work roles and responsibilities or add volunteer or support staff, as needed.		
Continue senior staff briefings to monitor response status, identify lessons learned, make necessary changes to the pandemic emergency response plan.		
Monitor staff absences; initiate contingency operational plans to maintain critical functions, as needed		
Initiate "pandemic procedures" as defined in contractual agreements/ addenda with bargaining unit staff		
Initiate alternate dining services to avoid large gatherings-stockpile food		
Maintain payroll distribution in accord with pandemic plan		
Implement financial contingency plans, as appropriate		
Implement liberal leave policies for persons with sick family members		
Initiate "alternate supplier" arrangements, as appropriate		
COMMUNICATION/COLLABORATION		
Follow-up with staff referrals made to community agencies.		
Implement the Emergency Response Plan 1. Collaborate with Community EMAs, Police, Fire, etc. (as planned) 2. Communication (use NIMS) a. Rumor Control i. Communication in absence of person-to- person contact		

ii. Prepare statement to be read by all, answering calls. Place on SESSLER WRECKING website iii. Clear messages to assuage fear iv. Timely, accurate, credible & consistent information tailored to specificaudiences v. Regular debriefings vi. Within 4 hours, make public announcement vii. Phone tree calls to all staff viii. Educational materials available how to support your staff withrecovery ix. Hold meetings for staff. x. Hold community-wide meetings to address concerns b. Media Control i. Schedule press briefing ii. Set perimeter for press access		

RESPONSE – B. BUSINESS CLOSED

Responsibility	Person Responsible	Status
AWARENESS/EDUCATION		
Send "SESSLER WRECKING closed" letter to staff.		
INFECTION CONTROL		
Continue all infection control procedures among any staff working through "closure"		
SURVEILLANCE		
Monitor illness of any staff working through "closure" a. Monitor those with temperatures above 100.4 & one or more of the following: cough, sore throat, or shortness of breath & history of contact with domestic poultry or known or suspected case of H5N1 or in an H5N1 affected country within 10 days of symptoms. b. Alert DOH to substantial increases in absenteeism-Process under development-watch website for updates.		
Monitor community/state/country/world situation a. Monitor situation through CDC, WHO & US Dept. of Health & Human Services (DHHS)websites b. Monitor situation through HAN		
Monitor the effects of cumulative stress on caregivers such as staff and other crisis team members. Work with [Human Resources and the Critical Incident Team] to provide support.		
HEALTH CONCERNS		
Contact/ coordinate delivery of grief counseling, emotional counseling support, as needed.		
CONTINUITY OF OPERATIONS		
Continue senior staff briefings to monitor response status, identify lessons learned, make necessary changes to the pandemic emergency response plan.		
Continue to implement COOPs for fiscal, physical plant		
COMMUNICATION/COLLABORATION		
Maintain communications with EMA/public health agencies, per prior collaborative agreements.		
Implement POD plans and roles under direction of public health/EMA officials, as appropriate		

ATTACHMENT F
RECOVERY CHECKLIST

RECOVERY
[THESE ACTIONS SHOULD BE TAKEN WHEN THE "PANDEMIC" HAS ENDED]

Responsibility	Person Responsible	Status
AWARENESS/EDUCATION		
Continue to post flyers and reminders of healthy habits.		
Continue to publish articles in staff newsletters, on web pages, and in offices on infection control.		
Provide information to staff on: - extent of pandemic in the community, - signs and symptoms of stress/ emotional issues arising from impact of outbreak, loss and grief on self, family, friends, or community, and - counseling services and activities to assist in coping with impact of the outbreak on family, friends, community		
INFECTION CONTROL		
Return to Mitigation/Prevention Infection Control Procedures		
SURVEILLANCE		
Identify staff who may need long-term physical and mental health support or intervention.		
HEALTH CONCERNS		
Mental HealthConcerns 1. Returning to work a. Address required comfort needs b. Establishment of safe rooms where staff can retreat c. Establishing routine as soon as possible "new normal." d. Group & individual counseling e. Seek out staff who may need assistance f. Employee Assistance Program (EAP) g. Delay tests & projects h. Packaged curriculum that provides structure & advice for return tolearning i. Use On-call substitutes who can fill in quickly, if needed j. Provide caregivers with systematic recognition (programs to provide support &/or a break from the stress) 2. Long-term Recovery a. Stay alert for any continuing changes in behavior over days & months b. Employee Assistance Program (EAP) c. Prepare for remembering benchmark dates		
Continue to conduct appropriate physical assessments and make appropriate community health referrals or reports, in coordination with LEA and community health agencies.		
CONTINUITY OF OPERATIONS		
Continue senior staff briefings to monitor recovery status, identify lessons learned, revise the response plan.		
Plan and implement activities to rebuild community throughout, including, for example: a. Appropriate environmental remediation of our facility if used as health care site or if there were		

sick members in the building b. Restoration & strengthening of community & social connections c. Involvement of children & community in planning & rebuilding efforts d. Strengthen support systems e. Reach out to other communities who have dealt with similar crises		
Evaluate Efficacy of Disaster Plan: What worked? What did not? Revise &/or train, as appropriate		
COMMUNICATION/COLLABORATION		
Continue to develop community resources to provide needed physical and mental health support.		
Implement surveillance, referral, communication plans with partnering community agencies and providers.		
Communication a. Regular debriefing b. Keep communication lines open among employees, family & community c. Community-wide meetings to facilitate addressing how they will cope		

ATTACHMENT G
PANDEMIC PLANNING MATRIX

NIMS Phase	Pandemic Action Planning Tasks					
	Awareness/ Education	Surveillance	Infection Control	Health Concerns	Continuity of Operations	Communication/ Collaboration
Mitigation/ Prevention	▪ Begin awareness and education process ▪ Identify individuals to educate employees about: ○ pandemic flu ○ personal hygiene ○ local plans ▪ Identify information to be translated; identify translators; create templates	▪ Set up system for surveillance of incidence of disease including procedures, templates for reporting and communication with agencies and community ▪ Orient employees regarding symptoms and intended surveillance procedures ▪ Track the number of employees absent daily ▪ Report numbers absent to appropriate Department of Health office if over 25% or when requested	▪ Identify individual(s) to ensure company has adequate supplies for good personal hygiene ▪ Distribute and display posters, regarding good personal hygiene ▪ Conduct instruction on good personal hygiene practices	▪ Identify and assess resources to provide for physical and mental health needs ▪ Plan for provision of additional resources as needed (company and community based)	▪ Review policies and procedures regarding emergency response, communicable diseases, etc. to determine the need for revision ▪ Explore alternate scheduling options for continuity of operations with reduced staffing, vaccine/supply interruptions, etc. ▪ Assess potential financial impact ▪ Determine current policies/ procedures that may be impacted (i.e., leave, absences, payroll, etc.)	▪ Identify committee (including community agencies) to develop pandemic plan ▪ Develop communication plans (e.g. business closure, schedule changes, bussing) ▪ Ensure collaboration with appropriate local DOH agency ▪ Establish Incident Command structure including back-up plans/systems/chain of command
Preparedness	▪ Identify and pre-screen health and grief service providers ▪ Develop template letters, forms, etc. ▪ Continue to educate employees ▪ Provide training for post-trauma support	▪ Track the number of employees absent daily ▪ Report numbers absent to appropriate Department of Health office if over 25% or when requested	▪ Review policies and procedures for sending ill employees home; modify as needed	▪ Identify and assess company resources to provide for physical and mental health needs ▪ Plan for provision of additional resources as needed (company and community based)	▪ Begin monitoring of conditions and readiness ▪ Review pandemic flu plan in anticipation of implementation; revise as needed ▪ Define critical operations, minimum staffing (& skills), cross-training	▪ Planning for resources to aid community surge capacity ▪ Identify/review procedures for communication with employees ▪ Develop procedures for communication with DOH
Response	▪ Finalize and initiate communication to employee's families (including in appropriate home languages) ▪ Keep employees informed on the extent of infection and potential changes	▪ Track the number of employees absent daily ▪ Report numbers absent to appropriate Department of Health office if over 25% or when requested ▪ Monitor the effects of cumulative stress on caregivers	▪ Implement policies and procedures for sending ill employees home ▪ Implement social distancing, isolation, quarantine, etc. as indicated	▪ Utilize company resources to provide for physical and mental health needs ▪ Arrange for provision of additional resources as needed (company and community based)	▪ Conduct debriefings re: lessons learned ▪ Document critical actions taken ▪ Business closings as needed, directed by authorized personnel	▪ Implement all interagency agreements and procedures for pandemic conditions ▪ Implement procedures for communication with DOH
Recovery	▪ Provide training for post-trauma support ▪ Inform employees re: extent of pandemic flu in community; activities that may assist students; signs & symptoms to observe; safe room function; counseling support services available to employees and families ▪ Provide educational materials to employees such as: how to support recovery from pandemic flu; common symptoms of grief and loss; coping with stress; etc.	▪ Identify employees who may be in need of (physical and/or mental health) support and develop/arrange community resources in response ▪ Monitor the effects of cumulative stress on caregivers	▪ Return to Mitigation/Prevention procedures and activities	▪ Mobilize crisis response/ recovery team ▪ Provide physical assessments as needed and/or make appropriate community health referrals ▪ Plan for and provide rest as needed for those in recovery ▪ Establish "safe rooms" as location for employee counseling and support ▪ Provide counseling and student support services ▪ Engage EAP processes as appropriate	▪ Modify work roles and responsibilities or add volunteer or support staff as needed ▪ Follow-up debriefings with crisis response team ▪ Document lessons learned	▪ Follow-up with employee referrals to community agencies

Purpose

The purpose of this program is to provide establish requirements for the safe operation of hand and power tools and other portable tools, including proper guarding. All hand and power tools shall be maintained in a safe condition.

This program applies to all Sessler Wrecking employees who use hand and power tools.

Scope

This program is applicable to all Sessler Wrecking employees while engaged in work at Sessler Wrecking facilities and/or facilities operated by others.

Responsibilities

Any tool which is not in compliance with any applicable requirement of this plan is prohibited and shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

Managers/Supervisors

- Ensure that all employees using portable tools have been trained and fully understand the operations and maintenance procedures of such tools, including their proper use.
- Provide and train employees with all additional PPE that may be needed for the safe operation of portable tools.

Employees

- Shall ensure they have and properly use the correct tool for each task.
- Shall follow manufactures safety and operating instructions before using

Practices/Procedures Relating to Hand Tools

- All tools, regardless of ownership, shall be of an approved type and maintained in goodcondition.
- Tools are subject to inspection at any time.
- All employees have the authority and responsibility to condemn unsafe tools, regardless of ownership.
- Unsafe tools shall be tagged with a “DO NOT USE OR OPERATE” tag to prevent theiruse.
- Employees shall always use the proper tool for the job to be performed. Makeshift and substitute tools shall not be used. Modifications to hand tools are prohibited
- Hammers with metal handles, screwdrivers with metal continuing through the handle, and metallic measuring tapes shall not be used on or near energized electrical circuit or equipment.
- Tools shall not be thrown from place to place or from person to person; tools that must be raised or lowered from one elevation to another shall be placed in tool bags/buckets firmly attached to hand lines.
- Tools shall never be placed unsecured on elevated places.
- Impact tools such as chisels, punches, and drift pins that become mushroomed or cracked shall be dressed, repaired, or replaced before further use.

- Chisels, drills, punches, ground rods, and pipes shall be held with suitable holders or tongs (not with the hands) while being struck by another employee.
- Shims shall not be used to make a wrench fit.
- Wrenches with sprung or damaged jaws shall not be used.
- Tools shall be used only for the purposes for which they have been approved.
- Tools with sharp edges shall be stored and handled so that they will not cause injury or damage. They shall not be carried in pockets unless suitable protectors are in use to protect the edge. They shall not be carried in pockets unless suitable protectors are in use to protect the edge.
- Wooden handles that are loose, cracked, or splintered shall be replaced. The handle shall not be taped or lashed with wire. The handle shall not be taped or lashed with wire.
- Tools shall not be left lying around where they may cause a person to trip or stumble.
- When working on or above open grating, a canvas or other suitable covering shall be used to cover the grating to prevent tools or parts from dropping to a lower level where others are present, or the danger area shall be barricaded or guarded.
- The insulation on hand tools shall not be depended upon to protect users from high voltage shock (except approved live line tools).

Portable Electric and Power Tools

- The non-current carrying metal parts of portable electric tools such as drills, saws, and grinders shall be effectively grounded when connected to a power source unless the tool is an approved double-insulated type, or the tool is connected to the power supply by means of an isolating transformer or other isolated power supply.
  All powered tools shall be examined prior to use to ensure general serviceability and the presence of all applicable safety devices.
- Powered tools shall be used only within their design and shall be operated in accordance with manufacturer's instructions. The use of electric cords for hoisting or lowering tools shall not be permitted.
- All tools shall be kept in good repair and shall be disconnected from the power source while repairs or adjustments are being made.
- Electrical tools shall not be used where there is a hazard of flammable vapors, gases, or dusts without a valid Hot Work Permit.
- Ground fault circuit interrupters or use of an Assured Grounding Program shall be used with portable electric tools. This does not apply to equipment run off of portable or truck mounted generators at 5kw or less that are isolated from ground or to equipment ran directly off ofsecondaries.

Pneumatic Tools

- Pneumatic tools shall never be pointed at another person.
- Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
- Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
- Compressed air shall not be used for cleaning purposes, except where reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.

- Compressed air shall not be used to blow dust or dirt from clothing.
- The manufacturers stated safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.
- The use of hoses for hoisting or lowering tools shall not be permitted.
- Before making adjustments or changing air tools, unless equipped with quick-change connectors, the air shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before breaking the connection.
- Compressed air tools, while under pressure, must not be left unattended.
- All connections to air tools shall be made secure before turning on air pressure.
- Air at the tool shall not be turned on until the tool is properly controlled.
- All couplings and clamps on pressurized air hose shall be bridged (pinned) with suitable fasteners.
- Hose and hose connections used for conducting compressed air to utilization equipment shall be designed for the pressure and service to which they are subjected.
- Use only approved end-fitting clamps (screw type heater hose clamps are not acceptable).
- While blowing down hose, do not point it toward people.
- Power tools are to be operated only by competent people who have been trained in their proper use.
- Conductive hose should not be used near energized equipment.
- Foot protection shall be worn while operating paving breakers, tampers, rotary drills, clay spades, and similar impactor-type tools or at other times when instructed by supervision.
- All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi. pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.
- Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.
- In lieu of the above, a diffuser nut (which will prevent high pressure), high velocity release (while the nozzle tip is removed), plus a nozzle tip guard (which will prevent the tip from coming into contact with the operator), or other equivalent protection, shall be provided.

Powder Actuated Tools (Tools actuated by an explosive charge)

- Only those employees who have been certified in their use shall operate these tools.
- Explosive charges shall be carried and transported in approved containers.
- Operators and assistants using these tools shall be protected by means of eye, face, and hearing protection.
- Tools shall be maintained in good condition and serviced regularly by qualified persons. The material upon which these tools are to be used shall be examined before work is started to determine its suitability and to eliminate the possibility of hazards to the operator and others.
- Prior to use, the operator shall ensure that the protective shield is properly attached to the tool.
- Before using a tool, the operator shall inspect it to determine to his satisfaction that it is clean, that all moving parts operate freely, all guards and safety devices are in place, and that the barrel is free from obstructions.
- Before using tools, the operator shall read and become familiar with the manufacturers operating guidelines and procedures.

- When a tool develops a defect during use, the operator shall immediately cease to use it, until it is properly repaired in accordance with the manufacturer's specifications.
- Tools shall not be loaded until just prior to the intended firing time, nor shall an unattended tool be left loaded. Empty tools are to be pointed at any workers.
- In case of a misfire, the operator shall hold the tool in the operating position for at least 30 seconds. He shall then try to operate the tool a second time. He shall wait another 30 seconds, holding the tool in the operating position; then he shall proceed to remove the explosive load in strict accordance with the manufacturer's instructions.
- A tool shall never be left unattended in a place where it would be available to unauthorized persons.
- Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick, or hollow tile.
- Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.
- Tools shall not be used in an explosive or flammable atmosphere.

Hydraulic Power Tools

- The fluid used in hydraulic powered tools shall be fire-resistant fluids and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.
- The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fittings shall not be exceeded.
- All hydraulic tools, which are used on or around energized lines or equipment, shall use non-conducting hoses having adequate strength for the normal operating pressures.

Hydraulic Jacks

Loading and Marking

- The operator shall make sure that the jack used has a rating sufficient to lift and sustain the load.
- The rated load shall be legibly and permanently marked in a prominent location on the jack by casting, stamping or other suitable means.

Operation and Maintenance

- In the absence of a firm foundation, the base of the jack shall be blocked. If there is a possibility of slippage of the cap, a block shall be placed in between the cap and the load.
- The operator shall watch the stop indicator, which shall be kept clean, in order to determine the limit of travel. The indicated limit shall not be exceeded.
- After the load has been raised, it shall be cribbed, blocked, or otherwise secured at once.
- Hydraulic jacks exposed to freezing temperatures shall be supplied with adequate antifreeze liquid.
- All jacks shall be properly lubricated at regular intervals.
- Each jack shall be thoroughly inspected before each use. Jacks, which are in unsafe condition, shall be tagged accordingly, and shall not be used until repairs are made.

Fuel Powered Tools

- All fuel-powered tools shall be stopped while being refueled, serviced, or maintained, and fuel shall be

transported, handled, and stored in accordance with the Flammable and Combustible Liquids Program.

- When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of personal protective equipment shall be adhered too.

Guarding Portable Tools

Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such a way that will compromise its integrity or compromise the protection in which it is intended.

Portable Circular Saws

- All portable, power-driven circular saws having a blade diameter greater than 2 in. shall be equipped with guards above and below the base plate or shoe.
- The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts.
- The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work.
- When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.
- All cracked saw blades shall be removed from service.

Switches and Controls

- All handheld powered tools, circular saws, drills, tappers, fastener drivers, horizontal or vertical angle grinders, etc., shall be with a constant pressureswitch or control, and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.
- All hand-held powered circular saws having a blade diameter greater than 2 inches, electric, hydraulic, or pneumatic chain saws, and percussion tools without positive accessory holding means shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. All hand-held gasoline powered chain saws shall be equipped with a constant pressure throttle control that will shut off the power to the saw chain when the pressure is released.
- The operating control on hand-held power tools shall be so located as to minimize the possibility of its accidental operation if such accidental operation would constitute a hazard to employees.
- Grounding of portable electric powered tools shall meet the electrical requirements that can be found in the Electrical Safety Program. All electric power tools shall be equipped with a three-prong plug.

Abrasive Wheel Machinery and/or Other Rotating Equipment

Portable Abrasive Wheels

Safety Guards Exceptions

- Wheels used for internal work while within the work being ground.
- Mounted wheels used in portable operations 2 inches and smaller in diameter.
- Guards shall be made of steel or other material with adequate strength.
- A safety guard shall cover the spindle end, nut, and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard.
- Exception: safety guards on all operations where the work provides a suitable measure of protection to

the operator may be so constructed that the spindle end, nut, and outer flange are exposed. Where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted.

- Exception: the spindle end, nut, and outer flange may be exposed on portable machines designed for, and used with, type 6, 11, 27, and 28 abrasive wheels, cutting off wheels, and tuck-pointing wheels.

Mounting and Inspection of Abrasive Wheels

- Immediately before mounting, all wheels shall be closely inspected and a ring test performed, to make sure they have not been damaged in transit, storage, or otherwise.
- Ring test – “tap" wheels about 45 degrees each side of the vertical centerline and about 1 or 2inches from the periphery; then rotate the wheel 45 degrees and repeat the test; a sound and undamaged wheel will give a clear metallic tone - If cracked, there will be a dead sound and not a clear "ring.”
- The spindle speed of the machine shall be checked before mounting the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.
- Grinding wheels shall fit freely on the spindle and remain free under all grindingconditions.
- A controlled clearance between the wheel hole and the machine spindle (or wheel sleeves or adaptors) is essential to avoid excessive pressure from mounting and spindle expansion.
- The machine spindle shall be made to nominal (standard) size plus zero minus .002 inch, and the wheel hole shall be made suitably oversized to assure safety clearance under the conditions of operating heat and pressure.
- All contact surfaces of wheels, blotters, and flanges shall be flat and free of foreignmatter.
- When a bushing is used in the wheel hole it shall not exceed the width of the wheel and shall not contact the flanges.

Portable Grinders

- Special "revolving cup guards" which mount behind the wheel and turn with it shall be used. They shall be made of steel or other material with adequate strength and shall enclose the wheel sides upward from the back for one-third of the wheel thickness. It is necessary to maintain clearance between the wheel side and the guard. The clearance shall not exceed one-sixteenth inch.
- Vertical portable grinders, also known as right angle grinders, shall have a maximum exposure angle of 180 degrees and the guard shall be located between the operator and the wheel during use. Adjustment of the guard shall ensure that pieces of an accidentally broken wheel will be deflected away from theoperator.
- The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on other portable grinding machines shall not exceed 180 degrees and the top half of the wheel shall be enclosed at all times.

Personal ProtectiveEquipment

Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists, vapors, or gases shall be provided with the particular PPE necessary to protect them from the hazard.

Body Positioning, Ergonomics and Repetitive Motion Hazards

Sessler Wrecking requires each worksite to establish and maintain an ergonomics procedure with the following elements:

- Ongoing training of management, supervisors, and employees (including new hires) on lifting and manual handling awareness hazards and control measures.
- Training of specialized staff (designated Sessler Wrecking Representative, JHSC members) on lifting or manual handling hazard assessment and control measures
- Tracking of MSD statistics
- MSD hazard identification and assessment (see MSD Hazard Identification form)
- Control of MSD hazards through the application of engineering and/or administrative controls
- Implementation of the ergonomics procedure by incorporating ergonomic control principles into the purchasing process, i.e., by proactively integrating ergonomics principles into purchasing equipment and furniture
- Proactively integrating ergonomics principles into workplace design and work techniques
- Ongoing evaluation (no less than annually) of the local ergonomics procedure implementation and effectiveness
- A realization that personal protective equipment may only be used as a substitute for engineering or administrative controls if it is used in circumstances in which those controls are not practicable.

Sessler Wrecking must ensure that every worker who may be exposed to a risk of musculoskeletal injury is informed of the risk and of the signs and common symptoms of any musculoskeletal injury associated with their work.

Worksite Assessment

A hazard assessment must be performed before manually lifting and handling a load. Before a worker manually lifts, lowers, pushes, pulls, carries, handles, or transports a load that could injure the worker, Sessler Wrecking must perform a hazard assessment that considers the weight of the load, the size of the load, the shape of the load, the number of times the load will be moved and the manner in which the load will be moved. The assessment shall include the following factors must be considered, where applicable:

- Physical Demands
    - Neck Back Shoulder Wrist
    - Hand
    - Knee Ankle/
    - Feet
- Force Required and Working Distance
    - Do employees push, pull, lift, lower, or carry objects that are too heavy or require too much force; away from the center of the body or in a jerky or twisting manner?
- Work Postures
    - Is the back curved too much or in a stooped position?
    - Is the back twisted during movements?
    - Is the neck bent or twisted?
    - Are the arms away from the body?

- Are the wrists flexed, extended, or pinched positions?

- Repetitive Use of Similar Muscles
  - Do employees perform movements over and over in the same way
- Static Muscle Use and Duration
  - Do employees hold any of the above work postures for > 20 sec.?
  - Stand for long periods with their knees locked?
  - Stand in one position without moving or stretching?
- Contact Stress
  - Do employees put localized pressure on any part of their body?
- Workspace Layout and Conditions
  - Are there working heights, reaches in workspace, equipment, tool design, storage conditions, etc., that cause or contribute to employees experiencing any of the physical demands risk factors?
  - Also consider seating, floor surfaces, the characteristics of objects handled, including size and shape, load condition and weight distribution, and container as well as tool and equipment handles.
- Organization of Work
  - Are there work processes, monotonous job tasks, work recovery cycles, task variability, work rate, machine paced tasks or peak activity demands that cause or contribute to rushing, frustration, fatigue, or other visible signs of stress?
- Environmental Conditions
  - Are employees exposed to poor lighting, vibration, cold or hot air/wind/water?

Mechanized Equipment

Mechanized equipment is provided, wherever practicable, to assist with material handling and should be used for material handling, whenever practicable. Sessler Wrecking must provide, where reasonably practicable, appropriate equipment for lifting, lowering, pushing, pulling, carrying, handling, or transporting heavy or awkward loads.

Handling Heavy or Awkward Loads

Sessler Wrecking will take all practicable means to adapt the heavy or awkward loads to facilitate lifting, holding, or transporting by workers or to otherwise minimize the manual handling required. Those include:

- Employees shall not attempt to lift more than they can comfortably take and absolutely not more than 18kg without assistance from another employee or use of mechanical aids (pallet jack, hand dolly, etc.) to lift the load.
- All loads carried on handcarts shall be secured.
- All awkward type loads shall be secured to prevent tippage.
- Additional methods include:
  - reducing the weight of the load by dividing it into two or more manageable loads
  - increasing the weight of the load so that no worker can handle it and therefore mechanical assistance is required

- reducing the capacity of the container
- reducing the distance, the load must be held away from the body by reducing the size of the packaging
- providing hand holds
- team lift the object with two or more workers
- improve the layout of the work process to minimize the need to move materials
- reorganize the work method(s) to eliminate or reduce repeated handling of the same object
- rotate workers to jobs with light or no manual handling
- Use mobile storage racks to avoid unnecessary loading and unloading.

Review & Updating Ergonomics Procedure

- Each worksite will review the effectiveness of the ergonomics procedure at least annually. Any injuries will be reviewed for MSI, and ergonomics procedure deficiencies and those factors must be corrected without undue delay and the MSD and ergonomics procedure revised. When the monitoring required identifies deficiencies, they must be corrected without undue delay.
- Any revision must involve retraining employees to the effect of the corrective actions.

Training

Workers are provided ergonomics training. Sessler Wrecking will ensure that a worker who may be exposed to the possibility of musculoskeletal injury is trained in specific measures to eliminate or reduce that possibility.

Sessler Wrecking must ensure that a worker who may be exposed to the possibility of musculoskeletal injury is trained in specific measures to eliminate or reduce that possibility. Sessler Wrecking must ensure that the training includes identification of factors that could lead to a musculoskeletal injury, the early signs and symptoms of musculoskeletal injury and their potential health effects and preventive measures including, where applicable, the use of altered work procedures, mechanical aids, and personal protective equipment.

Training shall be documented and must remain in the worker's training file.

Purpose

The purpose of the Personal Protective Equipment section is to set forth the procedures for the use, care, and maintenance of personal protective equipment required to be used by employees for the prevention of injuries.

Scope

This program applies to all Sessler Wrecking employees. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Key Responsibilities

Safety Manager

- Assists in the selection of appropriate PPE. If a task exposes an employee to hazards which cannot be eliminated through engineering or administrative controls, the Safety Manager assists the supervisor and project manager to identify and select PPE suitable for the specific task performed, conditions present, and frequency and duration of exposure. Employees need to give feedback to the supervisor about the fit, comfort, and suitability of the PPE being selected. Employees are provided reasons for selection of PPE.
- Assists supervisor and site managers in assuring all PPE obtained meets regulatory and this procedure's requirements.
- Performs Worksite Hazard Assessments - The hazard assessment must indicate a determination if hazards are present or are likely to be present, which necessitate the use of PPE. Sources of hazards include but are not limited to hazards from impact/motion, high/low temperatures, chemicals, materials, radiation, falling objects, sharp objects, rolling or pinching objects, electrical hazards, and workplace layout. Certifies in writing the tasks evaluated, hazards found, and PPE required to protect employees against hazards and ensures exposed employees are made aware of hazards and required PPE before they are assigned to the hazardous task. Certificate shall include certifier's name, signature, dates, and identification of assessment documents.

Managers and Supervisors

- Supervisors and managers shall regularly monitor employees for correct use and care of PPE and obtain follow-up training if required to ensure each employee has adequate skill, knowledge, and ability to use PPE.
- Supervisors and managers shall enforce PPE safety rules following the guidance of the Sessler Wrecking progressive disciplinary procedures and ensure Required PPE Poster is posted properly.

Employees

- Complying with the correct use and care of PPE.
- Reporting changes in exposure to hazardous conditions that might require a follow-up assessment of the task for PPE.
- Reporting and replacing defective or damaged PPE, which shall not be used.

- Wearing the required PPE is a condition of employment.

General

- Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition whether the PPE is employer issued or employee owned.
- Employee-owned equipment is NOT permitted, except for safety toe footwear and prescription safety glasses. Sessler Wrecking is still responsible for the assurance of its adequacy, maintenance, and sanitation of those two items.
- All PPE issued shall be at no cost to the employee. All employees will know and follow the procedures outlined in this Program.
- The minimum requirements for all projects are Hard Hat, Safety Glasses, Reflective High Vis Vest, and Safety Boots. Other items may be required based on the risks present.

Worksite Hazard Assessment

Sessler Wrecking shall assess the workplace to determine if hazards are present, or likely to be present, which necessitate the use of PPE. A written hazard assessment shall be carried out. During the hazard assessment a determination if hazards are present or are likely to be present, this necessitates the use of PPE. The following sample hazard sources will be identified:

- High or low temperatures; Chemical exposures (use MSDS for guidance)
- Flying particles, molten metal or other eye, face, or skin hazards
- Falling objects or potential for dropping objects; employee falling from a height of 6’ ormore
- Sharp objects; Rolling or pinching that could crush the hands or feet;
- Electrical hazards

Where these hazards could cause injury to employees, personal protective equipment must be selected to substantially eliminate the injury potential. Employees will be notified for the selection and reason.

The results of this assessment shall be communicated to each affected employee and kept at the local office.

Selected/identified PPE shall be fitted to each affected employee. Fitting, including proper donning, doffing, cleaning, and maintenance of PPE is addressed in the Training section. Exemptions for use of PPE must be supported by the PPE hazard assessment.

Eye Protection

Employees must use appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids or chemical gases or vapors. Eye and Face PPE must comply with ANSI Standard Z87.1-2003 (Z87+), *Occupational and Educational Personal Eye and Face Protective Devices.*

Safety Glasses

Safety glasses, with side shields, which meet ANSI Z-87.1-2003 standards with “high Impact lenses” are required to be worn by all employees, subcontractors, and visitors while on Sessler Wrecking property, at all times, as described below:

- At field locations, in shops and warehouses, except in approved, designated, striped safety zones.
- In all yard work zones or by everyone when in the vicinity of loading or unloading equipment, performing mechanic or maintenance work, test stand operations, operating equipment such as forklifts, welding, or any type of work which has the potential to inflict an eye injury.
- In any office, restroom, or any other building while performing any type of work where a potential eye injury may be present.
- Visitors will be provided with visitor glasses. In the absence of approved prescription safety glasses, "Over the glass" type safety glasses or goggles, must be worn over the non-safety glasses until approved prescription safety glasses are obtained.
- Workers assisting welders must wear absorbent safety glasses that protect the wearer from ultra-violet (UV) and/or infrared rays (IR).
- Dark shaded lens (sunglasses) darker than a # 1 shade is prohibited to be worn indoors unless welding or assisting a welder.
- A doctor must support "exceptions for medical reasons" in writing to exempt safety eyewear requirements.
- Safety glasses are not required:
    - Inside offices.
    - Parking lots when traveling from vehicles to and from office buildings by way of maindoors that do not pass through shops.

Goggles

- Chemical splash proof goggles shall be worn when handling or mixing liquid chemicals, solvents, paints, etc., and/or as recommended on the Material Safety Data Sheet of the material being handled.
- Dustproof goggles shall be worn when blowing equipment down with air or while performing other jobs where safety glasses are not adequate to prevent airborne particles from entering the openings around the lenses and side shields.

Face Shields

- Full face shields shall be worn over safety glasses when operating handheld or stationery grinders with abrasive or wire wheels, while chipping paint or concrete or, performing jobs where there is the potential for flying objects striking the face and safety glasses or goggles would not provide adequate protection.

Head Protection

Employees must wear protective helmets when working in areas where there is a potential for injury to the head from employee-initiated impact or impact from falling or other moving objects. Helmets must comply with ANSI Standard Z89.1-1997 Class E, *American National Standard for Industrial Head Protection* for Type II head protection or be equally effective.

- Employees must wear protective helmets when working in areas where there is a potential for injury to the head from falling objects.
- Hardhats are to be worn at all field, shop, and warehouse locations, or where deemed necessary as per each location's PPE Hazard Assessment.
- Hardhats will not be altered in any way.
- Do not paint or apply unauthorized stickers, name plates, etc.
- Do not drill, cut, bend, or apply heat.
- Do not alter the suspension system.

- Hardhats will be inspected by the employee regularly for cracks, chips, scratches, signs of heat exposure (sun cracks), etc.
- Defective hardhats will be replaced immediately.
- Hardhats shall not be placed in rear windows of vehicles where they will be exposed to the sun or become projectiles during an accident.
- A supply of hardhats must be made available to visitors.
- Sessler Wrecking shall provide hardhats.
- Employees will be trained in the use, care, and maintenance of head protection equipment.

Hearing Protection

Hearing protection is required to be worn by all employees, subcontractors, and visitors while in posted "High Noise" areas. Refer to the Sessler Wrecking Hearing Conservation Program for more information.

Warning signs will be posted in areas known or suspected to have noise levels exceeding 85 dBA either constantly or intermittently.

When signs are not posted, employees shall wear hearing protection when noise caused by machinery, tools, etc., prevents normal conversations from being heard clearly.

Rule of thumb: If you have to yell to be heard, hearing protection is required

Types

- Molded Inserts (ear plugs)
- Canal Caps (head band type)
- Muff, either headband or hard hat mounted Earmuffs and earplugs shall be provided to the employee in sizes and configurations that will be comfortable to the employee.

Care and Maintenance

- Inspect hearing protection prior to each use.
- Hearing protection must be kept clean to prevent ear infections.
- Most earplugs used today are disposable and must be discarded when they become dirty, greasy, or cracked.
- Earmuffs that have deteriorated foam inserts, cracked seals or are defective must be replaced.

Fit

- Due to individual differences, not everyone can wear the same type of hearing protection. A variety of styles may have to be tried before one is found to be comfortable and provide adequate protection.
- Employees shall be instructed how to obtain the proper fit.

Hand Protection

Gloves

- Gloves are required to be worn when performing work, which may expose the hands to extreme temperatures, cuts and abrasions, or exposure to chemicals.
- Welding: Welding gloves made of leather or other heat resistant materials shall be worn when performing arc welding or oxy/gas cutting.

- Chemical: Impervious (chemical resistant) gloves shall be worn when handling chemicals that specify gloves as personal protection equipment when handling.
- Refer to the specific chemical's Material Safety Data Sheet for the correct glovetype.
- Persons assigned to working with chemicals, i.e., solvent vats, shall be issued their own individual gloves for hygiene purposes.
- Leather: Leather gloves should be worn when working with sharp materials or when handling rigging equipment.
- Cloth: Cloth gloves should be worn when handling objects or materials, which could cause blisters, splinters, cuts, etc.
- Heat Resistant: Heat resistant gloves shall be worn when handling hot bearings, races, or other materials or objects that have been heated beyond ambient temperatures.
- Insulated: Insulated gloves shall be worn to prevent frostbite in extreme cold climates.
- Glove Inspections
    - Gloves shall be inspected before each use for holes, tears, and worn areas.
    - Chemical gloves shall be periodically air tested for pinholes by twisting the cuff tightly, apply low air pressure to expand the glove, and then submersing in water to check forbubbles.
    - Defective gloves shall be discarded immediately. Exception: machinists are exempt from wearing gloves while working with rotating machinery.

Foot Protection

Safety footwear shall be worn by all employees with regularly assigned duties at field locations, in shops and warehouses.

- Office workers and visitors who enter these areas on an infrequent basis will not be required to wear foot protection provided they stay clear of the work being performed.
- If required to be in close proximity to the work, the work will be stopped while visiting the area or safety footwear will be worn.
- Shops, Field Locations, Warehouses and Parts Departments: Leather or equivalent boots, either lace up or pull up, shall be worn.
- The boot must provide ankle protection and have soles designed to protect from punctures with defined heels for climbing ladders.
- Metatarsal guards will be worn when duties present a hazard of equipment or material crushing the foot.
- All safety footwear must meet ANSI Z41-1999 standards.
- Client locations may require safety footwear to be worn by everyone; check with the local supervisor for client requirements before visiting field locations.

Fall Protection

Personal fall protection is required when performing certain elevated jobs in excess of six feet. Consult the Sessler Wrecking Fall Protection Program.

Electrical Protection

Consult the Sessler Wrecking Electrical Safety Program.

Monitoring

Supervisors and site managers monitor worksite tasks for changes in, or the introduction of new hazards. If new hazards are discovered, they advise the Safety Manager who then conducts a hazard assessment for appropriate PPE. The Safety Manager monitors the effectiveness of the PPE Procedure and makes recommendations to management to improve the procedure.

Training

Each employee who may need to wear PPE will be properly trained and/or retrained. Training shall include:

- When PPE is necessary.
- What PPE is necessary.
- How to properly don, doff, adjust, and wear PPE.
- The limitations of PPE.
- Useful life and disposal of PPE.
- How to clean and maintain PPE in a sanitary and reliable condition.
- Reporting and replacing defective or damaged PPE, which shall NOT be used.

Retraining

Retraining is required when:

- The workplace changes, making the previous training obsolete.
- The type of PPE changes.
- When the employee demonstrates lack of use, improper use, or insufficient skill or understanding in PPE selection, necessity, use and limitations.

Documentation

Training shall be documented, and records kept at the local office. The training certification shall include:

- Name of employee(s) trained;
- The dates of training; and
- The certification subject.

Purpose

It is the intention of Sessler Wrecking to provide a respirator protection program that meets or exceeds all federal standards. Sessler Wrecking will attempt to engineer potential harmful vapors and oxygen deficient atmosphere exposure hazards out of the work environment. If engineering control measures are not feasible or during emergency situations with high exposure, then respirators shall be provided which are applicable and suitable for purpose intended.
Respiratory equipment will be provided for employee's use against harmful vapors and oxygen deficient atmospheres. Respirators are to be used when engineering control measures are not feasible or during emergency situations with high exposure. Respirators shall be provided which are applicable and suitable for the purpose intended.

Scope

This program applies to all Sessler Wrecking projects and operations.

Respiratory ProgramAdministrator

Overall responsibility for the respiratory protection program is assigned to the Sessler Wrecking Safety Manager in order to ensure that specific requirements are followed.

The Administrator must be knowledgeable of the complexity of the program, able to conduct evaluations and have the proper training.

This assignment is made, however, with the understanding that individual supervisors will have to implement and enforce major portions of the program. It is understood that the Program Administrator will report performance problems to the appropriate manager for resolution. The person who will have responsibility for administering all the aspects of this program will be the Project Manager or their designee.

The responsibilities of the Program Administrator will include, but are not limited to:

- Conducting an annual written evaluation of the program. The program evaluation should be completed no later than December 31, of each year.
- Ensuring an adequate supply of respirators, cartridges, and repair/replacement parts. The Program Administrator may delegate this duty but will retain overall responsibility. The person(s) to whom this duty has been delegated is the Project Manager and/or Field Supervisor.
- Identifying hazards and ensuring only NIOSH certified respirators must be selected and provided based on those hazards and factors affecting performance.
- Ensuring that all respirator users have been trained in the use, selection, and limitations of the type of respirators they will be using prior to the first time the respirator must be used. While the duty of conducting the training may be delegated, the Program Administrator retains final responsibility for seeing that all employees are appropriately trained.
- Ensuring that all respirator users have been medically evaluated and found fit to use the type of respirators that will be required in their job. The medical evaluation must be completed prior to assigning any employee to a task that requires use of a respirator.

- Ensuring that all respirator users are fit-tested at least annually and more often if other federal requirements apply.
- Ensuring that respirators are individually issued, are cleaned, and sanitized on a regular basis, and respirators are stored in a clean and accessible location. This duty may also be delegated but the Program Administrator retains final responsibility for seeing that it is done.
- Ensuring that respirators are selected based on the hazard that will be encountered. This program describes the basic respirators that will be used at this site and the tasks for which they will be required. In special circumstances, the Program Administrator will contact the corporate health and safety staff for guidance in selecting the correct respirator.
- Ensuring that employee exposure is monitored to assure correct respirator type is used. Exposure monitoring may be delegated to others; however, the Program Administrator has final responsibility of monitoring completion and to request assistance when necessary.
- Ensuring surveillance of employees who wear respirators shall leave the area to wash, change cartridges or if they detect break through or resistance.
- Ensuring that the elements of the Respiratory Protection Program for the selection, use, cleaning/maintenance, storage, and fit testing of respirators are followed.
- Ensuring that respirator parts are not exchanged between brands of respirators.
- Ensuring medical evaluations, respirators and required training are provided at no cost to the employee.

Medical Evaluation

General

Sessler Wrecking shall provide a medical evaluation to determine the employee's ability to use a respirator *before* the employee is fit tested or required to use the respirator in the workplace. Sessler Wrecking may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

Medical Evaluation Procedures

Sessler Wrecking shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire. The medical evaluation shall obtain the information as per regulatory requirements.

The medical evaluation prior to fit-testing will be confidential, conducted during normal working hours, be at a convenient time and location, be understandable and the employee will be given a chance to discuss the results with the PLHCP.

Supplemental Information for the PLHCP

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee;
- The duration and frequency of respirator use (including use for rescue and escape);
- The expected physical work effort;
- Additional protective clothing and equipment to be worn; and
- Temperature and humidity extremes that may be encountered.

Sessler Wrecking shall provide the PLHCP with a copy of the Sessler Wrecking Respiratory Protection Program.

Note: When Sessler Wrecking replaces a PLHCP, Sessler Wrecking must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically re-evaluated solely because a new PLHCP has been selected.

Medical Determination

In determining the employee's ability to use a respirator, Sessler Wrecking shall obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether the employee is medically able to use the respirator;
- The need, if any, for follow-up medical evaluations; and
- A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

All recommendations are to be sent to Sessler Wrecking's Safety Manager.

Additional Medical Evaluations

At a minimum, Sessler Wrecking shall provide additional medical evaluations that comply with the requirements of this program if:

- An employee reports medical signs or symptoms that are related to ability to use a respirator;
- A PLHCP, supervisor, or the respirator Program Administrator informs Sessler Wrecking that an employee needs to be re-evaluated;
- Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee re-evaluation; or
- A change occurs in workplace conditions (e.g., physical work effort, protective clothing, and temperature) that may result in a substantial increase in the physiological burden placed on an employee.

Work Site Procedures

Each work site where respirators are required to protect the health of the worker shall have work site procedures that follow the guidelines of this program. Specific procedures may also be required by our client which will be followed. The following areas shall be included:

- Identification of specific hazard requiring respiratory protection
- The selection of the appropriate respiratory protection equipment based on the specific hazard and concentration levels, characteristics, etc. Specific brands and models of respiratory equipment to be used shall be identified in the procedures.
- Verification that each user of respiratory protection is qualified (medical approval, current fit test, annual training and demonstrates competency.

Respirator Selection Criteria

The selection of the respiratory equipment is based on the hazards the employee is exposed to. Sessler Wrecking shall:

- Perform hazard identification,
- Select and provide respirators based on those hazards and factors affecting performance,
- Establish brands and models to be used, and
- Estimate exposures and contaminant information.

Hazard Identification

Due to the many varied work locations Sessler Wrecking's identification of respiratory hazards will be contained in the various work site specific safety plans. However, common respiratory hazards that will be encountered include:

- Dust
- Fumes
- Gases
- Chemicalparticles
- OxygenDeficiency

Characteristics of Hazardous Operation or Process

- Hot operations: welding, chemical reactions, soldering, melting, melding, and burning
- Liquid operations: painting, degreasing, dipping, spraying, brushing, coating, etching, cleaning, pickling, plating, mixing, galvanizing and chemical reactions
- Solid operations: pouring, mixing, separations, extraction, crushing, conveying, loading, bagging and demolition.
- Pressurized spraying: cleaning parts, applying pesticides, degreasing, sand blasting and painting
- Shaping operations: cutting, grinding, filing, milling, melding, sawing, and drilling

Gaseous Contaminants

- Inert gases (helium, argon, etc.), which do not metabolize in the body but displace air to produce an oxygen deficiency.
- Acid gases (SO2, H2S, HCl, etc.) which are acids or produce acids by reaction with water.
- Alkaline gases (NH3, etc.), which are alkalis or produce alkalis by reaction with water.
- Organic gases (butane, acetone, etc.), which exist as true gases or vapors from organic liquids.
- Organometallic gases (tetraethyl lead, organo-phosphates, etc.), which have metals attached to organic groups.

Particulate contaminants

- Dusts are mechanically generated solid particulates (0.5 to 10µm)
- Fumes are solid condensation particles of small diameter (0.1 to 1.0 µm)
- Mists are liquid particulate matter (5 to 100 µm)
- Smoke is chemically generated particulates (solid and liquid) of organic origins (0.01 to 0.3µm)

Selection of Respirator
The following factors shall be considered when selecting the proper respirator:

Concentration and Type of Contaminant
The concentration and type of contaminant will determine the model and type of respirator and cartridges/filters or filters to be used. The concentration is based on a sampling of the atmosphere.

Location of Hazardous Area
(Confined Space, nearby contaminants, etc.)

Worker Activity
(Extreme heat, cold, welding hood requirement, etc.)

Types of Respirators

Air-purifying respirators can be either full-face or half masks with mechanical or chemical cartridges to filter dust, mist, fumes, vapors, or gases.

Powered air-purifying respirators use a blower to pass the contaminated air through a filter. The purified air is then delivered into a mask or hood. They filter dust, mist, fumes, vapors, and gases, just like ordinary air-purifying respirators.

Air-purifying respirators cannot be used in oxygen-deficient atmospheres, which can result when another gas displaces the oxygen or consumption of oxygen by a chemical reaction occurs. Oxygen levels below 19.5% require either a source of supplied air or supplied-air respirator protection. Levels below 16% are considered to be unsafe and could cause death. To determine the proper cartridge for air-purifying respirators contact the Sessler Wrecking Safety Manager or a qualified on-site safety representative of the client. You should also consult the Material Safety Data Sheet for the substance that needs to be filtered.

All cartridges are assigned a color designating the type of contaminant they will filter:

White:	Acid gas
Black:	Organic vapors
Green:	Ammonia gas
Yellow:	Acid gas and organic vapors
Purple:	Radioactive materials
Orange:	Dust, fumes, and mists
Olive:	Other gases and vapors

Once the wearer of the respirator can detect an odor, irritation, or taste of the contaminant, the cartridge should be replaced. All cartridges and/or filters shall be changed at the beginning of each shift.

Supplied-air respirators (SARs) provide the highest level of protection against highly toxic and unknown materials. Supplied air refers to self-contained breathing apparatuses (SCBAs) and air-line respirators. SCBAs have a limited air supply that is carried by the user, allowing for good mobility and fewer restrictions than air-line respirators.

These models must be used when an oxygen-deficient atmosphere (less than 19.5% O2 by volume) exists and shall be considered IDLH (Immediately Dangerous to Life and Health):

Air-line respirators have an air hose that is connected to a fresh air supply from a central source. The source can be from a compressed air cylinder or air compressor that provides at least Grade D breathing air.

Emergency Escape Breathing Apparatuses (EEBAs) provide oxygen for 5, 10 or 15 minutes depending on the unit. These are for emergency situations in which an employee must escape from environments Immediately Dangerous to Life or Health (IDLH).

SCBA (Self Contained Breathing Apparatus) provides a full facepiece pressure demand self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes. At least two employees must enter and remain in visual or voice contact with one another at all times, and at least two employees must be located outside (all equipped with proper SCBAs).

In order to maintain the NIOSH/MSHA approval of any respirator, mixing parts from other respirator manufacturers is prohibited. This includes airline hoses, valves, gaskets, cartridges, etc. For example, do not use North cartridges or valve gaskets with an MSA product.

Brand and Models
Sessler Wrecking has selected North Safety and CleanSpace as its NIOSH-certified respirators. Only these brands of respirators shall be used in compliance with the conditions of the certification of its Respiratory Protection Program (fit testing model, no mixing of different manufacturer parts, cartridges, filters, etc.).

The specific model will be based on the hazard, concentration of contaminant, oxygen level, work environment and type of work being performed. To aid in the selection process the following will be used to identify the proper North or CleanSpace respiratory equipment for the work being performed and hazard that is present.

- NIOSH Pocket Guide to Chemicals
- North/CleanSpace Cartridge Selection Guide
- North/CleanSpace Respirator Selection Guide

Estimate of Exposures and Contaminant Information
- No employee shall enter an IDLH environment.
- Normal oxygen levels shall be maintained.
- No employee shall be exposed to an atmosphere containing concentrations that would exceed the STEL or PEL for the identified atmospheric hazard.

Respirator Fit Testing

Before an employee may be required to use any respirator with a negative or positive pressure tight-fitting face piece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This section specifies the kinds of fit tests allowed the procedures for conducting them, and how the results of the fit tests must be used.

All respirator users are fit-tested at least annually and more often if other federal requirements apply.

Supplied Air Respirators are required to be fit tested as well.

Sessler Wrecking shall ensure that employees using a tight-fitting face piece respirator pass an appropriate qualitative fit test (QLFT).
Sessler Wrecking shall ensure that an employee using a tight-fitting face piece respirator is fit tested prior to initial use of the respirator, whenever a different respirator face piece (size, style, model or make) is used, and at least annually thereafter.

Sessler Wrecking shall conduct an additional fit test whenever the employee reports, or Sessler Wrecking's PLHCP, supervisor, or Program Administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

If after passing a QLFT or QNFT, the employee subsequently notifies Sessler Wrecking, Program Administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator face piece and to be retested.

The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in this section.

QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. Air filtering respirators may be fit tested with irritant smoke.

If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half face pieces, or equal to or greater than 500 for tight-fitting full-face pieces, the QNFT has been passed with that respirator.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual face piece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator face piece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator face piece.

Quantitative fit testing of these respirators shall be accomplished by modifying the face piece to allow sampling inside the face piece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate face piece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the face piece.

Any modifications to the respirator face piece for fit testing shall be completely removed, and the face piece restored to NIOSH-approved configuration before that face piece can be used in the workplace.

Fit Test Procedures

The requirements in this section apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator sizes so that the respirator is acceptable to, and correctly fits, the user.

Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.

The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

The test subject shall be instructed to hold each chosen face piece up to the face and eliminate those that obviously do not give an acceptable fit.

The more acceptable face pieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the following points:

- If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
- Position of the mask on the nose
- Room for eye protection
- Room to talk
- Position of mask on face and cheeks

The following criteria shall be used to help determine the adequacy of the respirator fit:

- Chin properly placed;
- Adequate strap tension, not overly tightened;
- Fit across nose bridge;
- Respirator of proper size to span distance from nose to chin;
- Tendency of respirator to slip;
- Self-observation in mirror to evaluate fit and respirator position.

Use the Fit Test form.

User Seal Check

Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking a few slow deep breaths. The test subject shall conduct a user seal check, either the negative or positive pressure seal checks described below:

Positive Pressure Check

Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators, this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

Negative Pressure Check

Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

The test shall not be conducted if there is any hair growth between the skin and the face piece sealing surface, such as stubble beard growth, beard, moustache, or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed, including glasses.

If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

Test Exercises

Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. If due to medical or health conditions the employee cannot perform the test exercises the fit test shall not be performed and the employee not allowed to use a respirator until all elements of the fit test can be achieved.

The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

The following test exercises are to be performed for all fit testing methods prescribed in this procedure:

- Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

- Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
- Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily, so the subject can inhale at each side.
- Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
- Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject shall read from the Rainbow Passage

Rainbow Passage

> "When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow." Continue to read for one minute.

- Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
- Jogging in place. The test subject shall jog in place being careful to be aware oftheir surroundings.
- Normal breathing. Same as exercise (1).

Qualitative Fit Test (QLFT) Protocols

General

Sessler Wrecking shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order. Sessler Wrecking shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the ``smoke'' produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

General Requirements and Precautions. The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).

Only stannic chloride smoke tubes shall be used for this protocol. No form of test enclosure or hood for the test subject shall be used.

The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that

determine whether the test subject can detect irritant smoke by using only the minimum amount of smoke necessary to elicit a response from the test subject.

The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

- The test operator shall break both ends of a ventilation smoke tube containing stannic chloride and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
- The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test isperformed.
- The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall *carefully direct a small amount* of the irritant smoke in the test subject's direction to determine that he/she can detect it.

Irritant Smoke Fit Test Procedure

- The person being fit tested shall don the respirator without assistance and perform the required user seal check(s). The test subject shall be instructed to keep his/her eyes closed if wearing a half facerespirator.
- The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the face piece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
- If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
- The exercises identified in the Test Exercises of this procedure shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
- If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
- Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
- If a response is produced during this second sensitivity check, then the fit test is passed. The glass tube shall be disposed of properly.

Quantitative Fit Test (QNFT) Protocols

Using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a face piece to quantify the respirator have been demonstrated to be acceptable to OSHA.

Sessler Wrecking shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.

Sessler Wrecking shall ensure that QNFT equipment is kept clean and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

Portacount Fit Test Requirements

- Check the respirator to make sure the respirator is fitted with a high-efficiency filter and that the sampling probe and line are properly attached to the face piece.
- Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respiratorproperly.
- Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; Self-observation in a mirror to evaluate fit and respiratorposition.
- Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If the leakage is from a poorly fitting face piece, try another size of the same model respirator, or another model of respirator.
- Follow the manufacturer's instructions for operating the Portacount and proceed with thetest.
- The test subject shall be instructed to perform the exercises in the Test Exercises section of this procedure.
- After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

Portacount Test Instrument

The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over. Since the pass or fail criterion of the Portacount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance.

A record of the test needs to be sent to the Safety Manager and kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

Use, Maintenance and Care of Respirators

This section requires Sessler Wrecking to provide for the use, cleaning and disinfecting, storage, inspection, and repair of respirators used by employees. Appendix B - Respirator Cleaning Procedures (Mandatory) shall be followed.

Use

- Items that can affect the face to mask seal are prohibited. This includes facial hair, glasses, clothing, etc.
- Each time a respirator is put on a positive and negative pressure check shall beperformed.

Cleaning and Disinfecting Requirements

Sessler Wrecking shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. Sessler Wrecking shall ensure that respirators are cleaned and disinfected using the procedures in this Respiratory Protection Program, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators shall be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected by the employee as often as necessary to be maintained in a sanitary condition,
- Respirators used in fit testing and training shall be cleaned and disinfected after each use by the Safety Manager or designated person.
- Each individual who is assigned a cartridge respirator is responsible for seeing that the respirator is cleaned, inspected, and properly stored.

Cleaning Procedures

- Remove filters, cartridges, or canisters. Disassemble face pieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- Wash components in warm water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- Rinse components thoroughly in clean, warm, preferably running water. Drain.
- When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in commercially available cleansers of equivalent disinfectant quality. Another alternative is to use wipes containing alcohol that are intended for use with respirators.
- Rinse components thoroughly in clean, warm, preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on face pieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- Components should be hand-dried with a clean lint-free cloth or air dried. Reassemble face piece, replacing filters, cartridges, and canisters where necessary. Test the respirator to ensure that all components work properly.

Storage and Inspection

- Respiratory equipment shall be stored in a manner to protect it from damage, contamination, temperature extreme, etc.
- Respiratory equipment intended for emergency use shall be stored in an area that is readily accessible and clearly marked.

Sessler Wrecking shall ensure that respirators are inspected as follows:

- All respirators used in routine situations shall be inspected by the employee before each use and during cleaning;
- A check by the employee of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters, or filters; and
- A check of elastomeric parts for pliability and signs of deterioration.

- Emergency respiratory equipment will be inspected at least monthly, and before and after each use.
- Escape only respiratory equipment will be inspected before being carried into the workplace.

Breathing Air Quality and Use

Sessler Wrecking shall ensure that compressed air accords with the following specifications:

- Compressed breathing air shall meet at least the requirements for Type 1-Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
    - Oxygen content (v/v) of 19.5-23.5%;
    - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
    - Carbon monoxide (CO) content of 10 ppm or less;
    - Carbon dioxide content of 1,000 ppm or less; and
    - Lack of noticeable odor.
- Sessler Wrecking shall ensure that oxygen is not used in compressed air units.
- Sessler Wrecking shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.
- Sessler Wrecking shall ensure that cylinders used to supply breathing air to respirators meet DOT requirements and that:
    - Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178);
    - Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Type 1--Grade D breathing air; and
    - The moisture content in the cylinder does not exceed a dew point of -50 deg. F (-45.6 deg. C) at 1 atmosphere pressure.
- Sessler Wrecking shall ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:
    - Prevent entry of contaminated air into the air-supply system;
    - Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature;
    - Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.
- Have a tag containing the most recent change date and the signature of the person authorized by Sessler Wrecking to perform the change. The tag shall be maintained at the compressor.
- For compressors that are not oil lubricated, Sessler Wrecking shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
- For oil-lubricated compressors, Sessler Wrecking shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

- Sessler Wrecking shall ensure that breathing air couplings are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.

Repairs

Sessler Wrecking shall ensure that respirators that fail an inspection or are otherwise found to be defective are immediately removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;
- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and

Voluntary Use

If an employee chooses to voluntarily wear a respirator when not required by this Program (contaminants do not meet protection standards, odors, etc.) they will be advised of the following in their training:

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for employees.

However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the employee. Sometimes, employees may wear respirators to avoid exposure to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning, and care, and warnings regarding the respirator’s limitations.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- Do not wear your respirator in atmospheres containing contaminants which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
- Keep track of your respirator so that you do not mistakenly use someone else'srespirator.

Workplace Monitoring

A program of monitoring potential employee exposure has been implemented through the corporate health and safety department. Project personnel may also be assigned with the task of conducting air monitoring. Direct-reading instruments will also be used in the characterization of potential exposures. All the data collected is used to determine the appropriateness of the respiratory equipment.

Recordkeeping

Sessler Wrecking will establish and retain written information regarding medical evaluations, fit testing, and the respirator program. Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020. Sessler Wrecking shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

Records will be treated confidentially and maintained on file in the Sessler Wrecking corporate office by the Safety Manager.

Program Evaluation

Sessler Wrecking shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

Sessler Wrecking shall regularly consult employees required to use respirators to assess the employees' views on this program's effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed and verified include, but are not limited to:

- Respirator fit (including the ability to use the respirator without interfering with effective workplace performance); Appropriate respirator selection for the hazards to which the employee is exposed;
- Proper respirator use under the workplace conditions the employee encounters; and
- Proper respirator maintenance.

Training

All employees will receive respiratory training during their initial health and safety training class and on at least an annual basis, if required for their job classification. Training shall address employee knowledge of respirators, fit, use, limitations, emergency situations, wearing, fit checks, maintenance and storage, medical signs and symptoms of effective use and general requirements of the OSHA standard. The training must be provided before requiring the employee to use the respirator.

Retraining

Retraining shall be administered annually, and when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete;
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

SESSLER WRECKING RESPIRATOR FIT TEST FORM

EMPLOYEE NAME:_____ **DATE**:_____

TEST AGENT: Irritant Smoke_____Banana Oil_____Saccharin_____Other:_____

RESPIRATOR TYPE: (Half Face, Full Face ……)	**BRAND NAME:** (3m, MSA, North, Clean Space...)	**MODEL NO.**	**SIZE** (Lg/Md/Sm)

Pre-Selection Training		
Was the employee shown how to put on a respirator?	☐ YES	☐ NO
Was the employee shown how to properly position the respirator on the face?	☐ YES	☐ NO
Was the employee shown how to set strap tension?	☐ YES	☐ NO
Was the employee shown how to determine acceptable fit?	☐ YES	☐ NO

For both Comfort Assessment and Respirator Fit, if "No" is selected for any of the following questions, the employee should select a new facepiece. The facepiece does not need to be disposed of.

Comfort Assessment ***Note:*** *Mask should be donned for at least 5 minutes prior to comfort assessment*		
Is the respirator positioned comfortably on the nose?	☐ YES	☐ NO
Is there adequate room for eye protection?	☐ YES	☐ NO
Is there room to talk?	☐ YES	☐ NO
Is the respirator positioned comfortably on the face and cheeks?	☐ YES	☐ NO

Respirator Fit		
Is the wearer clean shaven?	☐ YES	☐ NO
Chin properly placed?	☐ YES	☐ NO
Adequate strap tension?	☐ YES	☐ NO
Fit across nose bridge?	☐ YES	☐ NO
Respirator of proper size to span distance from nose to chin?	☐ YES	☐ NO
Tendency of respirator to slip?	☐ YES	☐ NO
Self-observation in mirror to evaluate fit and respirator position?	☐ YES	☐ NO

User Seal Check			
Positive Pressure Check		PASS	FAIL
Negative Pressure Check		PASS	FAIL
OR			
Manufacturer's Recommended Procedures		PASS	FAIL

RAINBOW PASSAGE

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

FIT Test Exercise Results		
Normal Breathing	☐ PASS	☐ FAIL
Deep Breathing	☐ PASS	☐ FAIL
Turning Head Side-to-Side	☐ PASS	☐ FAIL
Moving Head Up & Down	☐ PASS	☐ FAIL
Jog in Place	☐ PASS	☐ FAIL
Talk Aloud (Rainbow Passage)	☐ PASS	☐ FAIL
Bending Over	☐ PASS	☐ FAIL

Second Comfort Assessment		
Is the respirator positioned comfortably on the nose?	☐ YES	☐ NO
Is there adequate room for eye protection?	☐ YES	☐ NO
Is there room to talk?	☐ YES	☐ NO
Is the respirator positioned comfortably on the face and cheeks?	☐ YES	☐ NO

FIT TEST CONDUCTED BY:_____ **DATE TESTED**:_____

Name (Print)

SIGNATURE OF FIT TEST CONDUCTED BY:_____

The above respirator fit test was performed on and by the persons listed above. The results indicate performance of the listed respiratory protective device, as listed on the employee named on this record.

I have been instructed in and understand the proper fitting, use and care of the above-named respirator(s). I understand that this equipment is not to be used in oxygen deficient or immediately dangerous to life and health (IDLH) atmospheres and is not to be used for other than the uses specified by the manufacturer. To my knowledge, I have no medical problems to prevent me from using this equipment.

EMPLOYEE SIGNATURE:_____ **DATE**:_____

FIT TEST INSTRUCTIONS

1. **Ensure all questions are answered.**

2. **User Seal Check -** The user seal check is to be performed either one of two ways:
   - i. Facepiece positive and negative pressure checks
   - ii. Respirator manufacturer's recommended user seal check procedures

   NOTE: If the user seal check failed, please have the employee select a new facepiece.

   A. Positive Pressure Check
   - i. Close off the exhalation valve and exhale gently into the facepiece.
   - ii. If a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal, the face fit is considered satisfactory.

   B. Negative Pressure Check
   - i. Close off the inlet opening of the canister or cartridge by covering the palm of the hand or by replacing the filter seal.
     - a. If the design does not allow for inlet opening to be effectively covered by palm of hand, the test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove.
   - ii. Inhale gently so that the facepiece collapses slightly.
   - iii. Hold breath for ten (10) seconds.
   - iv. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

3. **Test Exercises -** Each test exercise shall be performed for one (1) minute, with the test conductor asking about the comfort of the respirator upon completion. If it is not comfortable, the user shall be tested again in another respirator.
   - i. **Normal Breathing**: In a normal standing position, without talking, the employee shall breathe normally.
   - ii. **Deep Breathing**: In a normal standing position, the employee shall breathe slowly and deeply, taking caution so as not to hyperventilate.
   - iii. **Turning Head Side-to-Side**: Standing in place, the employee shall slowly turn their head from side-to-side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
   - iv. **Moving Head Up & Down**: Standing in place, the employee shall slowly move their head up and down. The employee shall be instructed to inhale in the up position.
   - v. **Jog in Place**: Right in place, employee shall do a light jog. The tester/evaluator should ask if the seal is still good.
   - vi. **Talking Aloud**: The employee shall read the **Rainbow Passage** slowly and loud enough so as to be heard only be the test conductor.
   - vii. **Bending Over**: The employee shall bend at the waist as if they were to touch their toes.

4. **Irritant Smoke Protocol**
   - i. **General Requirements**
     - **a.** The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 Series filters.
     - **b.** Only stannic chloride smoke tubes shall be used for this protocol.
     - **c.** The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke.
     - **d.** The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of general smoke in the general atmosphere.
   - ii. **Sensitivity Screening Check**
     - **a.** The test conductor shall break both ends of the ventilation smoke tube containing stannic chloride and attach one end of the smoke tube to an aspirator squeeze bulb. The test conductor shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
     - **b.** The test operator shall advise the employee that the smoke can be irritating to the eyes, lungs, and nasal passages. Employees should also be instructed to keep their eyes closed.
     - **c.** The employee shall be allowed to smell a weak concentration of the irritant smoke before the respirator is worn to become familiar with its irritating properties.
   - iii. **Irritant Smoke Fit Test**
     - **a.** Employees shall put on respirator unassisted.
     - **b.** Employees shall be instructed to keep their eyes closed.
     - **c.** The test conductor shall direct the stream of irritant smoke toward the face seal area of the employee being tested, being at least 12 inches away.
     - **d.** If the employe being tested has not had an involuntary response to the irritant smoke, proceed with the test exercises listed above. If smoke is detected, the test is failed.

Purpose

The purpose of an exposure control plan (ECP) is to set out our approach to protecting workers from harmful exposure to respirable crystalline silica dust in accordance with the respirable crystalline silica standard, 29 CFR 1926.1153 for construction.

A combination of control measures will be required to achieve this objective. We commit to being diligent in our efforts to select the most effective control technologies available, and to ensure that the best practices, as described in this ECP, are followed at our worksites.

Additional information may be found at https://www.osha.gov/Publications/OSHA3681.pdf

Definitions

Action level means a concentration of airborne respirable crystalline silica of 25 µg/m3, calculated as an 8-hour TWA.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Competent person means an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in paragraph (g) of this section.

Employee exposure means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.

Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in Sessler Wrecking's current operations.

Physician or other licensed health care professional [PLHCP] means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (h) of this section.

Respirable crystalline silica means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality—Particle Size Fraction Definitions for Health-Related Sampling.

Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

Scope

This plan applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/m3) as an 8-hour time- weighted average (TWA) under any foreseeable conditions.

Key Responsibilities

Due to the significant risk posed by respirable silica, it is critical that all personnel involved in operations that could potentially create silica dust take specific action to ensure that, as much as possible, a hazard is not created.

Sessler Wrecking is responsible for:

- Substitution of less hazardous products for those that contain crystalline silica isrequired.
- Ensuring that the materials (e.g., tools, equipment, personal protective equipment) and other resources (i.e., worker training materials) required to fully implement and maintain this exposure control plan (ECP) are readily available where and when they are required.
- Providing a job specific ECP for each project, which outlines in detail the work methods and practices that will be followed on each site. Considerations will include
- Availability and delivery of all required tools/equipment
- Scope and nature of grinding work to be conducted
- Control methods to be used and level of respiratory protection required
- Coordination plan
- Conducting a periodic review of the effectiveness of the ECP. This would include a review of the available dust-control technologies to ensure these are selected and used when practical.
- Initiating sampling of worker exposure to respirable crystalline silica in accordance with thisplan.
- Ensuring medical surveillance occurs as required.
- Ensuring that all required tools, equipment, and personal protective equipment are readily available and used as required by the ECP and Table 1.
- Ensuring supervisors and workers are educated and trained to an acceptable level of competency.
- Maintaining records of training, fit-test results, crew talks, and inspections (equipment, PPE, work methods/practices).
- Coordinating the work with the prime contractor and other employers to ensure a safework environment.

The supervisor (foreman and lead hand) is responsible for:

- Obtaining a copy of the ECP from Sessler Wrecking, and making it available at theworksite

- Selecting, implementing, and documenting the appropriate site-specific control measures
- Providing adequate instruction to workers on the hazards of working with silica-containing materials (e.g., concrete) and on the precautions specified in the job-specific plan covering hazards at the location
- Ensuring that workers are using the proper respirators and have been fit-tested, and that the results are recorded
- Directing the work in a manner that ensures the risk to workers is minimized and adequately controlled
- Communicating with the prime contractor and other sub-contractors to ensure a safe work environment

The worker is responsible for:

- Knowing the hazards of silica dust exposure
- Using the assigned protective equipment in an effective and safe manner
- Setting up the operation in accordance with the site-specific plan
- Following established work procedures as directed by the supervisor
- Reporting any unsafe conditions or acts to the supervisor
- Knowing how and when to report exposure incidents

Silica Properties

Silica is the second most common mineral on earth and makes up nearly all of what we call “sand” and “rock.” Silica exists in many forms—one of these, “crystalline” silica (including quartz), is the most abundant and poses the greatest concern for human health. Some common materials that contain silica include:

- Rock and sand
- Topsoil and fill
- Concrete, cement, and mortar
- Masonry, brick, and tile
- Granite, sandstone, and slate
- Asphalt (containing rock and stone)
- Fibrous-cement board containing silica

Silica is a primary component of many common construction materials, and silica-containing dust can be generated during many construction activities, including:

- Abrasive blasting (e.g., of concrete structures)
- Jackhammering, chipping, or drilling rock or concrete
- Cutting brick or tiles
- Sawing or grinding concrete
- Tuck point grinding
- Road construction
- Loading, hauling, and dumping gravel
- Demolition of structures containing concrete
- Sweeping concrete dust

Unprotected workers performing these activities, or working in the vicinity, can be exposed to harmful levels of airborne silica. Workers in other industries can also be exposed to silica, for example in the manufacture of toothpaste or pottery, or when loading coal (which can contain quartz) into the hold of a ship.

Health Hazards

Exposure to silica has been shown to cause silicosis, lung cancer, pulmonary tuberculosis, and other airway diseases. Crystalline silica dust can cause a disabling, sometimes fatal disease called silicosis. The fine particles are deposited in the lungs, causing thickening, and scarring of the lung tissue. The scar tissue restricts the lungs' ability to extract oxygen from the air. This damage is permanent, but symptoms of the disease may not appear for manyyears.

A worker may develop any of three types of silicosis, depending on the concentrations of silica dust and the duration of exposure:

- Chronic silicosis—develops after 10 or more years of exposure to crystalline silica at relatively low concentrations
- Accelerated silicosis—develops 5 to 10 years after initial exposure to crystalline silica at high concentrations
- Acute silicosis—develops within a few weeks, or 4 to 5 years, after exposure to very high concentrations of crystalline silica

Initially, workers with silicosis may have no symptoms; however, as the disease progresses, a worker may experience:

- Shortness of breath
- Severe cough
- Weakness

These symptoms can worsen over time and lead to death. Exposure to silica has also been linked to other diseases, including bronchitis, tuberculosis, and lung cancer.

Specified Exposure ControlMethods

For each employee engaged in a task identified on Table 1 (see end of this document) Sessler Wrecking shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless Sessler Wrecking assesses and limits the exposure of the employee to respirable crystalline silica.

When implementing the control measures specified in Table 1 (see near end of this document), Sessler Wrecking shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

- Is maintained as free as practicable from settled dust;
- Has door seals and closing mechanisms that work properly;
- Has gaskets and seals that are in good condition and working properly;
- Is under positive pressure maintained through continuous delivery of fresh air;
- Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range and
- Has heating and cooling capabilities.

Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

Alternative Exposure Control Methods

For tasks not listed in Table 1, or where Sessler Wrecking does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

- Permissible exposure limit (PEL). Sessler Wrecking shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50 µg/m3, calculated as an 8-hour TWA.
- Exposure Assessment
  - General - Sessler Wrecking shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level.
  - Performance Option - Sessler Wrecking shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.
  - Scheduled Monitoring Option
    - Sessler Wrecking shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, Sessler Wrecking may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, Sessler Wrecking shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.
    - If initial monitoring indicates that employee exposures are below the action level, Sessler Wrecking may discontinue monitoring for those employees whose exposures are represented by such monitoring.
    - Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, Sessler Wrecking shall repeat such monitoring within six months of the most recent monitoring.
    - Where the most recent exposure monitoring indicates that employee exposures are above the PEL, Sessler Wrecking shall repeat such monitoring within three months of the most recent monitoring.
    - Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, Sessler Wrecking shall repeat such monitoring within six months of the

most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time Sessler Wrecking may discontinue monitoring for those employees whose exposures are represented by such monitoring.

- Reassessment of exposures. Sessler Wrecking shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when Sessler Wrecking has any reason to believe that new or additional exposures at or above the action level have occurred.
- Methods of sample analysis. Sessler Wrecking shall ensure that all samples taken to satisfy the monitoring requirements are evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures specified in Methods of Sample Analysis in this document.
- Employee notification of assessment results.
  - Within five working days after completing an exposure Sessler Wrecking shall individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.
  - Whenever an exposure assessment indicates that employee exposure is above the PEL, Sessler Wrecking shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.
- Observation of Monitoring
  - Where air monitoring is performed to comply with the requirements of this section, Sessler Wrecking shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to respirable crystalline silica.
  - When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, Sessler Wrecking shall provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

- Methods of compliance
  - Engineering and work practice controls. Sessler Wrecking shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless Sessler Wrecking can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, Sessler Wrecking shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.
  - Abrasive Blasting - COMAPNY shall comply with other OSHA standards, when applicable, such as 29 CFR 1926.57 (Ventilation), where abrasive blasting is conducted using crystalline silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica.

Respiratory Protection

Where respiratory protection is required by this section, Sessler Wrecking must provide each employee with an appropriate respirator that complies with the requirements of this paragraph and 29 CFR 1910.134. Respiratory protection is required:

- Where specified by Table; or

- For tasks not listed in Table 1, or where Sessler Wrecking does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:
    - Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
    - Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering, and work practice controls are not feasible; and
    - During tasks for which Sessler Wrecking has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.
- Respiratory Protection Program. Where respiratory protection use is required by this section, Sessler Wrecking shall institute a respiratory protection program in accordance with 29 CFR 1910.134.
- Specified Exposure Control Methods - For the tasks listed in Table 1, if Sessler Wrecking fully and properly implements the engineering controls, work practices, and respiratory protection described in Table 1, Sessler Wrecking shall be considered to be in compliance with the requirements for selection of respirators in 29 CFR 1910.134(d)(1)(iii) and (d)(3) with regard to exposure to respirable crystalline silica.

Housekeeping

Sessler Wrecking shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.

Sessler Wrecking shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless:

- The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
- No alternative method is feasible.

Written Exposure Control Plan

Sessler Wrecking shall establish and implement a written exposure control plan that contains at least the following elements:

- A description of the tasks in the workplace that involve exposure to respirable crystalline silica;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;
- A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

Sessler Wrecking shall review and evaluate the effectiveness of the written exposure control plan at least annually and update it, as necessary.

Sessler Wrecking shall make the written exposure control plan readily available for examination and copying, upon request, to each employee covered by this section, their designated representatives, the Assistant Secretary, and the Director.

Sessler Wrecking shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

Medical Surveillance

Sessler Wrecking shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under this section to use a respirator for 30 or more days per year.

Sessler Wrecking shall ensure that all medical examinations and procedures required are performed by a PLHCP

Initial Examination

Sessler Wrecking shall make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of this section within the last three years. The examination shall consist of:

- A medical and work history, with emphasis on past, present, and anticipated exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history;
- A physical examination with special emphasis on the respiratory system;
- A chest X-ray (a single poster anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film (no less than 14 x 17 inches and no more than 16 x 17 inches) or digital radiography systems), interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B-Reader;
- A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;
- Testing for latent tuberculosis infection; and
- Any other tests deemed appropriate by the PLHCP.

Periodic Examinations

Sessler Wrecking shall make available medical examinations at least every three years, or more frequently if recommended by the PLHCP.

Information provided to the PLHCP

Sessler Wrecking shall ensure that the examining PLHCP has a copy of this document, and shall provide the PLHCP with the following information:

- A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica;

- The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica;
- A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and
- Information from records of employment-related medical examinations previously provided to the employee and currently within the control of Sessler Wrecking.

PLHCP's Written Medical Report for The Employee

Sessler Wrecking shall ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation ortreatment;
- Any recommended limitations on the employee's use of respirators;
- Any recommended limitations on the employee's exposure to respirable crystalline silica; and
- A statement that the employee should be examined by a specialist if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

PLHCP's Written Medical Opinion for Sessler Wrecking

Sessler Wrecking shall obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following:

- The date of the examination;
- A statement that the examination has met the requirements of this section; and
- Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion shall also contain either or both of the following:

- Any recommended limitations on the employee's exposure to respirable crystalline silica;
- A statement that the employee should be examined by a specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

Sessler Wrecking shall ensure that each employee receives a copy of the written medical opinion within 30 days of each medical examination performed.

Additional examinations

If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, Sessler Wrecking shall make available a medical examination by a specialist within 30 days after receiving the PLHCP's written opinion.

Sessler Wrecking shall ensure that the examining specialist is provided with all the information that Sessler Wrecking is obligated to provide to the PLHCP.

Sessler Wrecking shall ensure that the specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report shall meet the requirements of the sample document at the end of this plan.

Sessler Wrecking shall obtain a written opinion from the specialist within 30 days of the medical examination. The written opinion shall meet the requirements of the sample document at the end of this plan.

Communication of Respirable Crystalline Silica Hazards to Employees

Hazard Communication
Sessler Wrecking shall include respirable crystalline silica in the program established to comply with the hazard communication standard (HCS). Sessler Wrecking shall ensure that each employee has access to labels on containers of crystalline silica and safety data sheets and is trained in accordance with the provisions of HCS. Sessler Wrecking shall ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

Employee Information and Training
Sessler Wrecking shall ensure that each employee covered by this section can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to respirable crystalline silica;
- Specific tasks in the workplace that could result in exposure to respirable crystalline silica;
- Specific measures Sessler Wrecking has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;
- The contents of this document;
- The identity of the competent person designated by and;
- The purpose and a description of the medical surveillance program.

Sessler Wrecking shall make a copy of this section readily available without cost to each employee covered by this section.

Recordkeeping

Air Monitoring Data
Sessler Wrecking shall make and maintain an accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica. This record shall include at least the following information:

- The date of measurement for each sample taken;
- The task monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;
- Identity of the laboratory that performed the analysis;
- Type of personal protective equipment, such as respirators, worn by the employees monitored; and

- Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

Sessler Wrecking shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

Objective Data

Sessler Wrecking shall make and maintain an accurate record of all objective data relied upon and this record shall include at least the following information:

- The crystalline silica-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

Sessler Wrecking shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

Medical Surveillance

Sessler Wrecking shall make and maintain an accurate record for each employee covered by medical surveillance. The record shall include the following information about the employee:

- Name and social security number;
- A copy of the PLHCPs' and specialists' written medical opinions; and
- A copy of the information provided to the PLHCPs and specialists.

Sessler Wrecking shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

CONTROL PLAN

Date control plan completed:			
Prime contractor:		Superintendent:	
Project manager:		Safety Manger/First aid attendant:	
Project:	Address:		
Company completing work:			
Address:		Contact:	
Contact phone:		Contact fax:	
On-site supervisor(s):			
Worker(s):			
Scope of work to be completed:			
Work start date:		Duration: ☐ Days ☐ Months ☐ Years	
Employer responsible for:			
Supervisor responsible for:			
Worker responsible for:			

HAZARDS IDENTIFIED (other than silica	**CONTROL MEASURE(S)**
☐ Falls	
☐ Slipping	
☐ Confined space	
☐ Workers above	
☐ Workers below	
☐ Noise	
☐ Electrical	
Overview of work procedure (How are you going to work safely?):	

Workers trained in (training records must be available for review):			
Proper use of grinding equipment	Y☐ N☐	Proper use of admin controls	Y☐ N☐
Proper use of engineering controls	Y☐ N☐	Proper use of PPE	Y☐ N☐
Proper disposal methods	Y☐ N☐	Other (fall protection, swing stages, etc.)	Y☐ N☐

Respirators (Refer to ECP for respirator requirements)		
Required: Y☐ N☐	Available: Y☐ N☐	Fit-tested: Y☐ N☐
PPE required for scope of work (other than respirator)		
☐ Coveralls ☐ Gloves ☐ Rubber boots ☐ Eye protection ☐ Reflective vest ☐ Hearing protection		
Documents to be attached to control plan (☑ if present)		
☐ Exposure control program ☐ Respiratory protection program ☐ Training records ☐ SWP (tools and equipment)		
Project management signature	Position:	Date:
Contractor supervisor signature	Position:	Date:

Task/risk management matrix (relating to silica dust) use table 1 for codes, separate with a comma (,)

#	Date/Duration		Task	Controls		PPE	Supplies/ Equipment
				Engineering	Administrative		

Notes (For task/risk management matrix above. Use # to indicate which task the note relates to.)

SITE INSPECTION CHECKLIST (complete pre-work & periodically during project)

Engineering controls		Problem noted (DETAIL)	Problem corrected (DETAIL)
Available at site	Y☐ N☐		
Operating correctly	Y☐ N☐		
Used appropriately	Y☐ N☐		
Effective in dust control	Y☐ N☐		
Administrative controls			
Available at site	Y☐ N☐		
Used appropriately	Y☐ N☐		

In place before work start	Y☐ N☐		
Effective	Y☐ N☐		
Cleanup			
Vacuum used properly	Y☐ N☐		
Large pieces picked up	Y☐ N☐		
Vacuum capacity maintained	Y☐ N☐		
Pre-filters in place	Y☐ N☐		
Vacuum attachments used	Y☐ N☐		
Collection bags in place	Y☐ N☐		
Waste properly disposed of	Y☐ N☐		

TABLE 1 (Codes for task/risk management matrix)

Engineering controls		Administrative controls		PPE		Supplies/Equipment	
1	Exhaust fan	1	Signage	1	Respirator	1	Hand grinder
2	LEV	2	After hours work	2	Gloves	2	Ceiling grinder
3	Wetting	3	Scheduling	3	Coveralls	3	Floor grinder
4	Partial enclosure			4	Hearing protection	4	Disposal bags
5	Full enclosure			5	Eye protection	5	HEPA filter (vacuum)
6	Shroud			6	Reflective vest	6	HEPA filter (respirator)
7	Barriers			7	Rubber boots (CSA)	7	Shovel
				8	Fall arrest	8	Lifeline

SITE-SPECIFIC SILICA EXPOSURE CONTROL PLAN

Location: _____ **Date**

Work description:

Primary silica control options (check those options used and explain use if needed)

♦ Substitution controls (using procedures or products that do not create silica; must review MSDSs)

Other means of demo: _
Different products: _
Other substitutions: _

♦ Engineering controls (when using ventilation, draw air out and do not expose others to exhaust dusts)

Vacuuming: _____
Wetting: _____
Ventilation: _____
Isolation: _____
Other means: _____

♦ Administrative controls (reducing exposure by work schedules, timing, or planning options)

Control points: _____
Work schedule: _____
Other means: _____

Secondary silica control options (check those options used and explain use if needed)

♦ Personal protective equipment

Half-mask respirators: ____ Cartridge type: _____ Fit tests confirmed: _
Full-face respirators: ____ Cartridge type: _____ Fit tests confirmed: _
Supplied air units: ____
Coveralls required: ____

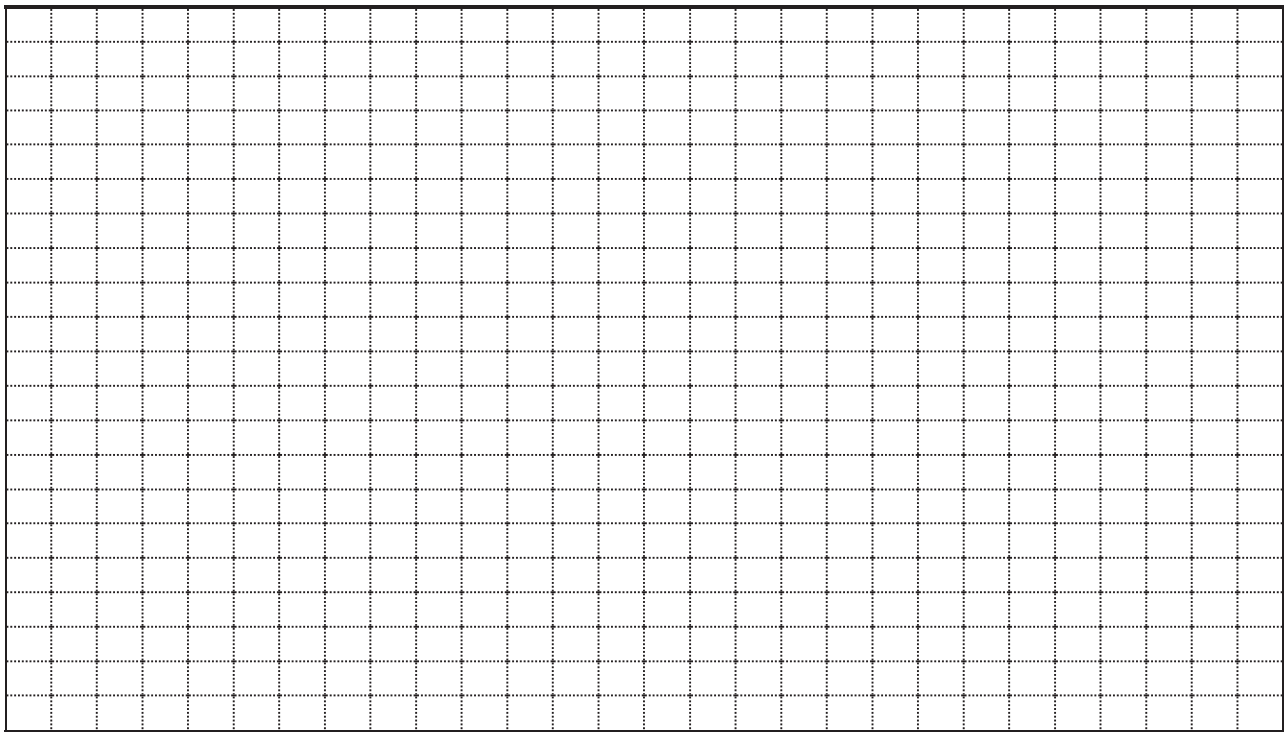
♦ Hygiene and decontamination options (reducing exposures after work has stopped or during breaks)

Water or washing facilities on site: _
Vacuuming clothing/self: _

Safe work procedures and other details: .....

.....

Ventilation plan (sketch)



⇦ Show direction of airflow including makeup air locations and discharge air outlets

Area or location in building of ventilation plan (e.g., floor #, wing) | Date plan was reviewed by workers and posted for workers to see

Types of neg. air fans & no.'s *

* Indicate on plan by number the location of the negative air fans

Ventilation safety checklist

- ☐ Makeup air free of possible contaminants
- ☐ Exhaust fan operation has failure warning
- ☐ Dilution fans not stirring up dust
- ☐ Wetting of materials used to keep dust down
- ☐ Workers not placed between contaminants created and exhaust inlet ports
- ☐ Discharge air not affecting others
- ☐ All workers equipped with approved respirators

Note: Attach additional sheets if needed or other documents if required due to hazards or work conditions.

Print supervisor's name | Supervisor's signature

TABLE 1—SPECIFIED EXPOSURE CONTROL METHODS WHEN WORKING WITH MATERIALS CONTAINING CRYSTALLINE SILICA

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤4 hours/shift	>4 hours/shift
Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	
Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	When used outdoors	None	APF 10
	When used indoors or in an enclosed area	APF 10	APF 10
Handheld power saws for cutting fiber-cement board(with blade diameter of 8 inches or less)	<u>For tasks performed outdoors only</u> Use saw equipped with commercially available dust collection system Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency	None	
Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions: When used outdoors	None	
	When used indoors or in an enclosed area	APF 10	APF 10
Drivable saws	<u>For tasks performed outdoors only</u> Use saw equipped with integrated water delivery system that continuously feeds water to the blade Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	
Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface	None	

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protectionfactor (APF)	
		≤4 hours/shift	>4 hours/shift
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions		

TABLE 1 CONTINUED

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤4 hours/shift	>4 hours/shift
Handheld and stand-mounted drills (including impact and rotary hammer drills)	Use drill equipped with commercially available shroud or cowling with dust collection system Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism Use a HEPA-filtered vacuum when cleaning holes	None	
Dowel drilling rigs for concrete	For tasks performed outdoors only Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism Use a HEPA-filtered vacuum when cleaning holes	APF 10	APF 10
Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector OR Operate from within an enclosed cab and use water for dust suppression on drill bit	None	
Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact:		
	When used outdoors	None	APF 10
	When used indoors or in an enclosed area	APF 10	APF 10
	OR Use tool equipped with commercially available shroud and dust collection system Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism:		
	When used outdoors	None	APF 10
	When used indoors or in an enclosed area	APF 10	APF 10

TABLE 1 CONTINUED

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protectionfactor (APF)	
		≤4 hours/shift	>4 hours/shift
Handheld grinders for mortar removal (*i.e.*, tuckpointing)	Use grinder equipped with commercially available shroud and dust collection system Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separatoror filter-cleaning mechanism	APF 10	APF 25
Handheld grinders for uses other than mortar removal	<u>For tasks performed outdoors only</u> Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions OR Use grinder equipped with commercially available shroud and dust collection system Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separatoror filter-cleaning mechanism:	None	
	When used outdoors	None	None
	When used indoors or in an enclosed area	None	APF 10

TABLE 1 CONTINUED

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤4 hours/shift	>4 hours/shift
Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions OR Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes	None	
Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined witha surfactant Operate and maintain machine to minimize dust emissions	None	
Large drivable milling machines (half-lane and larger)	<u>For cuts of any depth on asphalt only</u>: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed tosuppress dust Operate and maintain machine to minimize dust emissions For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed tosuppress dust Operate and maintain machine to minimize dust emissions OR Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant Operate and maintain machine to minimize dust emissions	None	

TABLE 1 CONTINUED

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protectionfactor (APF)	
		≤4 hours/shift	>4 hours/shift
Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (*e.g.*, hoppers, conveyers, sieves/sizing or vibrating components, and discharge points) Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station	None	
Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (*e.g.*, hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions	None	
(xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including Demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab	None	

WRITTEN MEDICAL REPORT FOR EMPLOYEE

EMPLOYEE NAME: _____ **DATE OF EXAMINATION:** _____

TYPE OF EXAMINATION:
[ ] Initial examination [ ] Periodic examination [ ] Specialist examination
[ ] Other: _____

RESULTS OF MEDICAL EXAMINATION:

Physical Examination –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Chest X-Ray –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Breathing Test (Spirometry) –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Test for Tuberculosis –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Other:_____	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed

Results reported as abnormal: _____
_____

[ ] Your health may be at increased risk from exposure to respirable crystalline silica due to the following:
_____

RECOMMENDATIONS:
[ ] No limitations on respirator use
[ ] Recommended limitations on use of respirator: _____
[ ] Recommended limitations on exposure to respirable crystalline silica: _____
_____

Dates for recommended limitations, if applicable: _____ (MM/DD/YYYY) to _____ (MM/DD/YYYY)

[ ] I recommend that you be examined by a Board Certified Specialist in Pulmonary Disease or Occupational Medicine

[ ] Other recommendations*:
_____
_____

Your next periodic examination for silica exposure should be in: [ ] 3 years [ ] Other: _____ (MM/DD/YYYY)

Examining Provider: _____ (signature) Date: _____

Provider Name: _____
Office Address: _____ Office Phone: _____

*These findings may not be related to respirable crystalline silica exposure or may not be work-related, and therefore may not be covered by the employer. These findings may necessitate follow-up and treatment by your personal physician.

Respirable Crystalline Silica standard (§ 1910.1053 or 1926.1153)

Available at: https://www.ecfr.gov/graphics/pdfs/er25mr16.175.pdf

WRITTEN MEDICAL OPINION FOR EMPLOYER

EMPLOYER: _____

EMPLOYEE NAME: _____ **DATE OF EXAMINATION:** _____

TYPE OF EXAMINATION:
[ ] Initial examination [ ] Periodic examination [ ] Specialist examination
[ ] Other: _____

USE OF RESPIRATOR:
[ ] No limitations on respirator use
[ ] Recommended limitations on use of respirator: _____

Dates for recommended limitations, if applicable: _____ (MM/DD/YYYY) to _____ (MM/DD/YYYY)

The employee has provided written authorization for disclosure of the following to the employer (if applicable):

[ ] This employee should be examined by an American Board Certified Specialist in Pulmonary Disease or Occupational Medicine
[ ] Recommended limitations on exposure to respirable crystalline silica: _____

Dates for exposure limitations noted above: _____ (MM/DD/YYYY) to _____ (MM/DD/YYYY)

NEXT PERIODIC EVALUATION: [ ] 3 years [ ] Other: _____ (MM/DD/YYYY)

Examining Provider: _____ (signature) Date: _____

Provider Name: _____ Provider's specialty: _____

Office Address: _____ Office Phone: _____

[ ] I attest that the results have been explained to the employee.

The following is required to be checked by the Physician or other Licensed Health Care Professional (PLHCP):
[ ] I attest that this medical examination has met the requirements of the medical surveillance section of the OSHA Respirable Crystalline Silica standard (§ 1910.1053(h) or 1926.1153(h)).

Available at: https://www.ecfr.gov/graphics/pdfs/er25mr16.176.pdf

AUTHORIZATION FOR CRYSTALLINE SILICA OPINION TO EMPLOYER

This medical examination for exposure to crystalline silica could reveal a medical condition that results in recommendations for (1) limitations on respirator use, (2) limitations on exposure to crystalline silica, or (3) examination by a specialist in pulmonary disease or occupational medicine. Recommended limitations on respirator use will be included in the written opinion to the employer. If you want your employer to know about limitations on crystalline silica exposure or recommendations for a specialist examination, you will need to give authorization for the written opinion to the employer to include one or both of those recommendations.

I hereby authorize the opinion to the employer to contain the following information, if relevant (please check all that apply):

☐ Recommendations for limitations on crystalline silica exposure

☐ Recommendation for a specialist examination

OR

☐ I do not authorize the opinion to the employer to contain anything other than recommended limitations on respirator use.

Please read and initial:

___ I understand that if I do not authorize my employer to receive the recommendation for specialist examination, the employer will not be responsible for arranging and covering costs of a specialist examination.

_____
Name (printed)

_____ _____
Signature Date

Available at https://www.ecfr.gov/graphics/pdfs/er25mr16.177.pdf

Purpose

The purpose of this program is to prevent injuries due to falls from elevated work areas and ensure employees and contractors are able to inspect scaffolding materials and erected scaffolds.

Scope

This program is applicable at every work area where scaffolding is erected. When work is performed on a non- owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

Definitions

Bearer - A horizontal member of a scaffold upon which the platform rests and which may be supported by ledgers.

Brace - A tie that holds one scaffold member in a fixed position with respect to another member.

Coupler - A device for locking together the components of a tubular metal scaffold which shall be designed and used to safely support the maximum intended loads.

Double pole or independent pole scaffold - A scaffold supported from the base by a double row of uprights, independent of support from the walls and constructed of uprights, ledgers, horizontal platform bearers, and diagonal bracing.

Guardrail - A rail secured to uprights and erected along the exposed sides and ends of platforms.

Heavy Duty Scaffold - A scaffold designed and constructed to carry a working load not to exceed 75 pounds per square foot.

Ledger (stringer) - A horizontal scaffold member which extends from post to post, and which supports the putlogs or bearer forming a tie between the posts.

Light Duty Scaffold - A scaffold designed and constructed to carry a working load not to exceed 25 pounds per square foot.

Manually Propelled Mobile Scaffold - Manually propelled mobile scaffold.

Maximum intended load - The total of all loads including the working load, the weight of the scaffold, and such other loads as may be reasonably anticipated.

Medium duty scaffold - A scaffold designed and constructed to carry a working load not to exceed 50 pounds per square foot.

Mid-Rail - A rail approximately midway between the guardrail and platform, used when required, and secured to the uprights erected along the exposed sides and ends of platforms.

Putlog - A scaffold member upon which the platform rests.

Runner - The lengthwise horizontal bracing or bearing members or both.

Scaffold - Any temporary elevated platform and its supporting structure used for supporting workers or materials or both.

Toe board - A barrier secured along the sides and ends of a platform, to guard against the falling of material.

Tube and coupler scaffold - An assembly consisting of tubing, which serves as posts, bearers, braces, ties, and runners, a base supporting the posts, and special couplers which serve to connect the uprights and to join the various members.

Tubular welded frame scaffold - A sectional, panel, or frame metal scaffold substantially built up of prefabricated welded sections that consist of posts and horizontal bearer with intermediate members. Panels or frames shall be braced with diagonal or cross braces.

Working Load - Load imposed by men, materials, and equipment.

Key Responsibilities

Managers and Supervisors

- Responsible for ensuring that scaffolds are erected by a qualified person, that set up inspections are performed, and all daily inspections are performed before work starts for the day.
- Responsible for ensuring that all employees, and/or contractors have been trained in the use and inspection methods for scaffolds. Only qualified and competent personnel are allowed to use or modify scaffolding systems.
- Responsible for ensuring that all employees and contractors are aware that if an inspection discovers a defect, the scaffold cannot be used until repairs are made.

Employees

- Responsible for following this program by inspecting the scaffolds daily and reporting any damages or repairs that may be needed to their supervisor.

Procedure

Hazards Associated with the Use of Scaffolds

All employees using scaffolds shall be trained in the hazards of scaffolds and basic safety information must be provided prior to use and when conditions change. Topics will include:

- Nearby electrical lines or source of electrical hazards
- Poor foundation – scaffold shall be erected on a firm and stable base.

- Damaged scaffold components.
- Overload of scaffold components (loadcapacity).
- Unstable, incomplete, or incorrect use of scaffold.
- Base frames not adequately braced, tied, or supported.
- Scaffold exceeds height to base dimensions' ratio.
- Inappropriate access or egress points.
- Slips and fall protection required.
- Falling objects.
- Manual handling.
- Movement of plant and machinery – all cranes and mobile machinery shall be kept within designated areas and away from scaffolding.

General Requirements

Scaffolds shall be furnished and erected in accordance with applicable standards for persons engaged in work that cannot be done safely from the ground or from solid construction. Except that ladders used for such work shall conform to ladder safety standards.

Scaffolds shall only be erected by a qualified third party, who is competent to certify the scaffolding safe to use.

The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose boards shall not be used to support scaffolds or planks.

Scaffolds and their components shall be capable of supporting without failure at least four times the maximum intended loads. Scaffold components must meet OSHA requirements 29 CFR 1910.28 and 29 CFR 1926.451.

Wood scaffold planks must be cross-supported every 8 feet. Scaffold deck boards shall be cleated, wired, or nailed into place.

All working levels of scaffolds will be floored completely except where internal ladders require space for ladder openings.

Scaffolds and other devices mentioned or described in this program shall be maintained in safe condition. Scaffolds shall not be altered or moved horizontally while they are occupied.

Any scaffold damaged or weakened from any cause shall be immediately repaired and shall not be used until repairs have been completed.

Scaffolds shall not be loaded in excess of the working loads for which they are intended.

Bolts used in the construction of scaffolds shall be of adequate size and in sufficient numbers at each connection to develop the designed strength of the scaffold.

All platforms shall be overlapped (minimum 12 inches) and secured from any movement.

An access ladder or equivalent safe access shall be provided.

Scaffold planks shall extend over their end supports not less than 6 inches or more than 18 inches.

The poles, legs, or uprights of scaffolds shall be plumb, and securely and rigidly braced to prevent swaying and displacement.

Materials being hoisted onto a scaffold shall have a tag line.

Overhead protection shall be provided for workers on a scaffold exposed to overhead hazards.

Toe boards and guardrails shall be installed if a scaffold or platform is erected to a height of 6 feet or more. Scaffolds shall be provided with a screen between the toe board and the guardrail, extending along the entire opening, consisting of No. 18 gauge wire one-half inch mesh or the equivalent, where workers are required to work or pass under the scaffolds.

Work shall not be performed on a scaffold during storms or high winds.

Work shall not be performed on scaffolds that are covered with snow or ice unless all snow and ice has been removed and all planking has been sanded to prevent slipping.

Tools, material, and debris shall not be allowed to accumulate in quantities to cause a hazard.

Inspections
Scaffolding shall be inspected, by a qualified person, in conjunction with the manufacturers required recommendations. The competent person must also ensure scaffolds are safe prior to and during scaffold use.

- At a minimum, the following shall be inspected by the competent person after erection, before the start of the day or beginning of a shift change to ensure scaffolds are safe prior to and during use:
    - Ground or surface footing shall be inspected to ensure that there is no settling.
    - All main supports and cross braces shall be inspected for any signs of damage, missing pins, bolts, and any locks and/or safety keepers.
    - All walking surfaces and/or planks shall be inspected for damage and proper placements and any possible movement.
    - All walkways and planks must be secure to prevent any movement.
- Inspection shall be made to ensure that the scaffold is stable, and any movement is prevented.
- If during the inspection, a defect or damage to the scaffold is discovered, the scaffold shall be tagged out by the competent person, complied with and use prohibited until needed repairs are made.

Mandatory Signs and Tags for Defects Found
Signs and tags shall be visible at all times when work is being performed and shall be removed or covered promptly when the hazards no longer exist. Employees shall be instructed in complying with signs and tags.

Defective or unsafe equipment or conditions shall be tagged out by the competent person using a weather resistant tag secured to the scaffolding structure on all four sides and must be complied with. An example would be improper footing conditions were observed.

Danger signs shall be used only where an immediate hazard exists. Danger signs must be posted around the immediate area of the scaffold, to alert other workers of possible danger from falling objects from the scaffold.

Caution Signs and/or barricade tape shall be used to mark off a larger area around scaffolding warning other workers to use caution.

Modifications

Modification and repairs shall be performed by a qualified person, who is competent to certify the scaffolding safe to use to ensure non-qualified personnel do not create additional hazards.

Employees shall not perform any modifications or repairs, unless they have been trained and certified, and failure to comply may result in disciplinary action and or termination.

Training Requirements

Sessler Wrecking is required to train all employees that work on scaffolds regarding hazards by "qualified" persons. The supervisor shall have each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training shall occur before use and include the following areas:

- Basic safety information and duties of a competent person assembling/disassembling scaffolding (see below). Basic safety information must be provided prior to use and when conditions change.
- Hazards including fall protection, electrical safety, falling object protection (see below).
- Tags – types and the requirement to comply with.
- The proper use of the scaffold, and the proper handling of materials on the scaffold.
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used.
- The maximum intended load capacity of the scaffolds used.

The supervisor shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting scaffold trained by a competent person to recognize any hazards associated with the work in question.

- The training shall include the following topics, as applicable:
- The nature of scaffold hazards.
- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in use.
- The design criteria, maximum intended load-carrying capacity and intended use of the scaffold.

When the employer has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the employer shall retrain each employee so that the requisite proficiency is regained. Retraining is also required in at least the following situations:

- Where changes in scaffolding at the worksite present a hazard about which an employee has not been previously trained.
- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

Hazards Associated with the Use of Scaffolds

- Nearby electrical lines or source of electrical hazards
- Poor foundation – scaffold shall be erected on a firm and stable base.
- Damaged scaffold components.
- Overload of scaffold components (loadcapacity).
- Unstable, incomplete, or incorrect use of scaffold.
- Base frames not adequately braced, tied, or supported.
- Scaffold exceeds height to base dimensions' ratio.
- Inappropriate access or egress points.
- Slips and falls.
- Falling objects.
- Manual handling.
- Movement of plant and machinery – all cranes and mobile machinery shall be kept within designated areas and away from scaffolding.

Duties of a Competent Person Assembling/Disassembling Scaffolding

General

- To select and direct employees who erect, dismantle, move, or alter scaffolds.
- To determine if it is safe for employees to work on or from a scaffold during storms or high winds and to ensure that a personal fall arrest system or wind screens protect these employees. (Note: Windscreens should not be used unless the scaffold is secured against the anticipated wind forces imposed.)

For Training

- To train employees involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting scaffolds to recognize associated work hazards.

For Inspections

- To inspect scaffolds and scaffold components for visible defects before each work shift and after any occurrence which could affect the corrective actions.
- To inspect ropes on suspended scaffolds prior to each work shift and after every occurrence which could affect the structural integrity and to authorize prompt corrective actions.
- To inspect manila or plastic (or other synthetic) rope being used for top rails or midrails.

For Suspension Scaffolds

- To evaluate direct connections to support the load.
- To evaluate the need to secure two-point and multi-point scaffolds to prevent swaying.

For Erectors and Dismantlers

- To determine the feasibility and safety of providing fall protection and access.
- To train erectors and dismantlers to recognize associated work hazards.

For Scaffold Components

- To determine if a scaffold will be structurally sound when intermixing components from different manufacturers.
- To determine if galvanic action has affected the capacity when using components of dissimilar metals.

Tube and Coupler Scaffolds - Light Duty

Uniformly distributed load	Not to exceed 25 p.s.f.	
Post Spacing (longitudinal)	10 ft. 0 in.	
Post Spacing (transverse)	6 ft. 0 in.	
Working Levels	**Additional Planked Levels**	**Maximum Height**
1	8	125 ft.
2	4	125 ft.
3	0	91 ft. 0 in.

Tube and Coupler Scaffolds - Medium Duty

Uniformly distributed load	Not to exceed 50 p.s.f.	
Post spacing (longitudinal)	8 ft. 0 in.	
Post spacing (transverse)	6 ft. 0 in.	
Working Levels	**Additional Planked Levels**	**Maximum Height**
1	6	125 ft.
2	0	78 ft. 0 in.

Purpose

The purpose of this program is to ensure that Sessler Wrecking continues to improve subcontractors' health, safety, and environmental performance and to establish a standard for pre-qualification, evaluation/selection, and development of our subcontractors.

Scope

This program applies to all Sessler Wrecking locations that use subcontractors.

Roles and Responsibilities

- All managers and supervisors must ensure any subcontractor is qualified prior to use.
- All managers and supervisors will routinely check subcontractor's safe work practices and adherence to this program.
- All managers and supervisors must immediately report to senior management any concerns regarding a subcontractor's safety and health working condition or acts.

General Requirements

All subcontractors MUST adhere to applicable standards required by the governing jurisdiction.

All subcontractors, suppliers and/or vendors meet or exceed the Sessler Wrecking safety program requirements (Prime) in addition to compliance with minimum jurisdictional regulatory requirements.

All Sessler Wrecking subcontractors are to be managed in accordance with this program.

The use of subcontractors must be pre-approved by Sessler Wrecking. Approval requirements include:

- A formal safety review of the subcontractor being performed by Sessler Wrecking safety department.
- The scope of the review was commensurate with the hazards and risk exposure.
- Subcontractors have been/will be oriented to the safety policies, methods, and safe work procedures to ensure contract employees are aware of hazards associated with work to be performed through hazard assessment and/or inspections. This will be accomplished by JHA, work scope meetings, training sessions as required and Stop Work Authority knowledge.
- The subcontractor agrees to abide by our Drug and Alcohol policy and onsite safety rules throughout the duration of the work.

Any subcontractor that has a "Non-Approved" safety status will not be used on any Sessler Wrecking site.

Procedure

Pre-Qualification of Subcontractors
Subcontractors will be pre-qualified by reviewing their safety programs, safety training documents and safety statistics. Sessler Wrecking will use a combination of safety metrics to prequalify subcontractors as shown below.

How Acceptable Safety Performance Metrics, Such as TRIR, EMR, DART and Fatality Rate Will be Used as a Criteria for Selecting Subcontractors

Acceptable safety metrics will be used as criteria for prequalifying, selecting, and retaining or terminating subcontractors in the following manner.

Key performance indicators such as the TRIR, EMR, DART and Fatality rates shall be reviewed (see form). The safety metrics and scoring will consider:

- Sessler Wrecking Subcontractor Safety Pre-Qualification Form responses and subcontractor safety program documents review 60% (Rated from 0-60 total points)
- Subcontractor safety training documents review 20% (Rated from 0-20 totalpoints)
- Subcontractor safety statistics review 20% (Rated from 0-20 total points)

Subcontractor Incident/Injury Recordkeeping and Reporting Procedures

All subcontractors MUST report any job-related injury or illness, near miss or any unsafe working condition or act IMMEDIATELY to the designated Sessler Wrecking manager.

Sessler Wrecking will enter any required injury on their OSHA log if the subcontractor is under the direct supervision of Sessler Wrecking.

Subcontractors shall use the incident reporting form of Sessler Wrecking or their own if equal in information content.

Evaluation Rating and Acceptance
The subcontractor rating system will have five designations:

- Equal to or Greater than 90 points = A – no restrictions.
- Between 85 and 89 points = B – Mitigation plan must be documented and approved by Sessler Wrecking Safety.
- Between 81 and 84 points = C – Mitigation plan must be documented and approved by SesslerWrecking Safety; management approval in writing.
- Between 71 and 80 points = D – Mandatory commitment meeting with senior subcontractor management present; mitigation plan documented and approved by Sessler Wrecking Safety; management approval in writing; trained subcontractor safety personnel on site during work regardless of numberof workers.
- Less than 70 points = F – not to be used.

Once each subcontractor has been evaluated and scored, Sessler Wrecking safety will provide management the scores/ranking.

Sessler Wrecking reserves the right to change a subcontractor's status to "Non-Approved" if the subcontractor shows insufficient progress towards accepted mitigation plan or other agreed upon criteria.

Subcontractor Orientation, Meetings and Training

Contractors are required to follow or implement the work practices and systems described below while performing work at Sessler Wrecking worksites:

- Attend a safety orientation, included in any pre-job meeting or kick-off meeting provided by Sessler Wrecking prior to any work beginning
- Monitor employees for substance abuse and report nonconformities to Sessler Wrecking
- Ensure personnel have the required training and competency for their work
- Included in Sessler Wrecking tailgate safety meetings, job safety analysis or hazard assessments and on the job safety inspections.
- Perform a pre-job safety inspection that includes equipment
- Participate in the BBS hazard reporting system
- Report all injuries, spills, property damage incidents and near misses
- Comply with onsite and Owner Client safety rules
- Implement Sessler Wrecking safety practices and processes as applicable
- Clean up and restore the worksite after the job is over
- Ensure compliance with regulations at all times
- Post job-safety performance reviews - shall be conducted for subcontractors based on their adherence to the above requirements, safety key performance indicators and other agreed upon requirements.

SUBCONTRACTOR SAFETY PRE-QUALIFICATION FORM

GENERAL INFORMATION

1. Subcontractor Information:

Subcontractor Name:	Telephone Number:
Street Address:	Fax Number:
City:	Website Address:
Province/State:	Postal Code/Zip:

2. Officers

Owners:

Vice Owners:

Treasurer:

3. How many years has your organization been in business under your present firm's name?

4. Parent Firm Name:

City:	Province/State:	Postal Code/Zip:

Subsidiaries:

5. Under current management since (Date): (please enter date as mm/dd/yyyy)

6. Contact for Insurance Information:

Title:	Telephone:	Fax:	Email:

7. Insurance Carrier(s):

Name	Type of Coverage	Telephone

8. Worker's Compensation Account Status (Please enclose a copy of your workers' compensation insurance certificate.

Account Number: Industry Code:

9. Contact for requesting bids:

Title:	Telephone:	Fax: .	Email:

10. Contractor Evaluation form completed by:

Title:	Telephone:	Fax:	Email:

HEALTH, SAFETY AND ENVIRONMENTAL PERFORMANCE

Health, Safety and Environmental Performance

Provide the following data for your firm using your record keeping forms from the past three (3) years.
If the data is not available, please reply with Not Available - N/A.

Safety Performance Definitions and Guidance

a. **Hours Worked** - Employee hours worked last three years. Please report actual scheduled total hours worked and total overtime hours worked. If actual hours worked are not available for certain individuals, hours worked may be estimated. A default of 2000 hours per individual per year can be used as an estimate.

b. **Recordable Incidents** - Recordable cases are those that involve any work-related injury or illness, including death but excluding first-aid injuries.

- **Medical Treatment Case**
  - ◊ Treatment above first aid level – See OSHA recordkeeping guidelines.
- **Days Away from Work Case**
  - ◊ Could not perform any work.
  - ◊ The day of the incident is not counted as a Days Away day nor day of return. Stop counting when total days reach 180 or if employee leaves the firm.
- **Restricted Work Case**
  - ◊ Could not perform routine functions associated with their permanent job.
  - ◊ The day of the incident nor day of return to regular position is not counted as a Restricted Duty Day. Stop counting when total restricted duty days reach 180 or if employee leaves thefirm.
- **Transferred Work Activity Case**
  - ◊ Assigned to another job on a temporary or permanent basis.
  - ◊ The day of the incident is not counted as a Restricted Duty Day. Stop counting when transferred days reach 180 or if employee leaves the firm.
- **Fatality Case**
  - ◊ Employees dies from a work-related injury or illness.

d. **Motor Vehicle Incident** - Includes any event involving a motor vehicle that is owned, leased, or rented by the firm that results in death, injury, or property damage unless the vehicle is properly parked.

Health and Safety Incidents	2015	2014	2013
a. Workers Compensation Experience Modification Rate (EMR)			
b. Total Hours Worked			
Total Medical Treatment Cases			
Total Days Away Injury/Illnesses Cases			
Total Restricted Work Injury/Illnesses Cases			
Total Transferred Work Injury/Illnesses Cases			
Total Fatality Cases			
c. Total Recordable Cases			
c. Total Recordable Incident Rate (TRIR) Total # Recordable Incidents x 200,000 Total # Hours worked			

HEALTH, SAFETY AND ENVIRONMENTAL PERFORMANCE			
Health and Safety Incidents - continued	**2015**	**2014**	**2013**
f. Motor Vehicle Incidents (MVI) # Motor Vehicles Incidents # Kilometers/Miles driven			
g. Motor Vehicle Incident Frequency Rate (MVIFR) Total # of Firm's Motor Vehicle Incidents x 1,000,000 Total # Kilometers/Miles driven			
Environmental Incidents	**2015**	**2014**	**2013**
Total # Spills to Water **a. Petroleum Spills** # spills Sheen (est. volume as 0.1 bbl. To < 1lb. # spills 1 lb. To < 100 lbs. # spills 100 lbs. or more **b. Chemical Spills** # spills 1 bbl./160 kg. to < 100 lbs./16,000 kg. # spills 100 lbs./16,000 or more			
Total # Spills to Land **a. Petroleum spills** # spills 1 lb. To < 100 lbs. # spills 100 lbs. or more **b. Chemical Spills** # spills 1 lb./160 kg. to < 50 lbs./8,000 kg # spills 50 lbs./8,000 kg. or more			
Enforcement Actions	**2015**	**2014**	**2013**
Citations # Health and Safety # Environmental Please provide details			
Fines Total # Fines Total $$ Paid Please provide details			

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT

Highest ranking HSE professional in the firm:

Name/Title: Email: Telephone Numbers

Do you have a written Basic Safety / HSE Program?	Yes ☐	No ☐
Does your Basic Safety/HSE Program include the following?		
a. HSE Policy statement signed by management	Yes ☐	No ☐
b. Management Involvement and Commitment	Yes ☐	No ☐
c. Hazard Identification and Risk Control	Yes ☐	No ☐
d. Rules and Work Procedures	Yes ☐	No ☐
e. Training	Yes ☐	No ☐
f. Communications	Yes ☐	No ☐
g. Incident and Accident Reporting and Investigation	Yes ☐	No ☐
Does the program include work practices and procedures such as?		
a. Permit to Work including Isolation of Energy	Yes ☐	No ☐
b. Confined Space Entry	Yes ☐	No ☐
c. Injury and Illness Recording	Yes ☐	No ☐
d. Fall Protection	Yes ☐	No ☐
e. Personal Protective Equipment	Yes ☐	No ☐
f. Portable Electrical/Power Tools	Yes ☐	No ☐
g. Motor Vehicle/Driving Safety	Yes ☐	No ☐
h. Compressed Gas Cylinders	Yes ☐	No ☐
i. Electrical Equipment Grounding Assurance	Yes ☐	No ☐
j. Powered Industrial Vehicles (Cranes, Forklifts, Etc.)	Yes ☐	No ☐
k. Housekeeping	Yes ☐	No ☐
l. Accident/Incident Reporting and Investigations	Yes ☐	No ☐
m. Unsafe Condition Reporting	Yes ☐	No ☐
n. Emergency Preparedness, Including Evacuation Plan	Yes ☐	No ☐
o. Waste Disposal and Pollution Prevention	Yes ☐	No ☐
p. Regular Workplace Inspection / Audits	Yes ☐	No ☐
Do you have a Drug and Alcohol program?		
a. Pre-employment Testing	Yes ☐	No ☐
b. Reasonable Cause Testing	Yes ☐	No ☐
c. Post-rehabilitation/Return to Work Testing	Yes ☐	No ☐

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT

Do you have a Job Safety Analysis (JSA) process in place?	Yes ☐	No ☐
Is there a Root Cause Analysis process used for investigations, near misses, environmental spills?	Yes ☐	No ☐
Is there a Management of Change (MOC) Process in place?	Yes ☐	No ☐
Do you have programs for the following?		
a. Respiratory Protection	Yes ☐	No ☐
b. Where applicable, have employees been:		
• Trained	Yes ☐	No ☐
• Fit tested	Yes ☐	No ☐
• Medically approved	Yes ☐	No ☐
c. Hazard communication/WHMIS	Yes ☐	No ☐
d. Programs for potential high hazard work such as Highly Hazardous Chemicals; Explosives and Blasting Agents	Yes ☐	No ☐
Do you have a corrective action process for addressing individual/employee safety and health performance deficiencies?	Yes ☐	No ☐
Medical		
a. Do you conduct medical examinations for:		
• Pre-placement Job Capability	Yes ☐	No ☐
• Pulmonary	Yes ☐	No ☐
• Respiratory	Yes ☐	No ☐
b. Describe how you intend to provide first aid and other medical services while on-site.		
Do you have personnel trained to perform first aid and CPR?	Yes ☐	No ☐
Personal Protective Equipment (PPE)		
a. Is applicable PPE provided for employees?	Yes ☐	No ☐
b. Do you have a program to assure that PPE is inspected and maintained?	Yes ☐	No ☐

HSE Meetings			**Frequency**
a. Do you hold site HSE meetings for?			
• Field Supervisors	Yes ☐	No ☐	
• Employees	Yes ☐	No ☐	
• New Hires	Yes ☐	No ☐	
• Subcontractors	Yes ☐	No ☐	

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT

Inspections and Audits			**Frequency**
a. Do you conduct internal HSE Inspections?	Yes ☐	No ☐	
b. Do you conduct internal HSE program audits?	Yes ☐	No ☐	
c. Are corrections or deficiencies to internal HSE program or equipment communicated and documented until closure?	Yes ☐	No ☐	

Equipment and Materials:			
a. Do you own or lease Equipment and Materials? Ifyes, please complete the following questions:	Yes ☐	No ☐	
b. Do you have a system for establishing applicable health, safety, and environmental specifications for acquisition of materials and equipment?	Yes ☐	No ☐	
c. Do you conduct inspections on operating equipment (e.g., cranes, forklifts) in compliance with regulatory requirements?	Yes ☐	No ☐	
d. Do you maintain operating equipment in compliance with regulatory requirements?	Yes ☐	No ☐	
e. Do you maintain the applicable inspection andmaintenance certification records for operating equipment?	Yes ☐	No ☐	
f. Do you document corrections or deficiencies from equipment inspections and maintenance?	Yes ☐	No ☐	

Subcontractor Management			
a. Do you subcontract any work? If the answer is yes, please complete the following questions:	Yes ☐	No ☒	
b. Do you have a written contractor safety management process?	Yes ☐	No ☐	
c. Do you use HSE performance criteria in selection of subcontractors?	Yes ☐	No ☐	
d. Do you evaluate the ability of subcontractors to comply with applicable HSE requirements as part of the selection process?	Yes ☐	No ☐	
e. Do your subcontractors have a written HSE Program?	Yes ☐	No ☐	
f. Do you include your subcontractors in:			
• HSE Orientation	Yes ☐	No ☐	
• HSE Meetings	Yes ☐	No ☐	
• HSE Equipment Inspections	Yes ☐	No ☐	
• HSE Program Audits	Yes ☐	No ☐	
• Are corrections or deficienciesdocumented	Yes ☐	No ☐	

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT

Employee and Trades Training

a.	Have employees been trained in appropriatejob skills?	Yes ☐	No ☐
b.	Are employees' job skills certified where required by regulatory or industry consensus standards?	Yes ☐	No ☐
c.	List trades/crafts which have been certified:		

Health, Safety and Environmental Orientation

		New Hires		Supervisors	
a.	Do you have an HSE Orientation Program for new hires and newly hired or promotedsupervisors?	Yes ☐	No ☐	Yes ☐	No ☐
b.	Does the program provide instruction on the following:				
	• New worker orientation	Yes ☐	No ☐	Yes ☐	No ☐
	• Safe Work Practices	Yes ☐	No ☐	Yes ☐	No ☐
	• Safety Supervision	Yes ☐	No ☐	Yes ☐	No ☐
	• Toolbox meetings	Yes ☐	No ☐	Yes ☐	No ☐
	• Emergency Procedures	Yes ☐	No ☐	Yes ☐	No ☐
	• First Aid Procedures	Yes ☐	No ☐	Yes ☐	No ☐
	• Fire Protection and Prevention	Yes ☐	No ☐	Yes ☐	No ☐
	• Safety Intervention	Yes ☐	No ☐	Yes ☐	No ☐
	• Hazard Communication/WHMIS	Yes ☐	No ☐	Yes ☐	No ☐

Health, Safety and Environmental Training

a.	Do you know the regulatory HSE training requirementsfor your employees?	Yes ☐	No ☐
b.	Have your employees received the required HSE training and re-training	Yes ☐	No ☐
c.	Do you have a specific HSE training program for supervisors?	Yes ☐	No ☐

Training Records

a.	Do you have HSE and training records for your Employee's?	Yes ☐	No ☐
b.	Do the training records include the following:		
	• Employee identification	Yes ☐	No ☐
	• Date of training	Yes ☐	No ☐
	• Name of trainer	Yes ☐	No ☐
	• Method used to verify understanding	Yes ☐	No ☐

c. How do you verify understanding of training? (Check all that apply)

☐ Written test ☐ Oral test ☐ Performance test ☐ Job Monitoring ☐ Other (List)

Purpose

This program confirms our commitment to provide the safest as reasonably practicable work environment for all employees, visitors and contractors while working on any premises be it our own or those of a client we are working for. It creates the foundation on which the structures and systems for safety and health can be established and continually improved.

While we fully accept our responsibility to create a safe working environment, each and every one of us is required to give the most careful attention to how our work is conducted. This is a requirement if we are to achieve our goal of ensuring the Health and Safety of all employees, visitors, and contractors.

Scope

This document formally establishes our Stop Work Authority (SWA) policy and provides all employees to suspend individual tasks or group tasks when the control of risks is not clearly established or understood.

- All employees have the authority and obligation to stop work whenever they feel they have concerns in regard to the risk of those tasks.
- No work will resume until all issues or risks have been adequately controlled.
- When an employee stops work in line with this policy there will be absolutely no retribution directed towards the individual; or team.

Responsibilities

Directors, Safety Department, and Project Managers

- Will support operations and are responsible for monitoring compliance with the requirements of the program, maintenance of associated documents, processes, and training materials.
- Establish clear expectations for all employees in regard to SWA. Create a culture where SWA is exercised freely, resolve any conflicts, and enforce accountability for those not complying.

Site Superintendent/Supervisors

- Are responsible to create a culture where SWA is exercised freely, honor request for stop work and work to resolve any issues arising prior to operations returning to normal. The supervisor must ensure follow-up and corrective actions are implemented and monitored.

Employees

- Are responsible to initiate a stop work intervention when warranted, support the intervention of others, and immediately report such a stop work to their immediate supervisor..

Protocols

Our Stop Work Authority involves a stop, notify, correct, and resume approach for the resolution of all perceived unsafe work actions or conditions.

1. When a person identifies a perceived unsafe condition, act, error, omission, or lack of understanding that could result in an undesirable event, a stop work intervention shall be immediately initiated.
2. If a supervisor is readily available then a review of the situation must be undertaken. If a supervisor is not readily available then a SWA is initiated. Stop work interventions should be initiated in a positive manner.

e.g.: "I am using my stop work authority because...". Using this phrase will ensure all involved parties understand what is occurring.

3. Any parties that may be affected by the SWA must be notified.
4. All parties shall discuss the SWA and gain agreement on the issue.
5. If it is decided the SWA was not warranted due to unknown circumstances then all parties associated should be thanked for their participation and work resumed.
6. If determined and agreed that the stop work issue is valid, then every attempt should be made to resolve the issue to all affected person's satisfaction prior to the commencement of work.
7. If the work issue cannot be resolved immediately, work shall be suspended until proper resolution is achieved. When opinions differ regarding the validity of the stop work issue or adequacy of the resolution actions, the location's "person in charge" shall make the final determination. Details regarding differences of opinion and resolution actions should be included in the documented report.
8. Positive feedback should be given to all affected employees regarding resolution of the stop work issue. Under no circumstances should retribution be directed at any person(s) who exercise in good faith their stop work authority as detailed in this program.
9. All stop work interventions and associated detail shall be documented and reported as detailed in this program.

Reporting

All **"Stop Work"** interventions exercised under the authority of this program shall be documented as a near miss utilizing existing reporting protocols. The near miss report shall contain the words **"STOP WORK"** at the beginning of the incident description in order to differentiate it from traditional near miss reports.

"STOP WORK" reports shall be reviewed by line supervision in order to:

- Measure participation.
- Determine quality of interventions and follow-up
- Trend common issues and identify opportunities for improvement.
- Facilitate sharing of learning.
- Feed recognition programs.

The Health and Safety Department will regularly publish incident details regarding the number of **"STOP WORK"** actions reported by location as well as details regarding common trends and learning.

Follow-up

It is the desired outcome of any **"STOP WORK"** that the identified safety concerns be addressed to the satisfaction of all involved persons prior to the resumption of work. Although all issues can be adequately resolved in a timely fashion at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes.

"STOP WORK" interventions that require additional investigation or follow up will be handled utilizing existing protocols and procedures for incident investigation and follow-up.

Recognition

In order to build and reinforce a culture in which SWA is freely exercised and accepted, line supervisor are encouraged to positively recognize employee and contractor participation in the program.

Minimally, each line supervisor should informally recognize individuals when exercising their authority to stop work or demonstrate constructive participation in a **"STOP WORK"** intervention. This informal recognition need to be no more than an expression of appreciation for a job well done or the awarding of a nominal item (hat, gloves, flashlight, gift certificate, etc.) of recognition. Additionally, formal recognition of selected examples of **"STOP WORK"** interventions and those responsible should be made during regularly scheduled safety meetings.

The Health and Safety Department will regularly publish selected **"STOP WORK"** actions that occurred throughout the company, recognize those responsible for their support of the SWA program and contribution to Health and Safety continuous improvement.

Training

Training regarding this SWA policy and program will be conducted as part of all new employee orientation. Additionally, a review of the SWA policy shall be completed as part of all field location safety briefings and regularly in safety meetings.

Purpose

The purpose of this program is to provide establish requirements for the safe operation of hand and power tools and other portable tools, including proper guarding. All hand and power tools shall be maintained in a safe condition. This program applies to all Sessler Wrecking employees who use hand and power tools.
This program is applicable to all Sessler Wrecking employees while engaged in work at Sessler Wrecking facilities and/or facilities operated by others.

Responsibilities

Any tool which is not in compliance with any applicable requirement of this plan is prohibited and shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

Managers/Supervisors

- Ensure that all employees using portable tools have been trained and fully understand the operations and maintenance procedures of such tools, including their proper use.
- Provide and train employees with all additional PPE that may be needed for the safe operation of portable tools.

Employees

- Shall ensure they have and properly use the correct tool for each task.
- Shall follow manufactures safety and operating instructions before using

Practices/Procedures Relating to Hand Tools

- All tools, regardless of ownership, shall be of an approved type and maintained in good condition.
- Tools are subject to inspection at any time.
- All employees have the authority and responsibility to condemn unsafe tools, regardless of ownership.
- Unsafe tools shall be tagged with a “DO NOT USE OR OPERATE” tag to prevent their use.
- Employees shall always use the proper tool for the job to be performed. Makeshift and substitute tools shall not be used. Modifications to hand tools are prohibited
- Hammers with metal handles, screwdrivers with metal continuing through the handle, and metallic measuring tapes shall not be used on or near energized electrical circuit or equipment.
- Tools shall not be thrown from place to place or from person to person; tools that must be raised or lowered from one elevation to another shall be placed in tool bags/buckets firmly attached to hand lines.
- Tools shall never be placed unsecured on elevated places.
- Impact tools such as chisels, punches, and drift pins that become mushroomed or cracked shall be dressed, repaired, or replaced before further use.
- Chisels, drills, punches, ground rods, and pipes shall be held with suitable holders or tongs (not with the hands) while being struck by another employee.
- Shims shall not be used to make a wrench fit.
- Wrenches with sprung or damaged jaws shall not be used.
- Tools shall be used only for the purposes for which they have been approved.

- Tools with sharp edges shall be stored and handled so that they will not cause injury or damage. They shall not be carried in pockets unless suitable protectors are in use to protect the edge. They shall not be carried in pockets unless suitable protectors are in use to protect the edge.
- Wooden handles that are loose, cracked, or splintered shall be replaced. The handle shall not be taped or lashed with wire. The handle shall not be taped or lashed with wire.
- Tools shall not be left lying around where they may cause a person to trip or stumble.
- When working on or above open grating, a canvas or other suitable covering shall be used to cover the grating to prevent tools or parts from dropping to a lower level where others are present, or the danger area shall be barricaded or guarded.
- The insulation on hand tools shall not be depended upon to protect users from high voltage shock (except approved live line tools).

Portable Electric and Power Tools

- The non-current carrying metal parts of portable electric tools such as drills, saws, and grinders shall be effectively grounded when connected to a power source unless the tool is an approved double-insulated type, or the tool is connected to the power supply by means of an isolating transformer or other isolated power supply.
  All powered tools shall be examined prior to use to ensure general serviceability and the presence of all applicable safety devices.
- Powered tools shall be used only within their design and shall be operated in accordance with manufacturer's instructions. The use of electric cords for hoisting or lowering tools shall not be permitted.
- All tools shall be kept in good repair and shall be disconnected from the power source while repairs or adjustments are being made.
- Electrical tools shall not be used where there is a hazard of flammable vapors, gases, or dusts without a valid Hot Work Permit.
- Ground fault circuit interrupters or use of an Assured Grounding Program shall be used with portable electric tools. This does not apply to equipment run off of portable or truck mounted generators at 5kw or less that are isolated from ground or to equipment ran directly off of secondaries.

Pneumatic Tools

- Pneumatic tools shall never be pointed at another person.
- Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from becoming accidentally disconnected.
- Safety clips or retainers shall be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled.
- Compressed air shall not be used for cleaning purposes, except where reduced to less than 30 psi and then only with effective chip guarding and personal protective equipment.
- Compressed air shall not be used to blow dust or dirt from clothing.
- The manufacturers stated safe operating pressure for hoses, pipes, valves, filters, and other fittings shall not be exceeded.
- The use of hoses for hoisting or lowering tools shall not be permitted.

- Before making adjustments or changing air tools, unless equipped with quick-change connectors, the air shall be shut off at the air supply valve ahead of the hose. The hose shall be bled at the tool before breaking the connection.
- Compressed air tools, while under pressure, must not be left unattended.
- All connections to air tools shall be made secure before turning on air pressure.
- Air at the tool shall not be turned on until the tool is properly controlled.
- All couplings and clamps on pressurized air hose shall be bridged (pinned) with suitable fasteners.
- Hose and hose connections used for conducting compressed air to utilization equipment shall be designed for the pressure and service to which they are subjected.
- Use only approved end-fitting clamps (screw type heater hose clamps are not acceptable).
- While blowing down hose, do not point it toward people.
- Power tools are to be operated only by competent people who have been trained in their proper use.
- Conductive hose should not be used near energized equipment.
- Foot protection shall be worn while operating paving breakers, tampers, rotary drills, clay spades, and similar impactor-type tools or at other times when instructed by supervision.
- All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi. pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.
- Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released.
- In lieu of the above, a diffuser nut (which will prevent high pressure), high velocity release (while the nozzle tip is removed), plus a nozzle tip guard (which will prevent the tip from coming into contact with the operator), or other equivalent protection, shall be provided.

Powder Actuated Tools (Tools actuated by an explosive charge)

- Only those employees who have been certified in their use shall operate these tools.
- Explosive charges shall be carried and transported in approved containers.
- Operators and assistants using these tools shall be protected by means of eye, face, and hearing protection.
- Tools shall be maintained in good condition and serviced regularly by qualified persons. The material upon which these tools are to be used shall be examined before work is started to determine its suitability and to eliminate the possibility of hazards to the operator and others.
- Prior to use, the operator shall ensure that the protective shield is properly attached to the tool.
- Before using a tool, the operator shall inspect it to determine to his satisfaction that it is clean, that all moving parts operate freely, all guards and safety devices are in place, and that the barrel is free from obstructions.
- Before using tools, the operator shall read and become familiar with the manufacturers operating guidelines and procedures.
- When a tool develops a defect during use, the operator shall immediately cease to use it, until it is properly repaired in accordance with the manufacture's specifications.
- Tools shall not be loaded until just prior to the intended firing time, nor shall an unattended tool be left loaded. Empty tools are to be pointed at any workers.

- In case of a misfire, the operator shall hold the tool in the operating position for at least 30 seconds. He shall then try to operate the tool a second time. He shall wait another 30 seconds, holding the tool in the operating position; then he shall proceed to remove the explosive load in strict accordance with the manufacturer's instructions.
- A tool shall never be left unattended in a place where it would be available to unauthorized persons.
- Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick, or hollow tile.
- Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying missile hazard on the other side.
- Tools shall not be used in an explosive or flammable atmosphere.

Hydraulic Power Tools

- The fluid used in hydraulic powered tools shall be fire-resistant fluids and shall retain its operating characteristics at the most extreme temperatures to which it will be exposed.
- The manufacturer's safe operating pressures for hoses, valves, pipes, filters, and other fittings shall not be exceeded.
- All hydraulic tools, which are used on or around energized lines or equipment, shall use non-conducting hoses having adequate strength for the normal operating pressures.

Hydraulic Jacks

Loading and Marking

- The operator shall make sure that the jack used has a rating sufficient to lift and sustain the load.
- The rated load shall be legibly and permanently marked in a prominent location on the jack by casting, stamping or other suitable means.

Operation and Maintenance

- In the absence of a firm foundation, the base of the jack shall be blocked. If there is a possibility of slippage of the cap, a block shall be placed in between the cap and the load.
- The operator shall watch the stop indicator, which shall be kept clean, in order to determine the limit of travel. The indicated limit shall not be exceeded.
- After the load has been raised, it shall be cribbed, blocked, or otherwise secured at once.
- Hydraulic jacks exposed to freezing temperatures shall be supplied with adequate antifreeze liquid.
- All jacks shall be properly lubricated at regular intervals.
- Each jack shall be thoroughly inspected before each use. Jacks, which are in unsafe condition, shall be tagged accordingly, and shall not be used until repairs are made.

Fuel Powered Tools

- All fuel-powered tools shall be stopped while being refueled, serviced, or maintained, and fuel shall be transported, handled, and stored in accordance with the Flammable and Combustible Liquids Program.
- When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of personal protective equipment shall be adhered too.

Guarding PortableTools

Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such a way that will compromise its integrity or compromise the protection in which it is intended.

Portable Circular Saws

- All portable, power-driven circular saws having a blade diameter greater than 2 in. shall be equipped with guards above and below the base plate or shoe.
- The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts.
- The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work.
- When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to the covering position.
- All cracked saw blades shall be removed from service.

Switches and Controls

- All handheld powered tools, circular saws, drills, tappers, fastener drivers, horizontal or vertical angle grinders, etc., shall be with a constant pressure switch or control, and may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.
- All hand-held powered circular saws having a blade diameter greater than 2 inches, electric, hydraulic, or pneumatic chain saws, and percussion tools without positive accessory holding means shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. All hand-held gasoline powered chain saws shall be equipped with a constant pressure throttle control that will shut off the power to the saw chain when the pressure is released.
- The operating control on hand-held power tools shall be so located as to minimize the possibility of its accidental operation if such accidental operation would constitute a hazard to employees.
- Grounding of portable electric powered tools shall meet the electrical requirements that can be found in the Electrical Safety Program. All electric power tools shall be equipped with a three-prong plug.

Abrasive Wheel Machinery and/or Other Rotating Equipment

Portable Abrasive Wheels

Safety Guards Exceptions

- Wheels used for internal work while within the work being ground.
- Mounted wheels used in portable operations 2 inches and smaller in diameter.
- Guards shall be made of steel or other material with adequate strength.
- A safety guard shall cover the spindle end, nut, and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel, and the strength of the fastenings shall exceed the strength of the guard.
- Exception: safety guards on all operations where the work provides a suitable measure of protection to the operator may be so constructed that the spindle end, nut, and outer flange are exposed. Where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted.
- Exception: the spindle end, nut, and outer flange may be exposed on portable machines designed for, and

used with, type 6, 11, 27, and 28 abrasive wheels, cutting off wheels, and tuck-pointing wheels.

Mounting and Inspection of Abrasive Wheels

- Immediately before mounting, all wheels shall be closely inspected and a ring test performed, to make sure they have not been damaged in transit, storage, or otherwise.
- Ring test – “tap" wheels about 45 degrees each side of the vertical centerline and about 1 or 2 inches from the periphery; then rotate the wheel 45 degrees and repeat the test; a sound and undamaged wheel will give a clear metallic tone - If cracked, there will be a dead sound and not a clear "ring.”
- The spindle speed of the machine shall be checked before mounting the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.
- Grinding wheels shall fit freely on the spindle and remain free under all grindingconditions.
- A controlled clearance between the wheel hole and the machine spindle (or wheel sleeves or adaptors) is essential to avoid excessive pressure from mounting and spindle expansion.
- The machine spindle shall be made to nominal (standard) size plus zero minus .002 inch, and the wheel hole shall be made suitably oversized to assure safety clearance under the conditions of operating heat and pressure.
- All contact surfaces of wheels, blotters, and flanges shall be flat and free of foreignmatter.
- When a bushing is used in the wheel hole it shall not exceed the width of the wheel and shall not contact the flanges.

Portable Grinders

- Special "revolving cup guards" which mount behind the wheel and turn with it shall be used. They shall be made of steel or other material with adequate strength and shall enclose the wheel sides upward from the back for one-third of the wheel thickness. It is necessary to maintain clearance between the wheel side and the guard. The clearance shall not exceed one-sixteenth inch.
- Vertical portable grinders, also known as right angle grinders, shall have a maximum exposure angle of 180 degrees and the guard shall be located between the operator and the wheel during use. Adjustment of the guard shall ensure that pieces of an accidentally broken wheel will be deflected away from theoperator.
- The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on other portable grinding machines shall not exceed 180 degrees and the top half of the wheel shall be enclosed at all times.

Personal ProtectiveEquipment

Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists, vapors, or gases shall be provided with the particular PPE necessary to protect them from the hazard.

Body Positioning, Ergonomics and Repetitive Motion Hazards

Sessler Wrecking requires each worksite to establish and maintain an ergonomics procedure with the following elements:

- Ongoing training of management, supervisors, and employees (including new hires) on lifting and manual handling awareness hazards and control measures.

- Training of specialized staff (designated Sessler Wrecking Representative, JHSC members) on lifting or manual handling hazard assessment and control measures
- Tracking of MSD statistics
- MSD hazard identification and assessment (see MSD Hazard Identification form)
- Control of MSD hazards through the application of engineering and/or administrative controls
- Implementation of the ergonomics procedure by incorporating ergonomic control principles into the purchasing process, i.e., by proactively integrating ergonomics principles into purchasing equipment and furniture
- Proactively integrating ergonomics principles into workplace design and work techniques
- Ongoing evaluation (no less than annually) of the local ergonomics procedure implementation and effectiveness
- A realization that personal protective equipment may only be used as a substitute for engineering or administrative controls if it is used in circumstances in which those controls are not practicable.

Sessler Wrecking must ensure that every worker who may be exposed to a risk of musculoskeletal injury is informed of the risk and of the signs and common symptoms of any musculoskeletal injury associated with their work.

Worksite Assessment

A hazard assessment must be performed before manually lifting and handling a load. Before a worker manually lifts, lowers, pushes, pulls, carries, handles, or transports a load that could injure the worker, Sessler Wrecking must perform a hazard assessment that considers the weight of the load, the size of the load, the shape of the load, the number of times the load will be moved and the manner in which the load will be moved. The assessment shall include the following factors must be considered, where applicable:

- Physical Demands
  - Neck Back Shoulder Wrist
  - Hand
  - Knee Ankle/
  - Feet
- Force Required and Working Distance
  - Do employees push, pull, lift, lower, or carry objects that are too heavy or require too much force; away from the center of the body or in a jerky or twisting manner?
- Work Postures
  - Is the back curved too much or in a stooped position?
  - Is the back twisted during movements?
  - Is the neck bent or twisted?
  - Are the arms away from the body?
  - Are the wrists flexed, extended, or pinched positions?
- Repetitive Use of Similar Muscles
  - Do employees perform movements over and over in the same way

- Static Muscle Use and Duration
  - Do employees hold any of the above work postures for > 20 sec.?
  - Stand for long periods with their knees locked?
  - Stand in one position without moving or stretching?
- Contact Stress
  - Do employees put localized pressure on any part of their body?
- Workspace Layout and Conditions
  - Are there working heights, reaches in workspace, equipment, tool design, storage conditions, etc., that cause or contribute to employees experiencing any of the physical demands risk factors?
  - Also consider seating, floor surfaces, the characteristics of objects handled, including size and shape, load condition and weight distribution, and container as well as tool and equipment handles.
- Organization of Work
  - Are there work processes, monotonous job tasks, work recovery cycles, task variability, work rate, machine paced tasks or peak activity demands that cause or contribute to rushing, frustration, fatigue, or other visible signs of stress?
- Environmental Conditions
  - Are employees exposed to poor lighting, vibration, cold or hot air/wind/water?

Mechanized Equipment

Mechanized equipment is provided, wherever practicable, to assist with material handling and should be used for material handling, whenever practicable. Sessler Wrecking must provide, where reasonably practicable, appropriate equipment for lifting, lowering, pushing, pulling, carrying, handling, or transporting heavy or awkward loads.

Handling Heavy or Awkward Loads

Sessler Wrecking will take all practicable means to adapt the heavy or awkward loads to facilitate lifting, holding, or transporting by workers or to otherwise minimize the manual handling required. Those include:

- Employees shall not attempt to lift more than they can comfortably take and absolutely not more than 18kg without assistance from another employee or use of mechanical aids (pallet jack, hand dolly, etc.) to lift the load.
- All loads carried on handcarts shall be secured.
- All awkward type loads shall be secured to prevent tippage.
- Additional methods include:
  - reducing the weight of the load by dividing it into two or more manageable loads
  - increasing the weight of the load so that no worker can handle it and therefore mechanical assistance is required
  - reducing the capacity of the container
  - reducing the distance, the load must be held away from the body by reducing the size of the packaging

- providing hand holds
- team lift the object with two or more workers
- improve the layout of the work process to minimize the need to movematerials
- reorganize the work method(s) to eliminate or reduce repeated handling of the same object
- rotate workers to jobs with light or no manual handling
- Use mobile storage racks to avoid unnecessary loading and unloading.

Purpose

The purpose of this training program is to protect employees from safety hazards that may be encountered during work in trenches and excavations.

Scope

Sessler Wrecking is required to participate as a contract employer at client locations with trenching and excavation work; however, Sessler Wrecking does not initiate trenching operations.

When work is performed on a non-owned or operated site, the operator's program shall take precedence; however, this document covers Sessler Wrecking employees for basic awareness purposes that addresses all items and shall be used when an operator's program does not exist.

Definitions

Accepted engineering practices means the standards of practice required by a registered professional engineer.

Aluminum Hydraulic Shoring means a manufactured shoring system consisting of aluminum hydraulic cylinders (cross braces) used with vertical rails (uprights) or horizontal rails (wales).

Bell-bottom pier hole means a type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.

Benching (Benching system) is a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or more horizontal steps, usually with vertical or near-vertical surfaces between levels.

Cave-in means the movement of soil or rock into an excavation, or the loss of soil from under a trench shield or support system, in amounts large enough to trap, bury, or injure and immobilize a person.

Cross braces mean the horizontal members of a shoring system installed from side to side of the excavation. The cross braces bear against either uprights or Wales.

Excavation means any man-made cut, cavity, trench, or depression in an earth surface formed by earth removal.

Faces or sides mean the vertical or inclined earth surfaces formed as a result of excavation work.

Failure means the movement or damage of a structural member or connection that makes it unable to support loads.

Hazardous atmosphere means an atmosphere that is explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, which may cause death, illness, or injury.

Health Safety Officer means the individual at Sessler Wrecking responsible for developing and implementing this program, conducting unannounced work site inspections, and ensuring that the departments comply with the program requirements.

Kickout means the accidental movement or failure of a cross brace.

A protective system means a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.

Ramp means an inclined walking or working surface that is used to gain access to one point from another. A ramp may be constructed from earth or from structural materials such as steel or wood.

Sheeting means the members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

Shield (Shield system) means a structure used in an excavation to withstand cave-ins and which will protect employees working within the shield system. Shields can be permanentstructures or portable units moved along as work progresses. Shields used in trenches are usually referred to as "trench boxes" or "trenchshields."

Shoring (Shoring system) means a structure that is built or put in place to support the sides of an excavation to prevent cave-ins.

Sides - See "Faces."

Sloping (Sloping system) means sloping the sides of the excavation away from the excavation to protect employees from cave-ins. The required slope will vary with soil type, weather, and surface or near surface loads that may affect the soil in the area of the trench (such as adjacent buildings, vehicles near the edge of the trench and so forth).

Stable rock means natural solid mineral material that can be excavated with vertical sides that will remain intact while exposed.

Structural ramp means a ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.

Support system means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.

Tabulated data means tables and charts approved by a registered professional engineer and used to design and construct a protective system.

Trench (Trench excavation) means a narrow excavation (in relation to its length) made below the surface of the ground.

Trench box or shield - See "Shield".

Uprights mean the vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."

Wales are horizontal members of a shoring system placed in the direction of the excavation face whose sides bear against the vertical members of the shoring system or earth (the uprights or sheeting).

Key Responsibilities

Only trained personnel can be involved in working in trenches or excavations.

Procedure

Competent Person Duties – The Safety Manager or their designee shall have the following duties:

Protective Systems or Equipment

- Monitoring water removal equipment and operations.
- Removal of workers if conditions dictate.
- Atmospheric testing.
- Inspecting excavations subject to runoff from heavy rains to determine the need for diversion ditches, dikes, or other suitable protection.
- Determining cave-in potential to assess the need for shoring or other protective systems.
- Examining damaged material or equipment used for protective systems to determine its suitability for continued use.
- Classifying soil and rock deposits, by both visual analysis and by testing, to determine appropriate protection; re-classifying, if necessary, based on changing conditions.
- Determining the appropriate slope of an excavation to prevent collapse due to surcharge loads from stored material or equipment, operating equipment, adjacent structures, or traffic, and assuring that such slope is achieved.

Inspecting Trench and Protective Systems

- Inspections prior to entry and authorizing immediate removal of employees from the hazardous area where evidence of possible cave-in, failure of protective systems, hazardous atmospheres, or other hazardous conditions exists.

Unsafe Access/Egress

- Design structural ramps that are used solely by employees as a means of access or egress. Structural ramps used for access or egress of equipment must be designed by a competent person qualified in structural design.

Utilities and One-Call Center Requirements
The location of underground installations shall be determined before excavation.

Sessler Wrecking shall follow these procedures for calling the appropriate one-call center before digging, driving equipment into the ground, or engaging in any earth-moving activities:

- The appropriate utility company (gas, electric, water, sewer) shall be contacted prior to work beginning using the appropriate one-call center.
- If utilities are located on client property and the client contacts the one-call center Sessler Wrecking will not begin operations unless written evidence of the one-call center is provided for each appropriate utility company.

Excavation shall be done in a manner that does not endanger the underground installations or the employees engaged in the work. Utilities left in place shall be protected by barricades, shoring, suspension, or other means as necessary to protect employees.

Protection of the Public
Barricades, walkways, lighting and posting shall be provided as necessary for the protection of the public prior to the start of excavation operations.

Guardrails, fences, or barricades shall be provided on excavations adjacent to walkways, driveways and other pedestrian or vehicle thoroughfares. Warning lights or other illumination shall be maintained as necessary for the safety of the public and employees from sunset to sunrise.

Wells, holes, pits, shafts, and all similar hazardous excavations shall be effectively barricaded or covered and posted as necessary to prevent unauthorized access. All temporary excavations of this type shall be backfilled as soon as possible.

Protection Against Falls
Walkways or crossings shall be protected by standard guardrails or railings shall be provided where employees and the general public are permitted to cross over excavations. Whereworkers in the excavation may pass under these walkways or bridges, a standard guardrail and toe board shall beused.

Protection of Workers in Excavations

Access and Means of Egress
Stairs, ladders, or ramps shall be provided where employees are required to enter trench excavations over 4 feet deep. The maximum distance of lateral travel (e.g., along the length of the trench) required to reach the means of egress shall not exceed 25 feet.

Structural Ramps
Structural ramps used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a person qualified in structural design and shall be constructed in accordance with the design.

Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent movement or displacement.

Structural members used for ramps and runways shall be of uniform thickness.

Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.

Structural ramps used in place of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

Ladders

When portable ladders are used, the ladder side rails shall extend a minimum of 3 feet above the upper surface of the excavation.

Ladders shall have nonconductive side rails if work is performed near exposed energized equipment or systems.

Two or more ladders, or a double-cleated ladder, will be provided where 25 or more employees will be conducting work in an excavation where ladders serve as the primary means of egress, or where ladders serve two-way traffic.

Ladders will be inspected prior to use for signs of damage or defects. Damaged ladders will be removed from service and marked with "Do Not Use" until repaired.

Ladders shall be used only on stable and level surfaces unlesssecured.

Ladders placed in any location where they can be displaced by workplace activities or traffic shall be secured, or barricades shall be used to keep these activities away from the ladder.

Non-self-supporting ladders shall be positioned so that the foot of the ladder is one-quarter of the working length away from the support.

Employees shall not be allowed to carry any object or load while on the ladder that could cause them to lose their balance and fall.

Exposure to Vehicular Traffic

Employees exposed to vehicular traffic shall be provided with and shall wear vests or other suitable garments marked with or made of reflectorized or high-visibility material. Warning vests worn by flaggers shall be red or orange and shall be of reflectorized material if worn during night work.

Employee Exposure to Falling Loads

No employee shall be permitted underneath loads (or where loads may fall) handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.

Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles provide adequate protection for the operator during loading and unloading operations.

Warning System for Mobile Equipment

A warning system shall be used when mobile equipment is operated adjacent to the edge of an excavation if the operator does not have a clear and direct view of the edge of the excavation. The warning system shall consist of barricades, hand, or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

Hazardous Atmospheres

The atmosphere shall be tested for air contaminants (oxygen, flammable gases, etc.) in excavations over 4 feet deep or if a hazardous atmosphere exists or could reasonably be expected to exist. A hazardous atmosphere could be expected, for example, in excavations in landfill areas, in excavations in areas where hazardous substances are stored nearby, or in excavations near or containing gas pipelines.

Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or forced ventilation of the workspace.

Forced ventilation will be provided where necessary to ensure the atmosphere is safe.

When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, continuous air monitoring will be performed. The device used for atmospheric monitoring shall be equipped with an audible and visual alarm.

Atmospheric testing will be performed using a properly calibrated direct reading gas monitor. Direct reading gas detector tubes or other acceptable means may also be used to test potentially toxic atmospheres.

Personal Protective Equipment

All employees working in trenches or excavations shall wear approved hard-hats and steel toed shoes or boots.

Employees exposed to flying fragments, dust, or other materials produced by drilling, sawing, sanding, grinding and similar operations shall wear approved safety glasses with side shields.

Employees exposed to hazards produced by, or performing, welding, cutting, or brazing operations shall wear approved spectacles or a welding face shield for helmet.

Employees entering bell-bottom pier holes or other similar deep and confined footing excavations shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

Employees shall wear approved gloves or other suitable hand protection.

Employees using, or working in the immediate vicinity of, hammer drills, masonry saws, jackhammers or similar high noise producing equipment shall wear suitable hearing protection.

Each employee at the edge of an excavation 6 feet or more deep shall be protected from falling. Fall protection shall be provided by guardrail systems, fences, or barricades.

Emergency rescue equipment, such as breathing apparatus, a safety harness and line, and a basket stretcher shall be readily available where hazardous atmospheric conditions exist or may develop during work in an excavation. This equipment shall be attended to when in use. Only personnel that have received approved training and have appropriate equipment shall attempt retrieval that would require entry into a hazardousatmosphere.

Protection from Hazards Associated with Water Accumulation

Employees shall not work in excavations that contain or are accumulating water unless precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions taken must include inspection by a competent person before work begins, special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water or use of safety harnesses and lifelines.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operation shall be monitored by a competent person trained in the use of the equipment.

If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation. Precautions shall also be taken to provide adequate drainage of the area adjacent to the excavation.

The competent person shall inform workers of the precautions or procedures that are to be followed if water accumulates or is accumulating in an excavation.

Stability of Adjacent Structures

The competent person will determine if the excavation work could affect the stability of adjoining buildings, walls, sidewalks, or other structures.

Support systems (such as shoring, bracing, or underpinning) shall be used to assure the stability of structures and the protection of employees where excavation operations could affect the stability of adjoining buildings, walls, or other structures.

Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted.

Protection of Employees from Falling Objects and Loose Rocks or Soil

Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of:

- Scaling to remove loosematerial;
- Installation of protective barricades, such as wire mesh or timber, at appropriate intervals on the face of the slope to stop and contain falling material; or
- Benching sufficient to contain falling material.

Excavation personnel shall not be permitted to work above one another where the danger of falling rock or earth exists.

Employees shall be protected from excavated materials, equipment or other materials that could pose a hazard by falling or rolling into excavations.

Protection shall be provided by keeping such materials or equipment at least 2 feet from the edge of excavations, by the use of restraining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

Materials and equipment may, as determined by the competent person, need to be stored further than 2 feet from the edge of the excavation if a hazardous loading condition is created on the face of the excavation.

Materials piled, grouped, or stacked near the edge of an excavation must be stable and self-supporting.

Using the following categories, soil is classified into different types, which determine the kind of cave-in protection required. Only a competent and trained person can determine the soil type by using these classifications.

- Grain sizes are usually classified into four types: gravel, sand, silt, clay. Gravel is the least stable, and clay is the most stable.
- Saturation is the amount of water that the soil is currently holding. Complete saturation is much less stable than soil that is only slightly damp. However, soil with no water content is unstable.
- Cohesiveness is a test that determines how well the soil sticks together. The more it sticks together, the more stable the trench walls will be. The field test usually consists of rolling the soil in your hand into the shape of a worm and observing how and when it separates.
- Unconfined compressive strength determines how much weight per square foot the soil can withstand. This will determine how easily the soil will shear and cave in

Soil Types
Soil classifications must be determined by testing and protective systems designed according to soil classifications.

- The most stable type of soil is Type A. It is dense and heavy and consists primarily of clay.
- Type B has a medium level of stability and is made of soils such as silt, sandy loam, and medium clay.
- The least stable soil is Type C, which consists of gravel, loamy sand, and soft clay.

Timber shoring or aluminum hydraulic shoring must be determined according to the appendixes A & C of 29 CFR 1926 (Excavations).

The devices should be used while in good repair and maintenance. If damaged, they must be inspected.

Employees should be protected from hazards of falling, rolling, or sliding materials or equipment. Shields should not be subjected to excessive forces and will be installed to protect employees from lateral loads. Employees are restricted from being in the shield when installing or removing. The shield must be designed to resist calculated trench forces.

Daily Inspection

The competent person shall conduct daily inspections of excavations, adjacent areas, and protective systems for evidence of a situation that could result in possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when the trench will be or is occupied by employees.

The competent person should have Ground Disturbance for Supervisors or similar level certification.

Where the competent person finds evidence of a situation that could result in a possible cave-in, failure of protective systems, hazardous atmosphere, or other hazardous conditions, exposed employees shall be immediately removed from the hazardous area until precautions have been taken to assure theirsafety.

There shall be a written log of all inspections conducted. This log shall include the date, work site location, results of the inspection, and a summary of any action taken to correct existing hazards.

Training

All personnel involved in trenching or excavation work shall be trained in the requirements of this program and regulatory requirements.

Sessler Wrecking requires Ground Disturbance certifications for operators and supervisors and awareness training for persons working in excavated activities including confined spaces.

Training shall be performed before the employee is assigned duties in excavations.

Retraining will be performed whenever work site inspections conducted by the competent person or Health Safety Officer indicate that an employee does not have the necessary knowledge or skills to safely work in or around excavations.

Training records shall include the date(s) of the training program, the instructor(s) of the training program, a copy of the written material presented, and the names of the employee(s) to whom the training wasgiven.

Purpose

The purpose of this program is to ensure a safe work environment during welding, cutting, and hot work operations.

Scope

This program is applicable to all employees directly involved or assisting in the welding, cutting and hot work operations. When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent. Operators of equipment should report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs shall be made only by qualified personnel.

If fire hazards cannot be taken to a safe place or guards cannot be used to confine heat, sparks, slag and protect the immovable fire hazards, the welding and cutting shall not be performed.

Definitions

Welding/Hot Work Procedures - any activity which results in sparks, fire, molten slag, or hot material which has the potential to cause fires or explosions.

Examples of Hot Work - Cutting, Brazing, Soldering, Thawing Pipes, Grinding, using an electric tool in a hazardous area and Welding.

Special Hazard Occupancies - any area containing Flammable Liquids, Dust Accumulation, Gases, Plastics, Rubber and Paper Products.

Hazards - includes, but not limited to the following: fires and explosions, skin burns, welding "blindness", and respiratory hazards from fumes and smoke.

Key Responsibilities

Managers and Supervisors

- Determine if its property is safe for welding and cutting operations.
- Establish safe areas for welding and cutting operations.
- Provide training for all employees whose task includes heat, spark or flame producing operations such as welding, brazing, or grinding.
- Develop and monitor effective hot work procedures.
- Provide safe equipment for hot work.
- Provide proper and effective PPE for all hot work.
- Monitor all hot work operations.
- Ensure all hot work equipment and PPE are in safe working order.
- Allow only trained and authorized employees to conduct hot work and conduct inspections of the hot work area before operations begin.

- Ensure permits are used for all hot work outside authorized areas.

Employees

- Follow all hot work procedures.
- Properly use appropriate hot work PPE.
- Inspect all hot work equipment before use.
- Report any equipment problems or unsafe conditions.

Procedure

General

A hot work permit must be completed before performing hot work. Precautions that are to be taken shall be in the form of a written permit. Before cutting or welding is permitted the area shall be inspected and a written permit shall be used to authorize welding and cutting operations.

Where practicable all combustibles shall be relocated at least 35 feet from the work site. Where relocation is impractical, combustibles shall be protected with flameproof covers, shielded with metal, guards, curtains, or wet down the material to help prevent ignition of material.

Ducts, conveyor systems, and augers that might carry sparks to distant combustibles shall be protected or shut down.

Where cutting or welding is done near walls, partitions, ceilings, or openings in the floor (grating, manholes, etc.), fire-resistant shields or guards shall be provided to prevent ignition.

If welding is to be done on a metal wall, partition, ceiling, or solid decking/flooring, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation of heat. Where combustibles cannot be relocated to the opposite side of the work, a fire watch person shall be provided on the opposite side of the work.

Welding shall not be attempted on a metal partition, wall, and ceiling or decking/flooring constructed of combustible sandwich panels.

Cutting or welding pipes or other metal in contact with combustible walls, partitions, floors, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by combustion.

Cutting or welding shall not be permitted in the following situations:

- In areas not authorized by management.
- In sprinkled buildings while such protection is impaired.
- In the presence of potentially explosive atmospheres, e.g., flammables.
- In areas near the storage of large quantities of exposed, readily ignitable materials.
- In areas where there is dust accumulation of greater than 1/16 inch within 35 feet of the area where welding/hot work will be conducted.
- All dust accumulation shall be cleaned up before welding or hot work is permitted.

Fire Watch and Control and Control of Fire Hazards

A fire watch shall be under these conditions as a minimum and when welding, cutting, brazing, and/or soldering is performed near combustible materials and/or locations where fire may develop:

- Locations where other than a minor fire might develop.
- Combustible materials are closer than 35 feet to the point of operation.
- Combustibles that are 35 feet or more away but are easily ignited.
- Wall or floor openings within a 35 feet radius of exposed combustible materials.
- Combustible materials are adjacent to the opposite side of metal partitions, ceilings, orroofs.

Whenever welding or cutting is performed in locations where other than a minor fire might develop or any of the conditions mentioned above cannot be met, a fire watch shall be provided.

- The fire watch shall be provided during and for a minimum of 1/2 hour past the completion of the welding project.
- The fire watch shall be trained in the use of fire extinguishers and the facility's alarm system.
- During this time, the fire watch will have appropriate fire extinguishers readily available.
- Suitable extinguishers shall be provided and maintained ready for instant use.
- A hot-work permit will be issued on all welding or cutting outside of the designated welding area.

Fire Prevention Measures

A designated welding area shall be established to meet the following requirements:

- Floors swept and cleaned of combustibles within 35 feet of work area.
- Flammable and combustible liquids and material will be kept 35 feet from the work area.
- Adequate ventilation providing 20 air changes per hour.
- At least one 10-pound dry chemical fire extinguisher shall be within access of 35 feet of the work area.
- Protective dividers such as welding curtains or noncombustible walls will be provided to contain sparks and slag to the combustible free area.

Requirements for welding conducted outside the designated welding area:

- Portable welding curtains or shields must be used to protect other workers in the welding area.
- A hot-work permit must be completed and complied with prior to initiating welding operations.
- Respiratory protection is mandatory unless adequate monitored airflow away from the welder and others present can be established and maintained.
- Plastic materials must be covered with welding tarps during welding procedures.
- Fire Watch must be provided for all hot-work operations.

After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning other workers.

Confined Space

- A space that Is large enough and so configured that an employee can bodily enter and perform assigned work.

- Has limited or restricted means for entry or exit (for example, tanks, vessels, coolers, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry); and
- Is not designed for continuous occupancy.

Refer to Sessler Wrecking's Confined Space Program before commencing any welding, cutting, and/or brazing operations in an area meeting the requirements of a confined space.

Ventilation is a prerequisite to work in confined spaces.

When welding or cutting is being performed in any confined spaces, the gas cylinders and welding machines shall be left on the outside. Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement.

When a welder must enter a confined space through a manhole or other small opening, means shall be provided for quickly removing the individual in case of an emergency.

- When safety belts and lifelines are used for this purpose, they shall be so attached to the welder'sbody that it cannot be jammed in a small exit opening.
- An attendant with a preplanned rescue procedure shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.

When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur, and the machine shall be disconnected from the power source.

In order to eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cuffing, the torch valves shall be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. If practical, the torch and hose shall also be removed from the confined space.

When welding must be performed in a space entirely screened on all sides, the screens shall be so arranged that no serious restriction of ventilation exists. It is desirable to have the screens mounted so that they are about 2 feet (0.61 m) above the floor unless the work is performed at such a low level that the screen must be extended nearer to the floor to protect nearby workers from the glare of welding.

A fixed enclosure shall have a top and not less than two sides which surround the welding or cutting operations, and a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet (30 m) per minute.

All welding and cutting operations carried out in confined spaces shall be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies not only to the welder, but also to helpers and other personnel in the immediate vicinity. All air withdrawn will be replaced with air that isclean.

In circumstances for which it is impossible to provide such ventilation, airline respirators or hose masks approved for this purpose by the National Institute for Occupational Safety and Health (NIOSH) will be provided. In areas

Immediately hazardous to life, a full-face piece, positive pressure, self-contained breathing apparatus or a combination full-face piece, positive pressure supplied-air respirator with an auxiliary, self-contained air supply approved by NIOSH must be used.

Where welding operations are carried on in confined spaces and where welders and helpers are provided with hose masks, hose masks with blowers or self-contained breathing equipment, a worker shall be stationed on the outside of such confined spaces to ensure the safety of those workingwithin.

Fumes, Gases and Dust

Fumes produced by some welding processes can be toxic and may require source extraction. An assessment of the work to be performed must be completed before each job is undertaken. Fumes generally contain particles from the material being welded. Welding fumes can have an acute effect on the respiratory system.

Any welding, cutting, or burning of lead base metals, zinc, cadmium, mercury, fluorides, beryllium or exotic metals or paints not listed here that could produce dangerous fumes shall have proper ventilation or respiratory protection. This includes inert-gas metal-arc welding or oxygen cutting of stainless steel.

Welders and helpers will refer to Sessler Wrecking's Respiratory Protection Program to determine the appropriate respiratory protection to be used during welding operations.

All welding and cutting operations shall be adequately ventilated to prevent the accumulation of toxic materials. This applies not only to the welder, but also to helpers and other personnel in the immediate vicinity.

Personal Protection

Helmets and hand shields shall be made of a material which is an insulator for heat and electricity. Helmets, shields, and goggles shall not be readily flammable and shall be capable of withstanding sterilization.

Helmets and hand shields shall be arranged to protect the face, neck, and ears from direct radiant energy from the arc.

Helmets shall be provided with filter plates and cover plates designed for easy removal.

All parts shall be constructed of a material, which will not readily corrode or discolor the skin.

Goggles shall be ventilated to prevent fogging of the lenses as much as practicable.

All glass for lenses shall be tempered, substantially free from scratches, air bubbles, waves, and other flaws. Except when a lens is ground to provide proper optical vision correction, the front and rear surfaces of lenses and windows shall be smooth and parallel.

Lenses shall bear some permanent distinctive marking which may readily identify the source and shade.

The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual’s needs.

Welding Operation		Shade Number
Shielded metal — arc welding 1/16, 3/32, 1/8-5/32-inch electrodes		10
Gas-shielded arc welding (nonferrous) 1/16, 3/32, 5/32-inch electrodes		11
Gas-shielded arc welding (ferrous) 1/16, 3/32, 1/8, 5/32 electrodes		12
Shielded metal arc welding: 3/16	7/32,1/4-inch electrodes	12
	5/16, 3/8-inch electrodes	14
Atomic hydrogen welding		10 – 14
Carbon arc welding		14
Soldering		2
Torch brazing		3 or 4
Light cutting, hp to 1 inch		3 or 4
Medium cutting, 1 inch to 6 inches		4 or 5
Healy cutting, 6 inches or over		5 or 6
Gas welding (light) up to 1/8 inch		4 or 5
Gas welding (medium) 1/8 - 1/2 inch		5 or 6
Gas welding (heavy) 1/2 inch or over		6 or 8

NOTE:
In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation. All filter lenses and plates shall meet the test for transmission of radiant energy prescribed in ANSI Z87.1 — 1968 — American National Standard Practice for Occupational and Educational Eye and Face Protection. Where the work permits the welder to be enclosed in an individual booth painted with a finish of low reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiation) and lamp black or shall be enclosed with noncombustible screens similarly painted. Booths and screens shall permit circulation of air at floor level. Workers or other persons adjacent to the welding areas shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required wear appropriate goggles.

Adequate hand protection and clothing must be used to protect the body from welding hazards.

Cleaning Compounds
In the use of cleaning materials, because of their possible toxicity or flammability, appropriate precautions such as manufacturer instructions shall be followed.

- Degreasing and other cleaning operations involving chlorinated hydrocarbons shall be so located that no vapors from these operations will reach or be drawn into the atmosphere surrounding any welding operation.
- In addition, trichloroethylene and perchloroethylene shall be kept out of atmospheres penetrated by the ultraviolet radiation of gas-shielded welding operations.

Oxygen cutting, using a chemical flux, iron powder or gas shielded arc cutting for stainless steel shall be performed using mechanical ventilation adequate to remove the fumes generated.

Cylinders

Compressed gas cylinders shall be DOT-approved and legibly marked near the shoulder of the cylinder for the purpose of identifying the gas content with either the chemical or trade name of the gas.

- All compressed gas cylinder connections must comply with ANSI B57. 1-1965 Standards.
- Compressed gas cylinders shall be secured in an upright position at all times except, if necessary, for short periods of time while cylinders are actually being hoisted or carried.

All cylinders shall be kept away from sources of heat and from radiators and piping systems that may be used for grounding purposes. Cylinders and cylinder valves including couplings and regulators shall be kept free from oily or greasy substances and must not be handled with gloves or rags in the same condition.

Stored oxygen cylinders shall be kept at least 20 feet from the fuel gas cylinders or combustible materials, especially oil or grease, or separated by a non-combustible barrier at least 5 feet high with a fire rating of at least one-half hour. All empty cylinders shall have closed valves. Valve protection caps shall always be in place and hand- tight except when cylinders are in use or connected for use.

Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards.

Fuel gas cylinders stored inside buildings shall be limited to a total capacity of 2000 cubic feet (300 pounds) of liquefied petroleum gas, except for those in actual use or attached ready for use.

All acetylene cylinders shall be stored valve-end up.

Assigned storage spaces shall be located where cylinders cannot be knocked over or damaged by falling objects or subject to tampering by unauthorized persons.

- Back flow protection shall be provided by an approved device that will prevent oxygen from flowing into the fuel-gas system or fuel from flowing into the oxygen system.
- An approved device that will prevent flames from passing into the fuel-gas system shall provide flashback protection.
- An approved pressure-relief device set at the appropriate pressure shall provide back pressure protection.

Special care must be taken when transporting gas cylinders:

- Cylinders must be secured with valve cap installed.
- Cylinders shall not be lifted by the valve protection caps, the regulators must be removed, and cylinders shall not be dropped or permitted to strike each other.
- Removed regulators must be carried in the cab of the vehicle.
- Cylinders shall not be tampered with, nor should any attempt be made to repair them.
- They shall be handled carefully - rough handling, knocks, or falls are liable to damage the cylinder, valve or safety device and cause leakage.

Safety devices shall not be tampered with.

Arc Welding and Cutting
All personnel operating, installing, and maintaining welding equipment shall be qualified or trained to operate and maintain such equipment.

- All workmen assigned to operate or maintain equipment shall be familiar with and electrical welding equipment shall be chosen for safe operation and comply with applicable Requirements for Electric Arc Welding Standards to include: 29 CFR 1910.254, 29 CFR 1910.252 (a)(b) (c) and if gas shielded arc welding is done the must be familiar with the American Welding Society Standard A6-1-1966.
    - Arc welding equipment must be designed to meet conditions such as exposure to corrosive fumes, excessive humidity, excessive oil vapor, flammable gases, abnormal vibration or shock, excessive dust and seacoast or shipboard conditions.
    - It shall be operated at the recommended voltage in accordance with the manufacturer recommendations.
    - All leads shall be periodically inspected and replaced if insulation is broken, or splices are unprotected.
    - Leads shall not be repaired with electrical tape.
- All ground connections shall be checked to determine that they are mechanically strong and electrically adequate for the required current.

A disconnecting switch or controller shall be provided at or near each welding machine along with overcurrent protection.

All direct current machines shall be connected with the same polarity and all alternating current machines connected to the same phase of the supply circuit and with the same polarity.

- To prevent electrical contact with personnel, all electrode holders shall be placed where they do not make contact with persons, conducting objects or the fuel of compressed gas tanks.
- All cables with splices within 10 feet of the holder shall not be used.

If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.

If an object to be welded or cut cannot be moved and if all the hire hazards cannot be removed, then guards shall be used to confine the heat sparks and slag and to protect the immovable fire hazards.

Resistance Welding
All personnel operating, installing, and maintaining welding equipment shall be qualified or trained to operate and maintain such equipment.

- Voltage, interlocks, guarding, grounding, and shields shall be in accordance with manufacturer recommendations.
- Precautions such as flash guarding, ventilation and shields shall be provided to control flashes, toxic elements, and metal fumes.

If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.

Transmission Pipeline
When arc welding is performed in wet conditions, or under conditions of high humidity, special protection against electric shock shall be supplied.

Pressure testing:

- In pressure testing of pipelines, the workers and the public shall be protected against injuryby the blowing out of closures or other pressure restraining devices.
- Protection shall be provided against expulsion of loose dirt that may have become trapped in the pipe.

The welded construction of transmission pipelines shall be conducted in accordance with the Standard for Welding Pipelines and Related Facilities, API Std. 1104-1998.

Oxygen Fuel Gas Welding and Cutting:
Only approved apparatuses such as torches, regulators, or pressure-reducing valves, setting generators and manifolds shall be used:

- Mixtures of fuel gases and air or oxygen may be explosive and must be guarded against.
- All hoses and hose connections shall comply with the Compressed Gas Association and Rubber Manufacturers' Associations' applicable standards.
- Workers in charge of the oxygen or fuel-gas supply equipment, including generators, shall be instructed, and judged competent by the Sessler Wrecking before being left incharge.

If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.

First Aid Equipment
First aid equipment shall be available at all times. All injuries shall be reported as soon as possible for medical attention. First aid shall be rendered until medical attention can be provided.

Training

Training shall include:

- Position Responsibilities
- Cutters, welders, and their supervisors must be suitably trained in the safe operations of their equipment and the safe use of the process.
- Fire Watch Responsibilities - specifically, the fire watch must know:
    - That their ONLY duty is Fire Watch.
    - When they can terminate the watch.
    - How to use the provided fire extinguisher(s).
    - Be familiar with facilities and how to activate fire alarm if fire is beyond the incipient stage.
    - Operator Responsibilities
    - Contractor Responsibilities
    - Documentation requirements
    - Respirator Usage requirements
    - Fire Extinguisher training.

Purpose

This program is intended to establish site specific procedures for checking the well-being of a worker assigned to work alone.

Scope

This procedure applies to Sessler Wrecking operations where employees may be exposed to working alone.

When work is performed on a non-owned or operated site, the operator's program shall take precedence, however, this document covers Sessler Wrecking employees and contractors and shall be used on owned premises, or when an operator's program does not exist or is less stringent.

This applies if a worker is working alone at a work site and assistance is not readily available if there is an emergency or the worker is injured or ill. Working alone is considered a hazard.

Objectives

Sessler Wrecking has developed a written Working Alone program describing monitoring procedures. This applies if a worker is working alone at a work site, and assistance is not readily available if there is an emergency, or the worker is injured or ill.

To minimize risk to employees who may work alone, and assistance is not readily available Sessler Wrecking will:

- Take measures to eliminate or control the hazards of working alone at Sessler Wreckingworksites.
- Ensure that affected employees are informed of the hazards and methods used to control or eliminate them.
- Provide an effective system for communication between any employee who work alone and persons capable of assisting the employee.
- Ensure all incidents (work related or otherwise) are reported, investigated, and documented.
- Review the Working Alone Program at least annually or more frequently if there is a change in work arrangements which could adversely affect an employee's well-being or a report that the system is not working effectively.

Key Responsibilities

Sessler Wrecking Safety Manager

- Conducts a hazard assessment to identify existing or potential hazards related to the nature of the work or the work environment given the circumstances of the work when working alone
- Responsible for the review, implementation, and maintenance of the local worksite Working Alone Program.
- Communicate this policy and its procedures to employees who work alone
- Annually review the effectiveness of the hazard controls and procedures and make improvements as required

Worksite Project Manager

- Responsible for the implementation and maintenance of the Working Alone Program for their facility and ensuring all assets are made available for compliance with the procedure.
- Take all reasonable and practical steps to minimize or eliminate identified working alonerisks.

Joint Health and Safety Committee (If Utilized)

- Review the hazard assessment results and provide recommendations to management tominimize or eliminate identified working alone risks.
- Review annually the effectiveness of the policy and guidelines and make changes as required by consulting with management staff and employee representatives.
- Respond to employee concerns related to working alone and communicate these to management employees
- Report all incidents of work site incidents immediately to their supervisor as required by local regulatory requirements.
- Participate in work site hazard assessments and the implementing of procedures to eliminateor control hazards of working alone.
- Take every reasonable precaution when working alone.
- Shall follow the requirements of the Working Alone Program

Safe Work Procedures

Risk Assessment and Controls

A risk assessment must be conducted to evaluate the risk of working alone and identify appropriate control measures. Where a worker is required to work alone or at an isolated place of employment, Sessler Wrecking, in consultation with the workers, shall identify the risks arising from the conditions and circumstances of the worker's work or the isolation of the place of employment. It shall involve:

- A review of records, past incidents and identify measures or actions needed to correct anyhazards.
- Participation by the committee at the workplace, the representative at the workplace, or when there is no committee or representative, the workers at the workplace.
- Participation by employees through methods such as one-on-oneinterviews, focus groups, employee surveys and work site inspections.
- The assessment will also collect and document information from employees about their experiences working alone, their current concerns, and their suggestions for improvement.
- Consideration of the time interval between checks and the procedure to follow in case the employee cannot be contacted, including provisions for emergency rescue.

Working Alone Program

Basic Requirements

Sessler Wrecking must, for any worker working alone, provide an effective communication system consisting of:

- radio communication,
- landline or cellular telephone communication, or
- some other effective means of electronic communication that includes regular contact by Sessler Wrecking or designate at intervals appropriate to the nature of the hazard associated with the worker's work.

If effective electronic communication is not practicable at the work site, Sessler Wrecking must ensure that Sessler Wrecking or designate visits the worker or the worker contacts Sessler Wrecking or designate at intervals appropriate to the nature of the hazard associated with the worker's work.

Sessler Wrecking must develop and implement a written procedure for checking the well-being of a worker assigned to work alone or in isolation under conditions which present a risk of disabling injury if the worker might not be able to secure assistance in the event of injury or other misfortune.

Sessler Wrecking will post a copy of the safe work procedures in a conspicuous place at the workplace.

The procedure for checking a worker's well-being must include the time interval between checks and the procedure to follow in case the worker cannot be contacted, including provisions for emergency rescue. In addition to checks at regular intervals, a check at the end of the work shift must be done. The procedure for checking a worker's well-being, including time intervals between the checks, must be developed in consultation with the joint committee or the worker health and safety representative, as applicable and with the worker assigned to work alone or in isolation.

Communication and Regular Contact Person System

Workers must carry a cellular phone or electronic monitoring device at all times while working alone. Sessler Wrecking must, for any worker working alone, provide an effective communication system consisting of radio communication landline or cellular telephone communication or some other effective means of electronic communication that includes regular contact by Sessler Wrecking or designate at intervals appropriate to the nature of the hazard associated with the worker's work.

Each worksite's Working Alone Program shall address having an established contact person. A person must be designated to establish contact with the employee at predetermined intervals and the results must be recorded by the person.

Procedures to be followed if Electronic Communication is Not Practicable

If effective electronic communication is not practicable at the work site, Sessler Wrecking must ensure that Sessler Wrecking or designate visits the worker or the worker contacts Sessler Wrecking or designate at intervals appropriate to the nature of the hazard associated with the worker's work. Example requirements include:

- Sessler Wrecking must ensure that a representative of Sessler Wrecking, or another competent employee visits the employee or the employee contacts Sessler Wrecking or another competent employee. These visits or contacts shall be at intervals of time appropriate to the nature of the hazards associated with the employee's work. As a minimum, contact shall occur no less than every four hours. In addition to checks at regular intervals, a check at the end of the work shift must also be done.
- Limitations on or Prohibitions of Specified Activities
    - No heavy equipment will be operated if a worker is alone.
    - No hot work will occur if a worker is alone.
    - No working at heights will occur if a work is alone and requires a personal fall arrest system.
    - No working alone outside if temperatures are low enough to pose an imminent risk to the worker.
    - Other limitations will be placed based on the site-specific hazard assessment

Minimum Training or Experience

All employees will be trained (if working alone is a hazard at that location) in:

- Any revision to the written local Working Alone Program and safe work practices.
- Being informed of working alone hazards at the Sessler Wrecking worksite and the methods used to control or eliminate them.
- The methods for identification, hazard reduction and prevention when working alone and dealing with situations or individuals that presents a potential risk.
- A worker required to work alone, and any person assigned to check on the worker must be trained in the written procedure for checking the worker's well-being.
- All training shall be documented.

Provisions of PPE

- Cold weather clothing shall be worn when appropriate if a worker is alone
- Additional PPE for workers working alone will be identified in the site-specific hazard and PPEassessment process

Safe Work Practices

Controls implemented at Sessler Wrecking worksites shall, as a minimum:

- Restricted building access to buildings - card keys or regular keys after regular working hours.
- Office doors are to be locked when working alone after hours.
- Have employees check road reports and weather forecast before traveling and NOT allow travel if road conditions are dangerous.
- Develop a travel plan that includes rest breaks, a procedure for tracking overdue employees and emergency contact information.
- Ensure all Sessler Wrecking vehicles are to be equipped with cell phones or radios and first aid kits.
- Advise employees to travel with another employee when possible.
- Advise employees to park close to the building in the evening.
- Post signage, emergency contact information, and develop a communication system.
- Report suspicious activity to security or a supervisor.

Provision of Emergency Supplies

- All vehicles shall contain the appropriate emergency supplies including flares, marking devices, food, water, warm clothing during winter and other supplies as determined by the hazard assessment.
- Workers working alone shall have spare batteries for communication devices in case of power failure, a radio for local weather conditions and other equipment as determined by the hazard assessment.

Review & Updating Working Alone Program

- The hazard assessment and Working Alone Program at each Sessler Wrecking worksite must be reviewed at least on an annual basis or more frequently if there is a change in work processes or arrangements which could adversely affect an employee's well-being are introduced or changed.
- The local Working Alone Program shall also be revised if there is any indication or report that the program is not working effectively or needs changing.

WORKING ALONE ASSESSMENT & GUIDELINES FOR SESSLER WRECKING WORKSITES

Location:		
Evaluated by:		
Original Date:		Signature:
Revision Date:		Date:

Hazardous Activities

Hazard:	**Actions to minimize Risk:**
Indicate working alone hazards	*Indicate actions taken to minimize risks*

Emergency Phone Numbers

Number	**Contact:**	**For:**
Indicate #	*Indicate source information; i.e., security*	**ANY emergency:** medical, fire, etc.
		Suspicious Person
		General Inquiries
		Need for employee escort
		Maintenance Emergencies
		Information

Location of Resources

Indicate location	*(examples shown)*
	fire extinguisher
	first aid kit
	telephone
	telephone backup (radios or emergency buttons for worksite security)

Restricted activities when working Alone

Indicate restricted activities (no driving, locked doors, etc.)

A copy of this form shall be supplied to the Sessler Wrecking Safety Manager and the Guidelines be reviewed no less than annually.

Purpose

The purpose of this program is to establish requirements for proper conduct when working over or on the water and survival in the event of an emergency.

Scope

This program applies to all Sessler Wrecking employees working in the offshore environment.

Key Responsibilities

Managers and Supervisors

- Management shall determine if this program is required for regulatory compliance within his/her region. If this program is deemed necessary, management shall determine which employees within the region are required to receive Offshore Orientation and Survival Training.
- Management shall select an appropriate training facility to provide the training outlined in this program and shall monitor the selected training facility to assure they are conducting the proper training including proper documentation of the training is kept and supplied to the Regional Office in order to monitor the employee's training.
- Management shall participate in all training exercises to prepare for emergency situations.
- Supervisors shall assist the managers in the tasks described above and shall coordinate work schedules to allow employees time to receive proper training.
- Supervisors shall verify that each of his/her employees have the proper training before those employees start any work-related tasks.
- Supervisors shall participate in all training exercises to prepare for emergency situations.

Employees

- Employees shall assist their supervisors in tracking required training.
- The employee shall monitor all expiration dates pertaining to his/her required training and notify his/her supervisor in advance of any nearing expiration dates.
- Employees shall participate in all training exercises to prepare for emergency situations.

Procedure

Employees shall report to the worksite with all required personal protective equipment (PPE). The following work clothes and PPE are furnished by Sessler Wrecking at no cost to the employee:

- ANSI Z89.1-1986 approved Hard Hats.
- ANSI Z87.1-1989 approved Safety Glass with side shields.
- Long sleeve shirts and long pants that meet fire retardant clothing specifications.

- The proper hearing protection (ear plugs, muffs, etc.), which will be dictated by the job task and work environment.
- The proper hand protection (cotton gloves, leather gloves, etc.), which will be dictated by the job task and work environment.
- Personal Flotation Devices (PFD)
    - PFD Type I is required for the transportation of personnel.
    - PFD Type V is classified as a work vest and shall not be used in the transportation of personnel.
- Any special PPE that will be required to safely perform a job task.

The following is a list of PPE that Sessler Wrecking does not furnish, but is required in order for the employee to work and comply with regulations:

- ANSI Z41-1991 Approved Safety Shoes.

All work shall be performed in a manner to protect people, property, and the environment.

Life Saving Equipment

Employees working over or near water shall be provided with a U.S. Coast Guard approved life jacket or buoyant work vest when the danger of drowning exists.

If the deck of a barge or work platform is not equipped with an OSHA-compliant railing system, employees walking or working on deck must wear a U.S. Coast Guard approved life jacket or buoyant work vest, also called a life preserver or personal flotation device (PFD). These PFDs should be fully buckled, snapped, or zipped whenever there is a hazard of falling into the water, regardless of the size of the barge. While a PFD is not required to be worn while an employee is inside an enclosed cab or equipment compartment on a barge, each employee should have a PFD accessible to them at all times. This safety precaution will allow employees the opportunity to don a PFD in a reasonable amount of time during an emergency (i.e., vessel sinking, fire, etc.).

PFDs

- An approved and readily available PFD is required to be on board the vessel for each individual on board. An immersion/exposure suit is considered to be an acceptable substitute for a PFD. All lifesaving equipment designed to be worn is required to be readily available and in serviceablecondition.
- Each vessel 26 feet or longer must have at least one approved ring life buoy which is immediately available. All lifesaving equipment designed to be thrown into the water is required to be immediately available and in serviceable condition.
- An approved commercial hybrid PFD is acceptable if worn when the vessel is underway and the intended wearer is not within an enclosed space, is labeled for use on uninspected commercial vessels and used as marked and in accordance with the owner's manual.
- An approved light is required for all PFDs and immersion/exposure suits while working at night. Also, all PFDs must have approved retro reflective material installed.

- Employees shall inspect buoyant work vests or life preservers for defects which could alter their strength or buoyancy prior to and after each use. Defective units shall not beused.

Have the necessary safety equipment at hand so it is ready for immediate use:

- Ring Lifebuoy
- 90’ Buoyant Heaving Line
- Life Saving Skiff

Ring buoys will be provided and readily available for emergency rescue operations with at least 90 feet of line and the distance spaced between ring buoys may not exceed 200 feet.
At least one lifesaving skiff shall be made immediately available when employees are working over or adjacent to water. Each skiff shall be checked daily prior to work beginning to ensure the capability of the skiff to respond to an emergency.

Slips, Trips and Falls
Minimizing Hazards on Deck

- Keep all walking and working surfaces clean, dry, and unobstructed.
- Keep all areas free of debris.
- Clean up and/or report any spill immediately.
- Stack materials in a stable manner.
- Secure gear and equipment that is not in use.
- Keep stairs, doorways, walkways, and gangways free of equipment and stowed materials.
- Secure ramps during loading and offloading operations

Precautions in Walking

- Walk at a normal rate, keeping your hands out of your pockets.
- Slow down when moving between different surfaces.
- Do not run.
- Minimize short stops.
- Avoid sharp turns.
- Modify your way of walking to match the surface, such as an icy deck.
- Do not jump from one vessel to another.
- Do not step on hatch covers.
- Avoid walking along the unguarded edge of a vessel.
- Watch out for reduced visibility due to poor lighting and weather conditions. If working at night, be sure there is adequate illumination (e.g., flashlight, headlight, light tower)
- Wear safety shoes or boots with slip-resistant soles as appropriate.
- Keep shoes clean of mud, snow, ice, spilled liquids, and debris.

Preventing Elevated Falls

While working at elevated heights over water, Sessler Wrecking mandates all personnel be tied off 100%. We use a Personal Fall Arrest System (PFAS) as a means to prevent falls. Proper use of these systems will eliminate the hazard of drowning. This means as long as you are 100% tied off at all times you are not required to wear a PFD.

Appendix C:

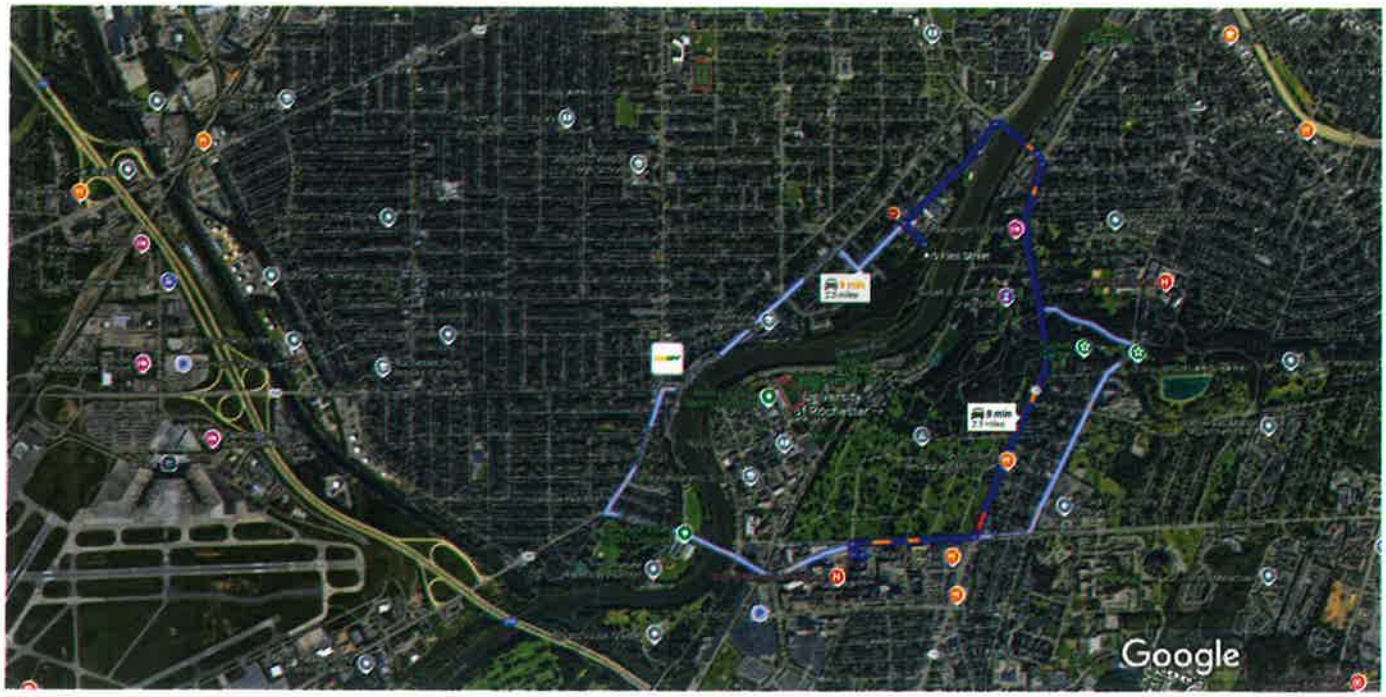
Directions to Nearest Hospital

Google Maps

5 Flint St, Rochester, NY 14608 to Strong Mem Hospital Emergency Room, 601 Elmwood Ave, Rochester, NY 14642

Drive 2.3 miles, 8 min

Directions to Nearest Hospital.



Imagery ©2025 Google, Imagery ©2025 Airbus, CNES / Airbus, Maxar Technologies, Map data ©2025 Google 1000 ft

5 Flint St
Rochester, NY 14608

Take Exchange St to Ford St

2 min (0.5 mi)

1. Head northwest on Flint St toward Exchange St

466 ft

2. Turn right onto Exchange St

0.4 mi

Drive along NY-15 S/Mt Hope Ave

5 min (1.7 mi)

3. Turn right onto Ford St

0.2 mi

4. Turn right toward NY-15 S/Mt Hope Ave

187 ft

5. Turn right onto NY-15 S/Mt Hope Ave

1.2 mi

6. Turn right onto Elmwood Ave

0.4 mi

Drive to your destination

1 min (404 ft)

7. Turn left

174 ft

8. Turn left

157 ft

9. Turn right

Destination will be on the right

72 ft

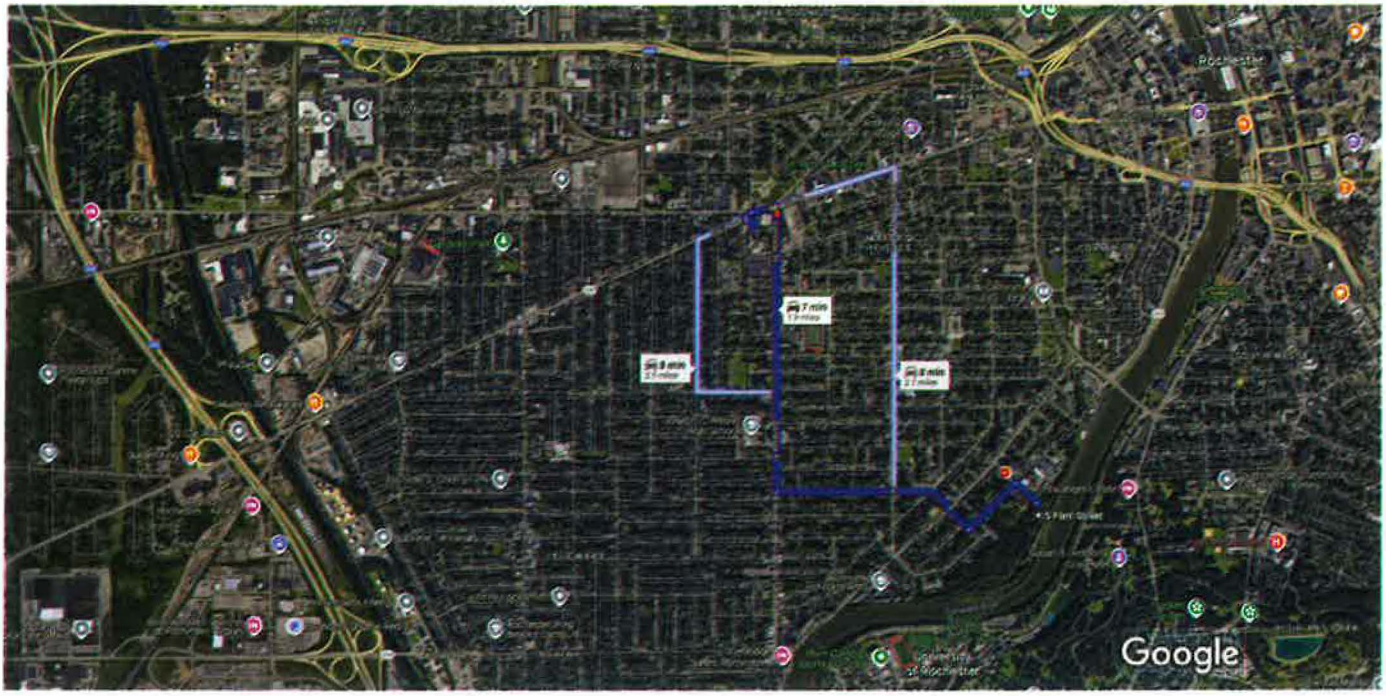
Strong Mem Hospital Emergency Room
601 Elmwood Ave, Rochester, NY 14642

Google Maps

5 Flint St, Rochester, NY 14608 to RRH Urgent Care, 65 Genesee St, Rochester, NY 14611

Drive 1.9 miles, 7 min

Directions to Nearest Urgent Care.



Imagery ©2025 Google, Imagery ©2025 Airbus, CNES / Airbus, Maxar Technologies, Map data ©2025 Google 1000 ft

5 Flint St
Rochester, NY 14608

Take Magnolia St to Genesee St

4 min (0.9 mi)

1. Head northwest on Flint St toward Exchange St

466 ft

2. Turn left onto Exchange St

0.2 mi

3. Turn right onto Magnolia St

0.6 mi

Drive

3 min (1.0 mi)

4. Turn right onto Genesee St

0.9 mi

5. Turn left onto W Main St

390 ft

6. Turn left onto Chili Ave

135 ft

Drive to your destination

58 sec (266 ft)

7. Turn left

46 ft

8. Turn left

Destination will be on the left

220 ft

RRH Urgent Care
65 Genesee St, Rochester, NY 14611

APPENDIX C

Permits and/or Permit Applications

CITY OF ROCHESTER, NEW YORK
DEPARTMENT OF NEIGHBORHOOD AND BUSINESS DEVELOPMENT

BUILDING PERMIT

WORK LOCATION:	5 Flint St Rochester NY 14608
OWNER NAME:	Exxon Mobil Corporation
CONTRACTOR NAME:	Sessler Environmental Services LLC
ARCHITECT NAME:	
ENGINEER NAME:	
APPLICANT NAME:	SARA BARRIENTOS

PERMIT DESCRIPTION:
DEMOLITION OF CONCRETE BLOCK AND BRICK, 3 STORY STORAGE BUILDING (~30,000 SF). BUILDING SLAB AND SUBSURFACE FOUNDATIONS WILL BE LEFT IN PLACE.

DATE: 7/14/2025

PERMIT NUMBER:
D-25-4035

CERTIFICATE OF OCCUPANCY:

APPROVALS:

Spc Pmt:	
CZC:	Z-25-1343
C of A:	
Var:	
Site pl:	
Zon Dist:	R-3 High Density Residential
Pres:	
Landmark:	
LWRP:	False
Property Flags:	NYSDEC,

COST ESTIMATE:
EXCLUDE electrical & plumbing work
INCLUDE heating, air conditioning, etc.

$ 455000.0000

PERMIT FEES:

Demo Other Structure	$1,110.00
TOTAL	$1,110.00

REQUIRED INSPECTIONS (48 HOUR NOTICE REQUIRED)

Do not proceed beyond these points until all required inspections have been performed.

Preliminary Inspections: None
Construction Inspections: None
Final Inspections: None

Inspector: Charles Fox
Authorized By:
To schedule an inspection, please call 428-7458.

The permit issued will expire if the authorized work has not commenced within 90 days after issuance, or if work is not completed by 7/14/2026.

A permit issued does not relieve the owner, contractor, architect, engineer, or owner's agent from complying with any of the provisions of the Code of the City of Rochester and the New York State Uniform Fire Prevention and Building Codes whether stated, implied, or omitted in the permit documents. Failure to comply with the conditions of the permit approval will subject the owner and/or agent to penalties as prescribed by Law.

This placard must be displayed at the work site and remain visible for the duration of the project.
Pursuant to section 39-209 of the Code of the City of Rochester, approved plans must be available on site for inspection during the course of construction.

CITY OF ROCHESTER, NEW YORK
DEPARTMENT OF NEIGHBORHOOD AND BUSINESS DEVELOPMENT

BUILDING PERMIT

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OWNER NAME:	Exxon Mobil Corporation
CONTRACTOR NAME:	Sessler Environmental Services LLC
ARCHITECT NAME:	
ENGINEER NAME:	
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PERMIT DESCRIPTION:
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DATE: 7/14/2025

PERMIT NUMBER:
D-25-4035

CERTIFICATE OF OCCUPANCY:

APPROVALS:

Spc Pmt:	
CZC:	Z-25-1343
C of A:	
Var:	
Site pl:	
Zon Dist:	R-3 High Density Residential
Pres:	
Landmark:	
LWRP:	False
Property Flags:	NYSDEC,

COST ESTIMATE:
EXCLUDE electrical & plumbing work
INCLUDE heating, air conditioning, etc.

$ 455000.0000

PERMIT FEES:

Demo Other Structure	$1,110.00
TOTAL	$1,110.00

REQUIRED INSPECTIONS (48 HOUR NOTICE REQUIRED)

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Pursuant to section 39-209 of the Code of the City of Rochester, approved plans must be available on site for inspection during the course of construction.

PERMIT CONDITIONS

Permit Number: D-25-4035 **Issued Date:** 7/14/2025
Address: 5 Flint St Rochester NY 14608

Standard Condition Text	Additional Condition Text
	DEMOLITION OF CONCRETE BLOCK AND BRICK, 3 STORY STORAGE BUILDING (~30,000 SF). BUILDING SLAB AND SUBSURFACE FOUNDATIONS WILL BE LEFT IN PLACE.
Access to all utilities and public facilities including, but not limited to, fire hydrants, fire alarm boxes, police callboxes, streetlights and manholes shall be kept unobstructed during construction.	
Vacant lots or other areas shall be posted or fenced for protection from unauthorized access.	
All construction debris shall be removed from site and disposed of in an appropriate manner.	
Applicant / owner shall contact chuck fox at 428-7458 prior to starting demolition work (24-hour notice required).	
Building material disposal plan - shall include a designated landfill and who will be transporting the building material.	
Rodent control - proof that all rodents at the property have been exterminated. (Submit receipt of purchased "rat poison" rodenticides/bait or contract from exterminator).	
Applicant shall obtain a des water service abandonment permit prior to the issuance of a demolition permit.	

7/14/2025 03:33 PM

City of Rochester, NY

Register ID: Reg 4 (Ck/Cr/Db)
Cashier: JuanLiff24
Tran Date: 7/14/2025 3:32:07 PM
Tran # 30023
Payer:

DESCRIPTION	AMT DUE	AMT PAID
Building Permits - #D-25-4035 / 5 Flint St	$1,110.00	$1,110.00

CHECK #62750 $1,110.00

Subtotal:	$1,110.00
Tax:	$0.00
Total:	$1,110.00
Payment:	$1,110.00
Change:	$0.00

Department of Neighborhood and Business Development

TOWN&COUNTRY PEST SOLUTIONS INC.
2018 Latta Rd
Rochester, NY 14612
www.townandcountrysolutions.com
service@townandcountrysolutions.com
(585) 426-5024

34-1997721

Inspection Report

ORDER #: 430384

WORK DATE: 07/11/2025

BILL-TO	156266
Roux Sara Barrientos 5 FLINT ST ROCHESTER, NY 14608-2818	
Mobile:	781-513-6984

LOCATION	156266
Roux Sara Barrientos 5 FLINT ST ROCHESTER, NY 14608-2818	
Mobile:	781-513-6984

Customer Signature

Customer is unavailable to sign
Technician Signature

Scott Rhodes
License #:

Purchase Order	Terms	Service Description	Quantity
None	COD	Monthly Pest Control: Commercial	1.00

TECHNICIANS

Brett Grape Scott Rhodes

GENERAL COMMENTS / INSTRUCTIONS

MONTHLY:

Inspected and maintained all bait stations. Minor to moderate activity was seen throughout. Bait was replenished as needed.

NOTE:

The code for the lock on the fence gate is 1462.

PRODUCTS APPLICATION SUMMARY

Material	Lot #	EPA #	A.I. %	A.I. Conc.	Active Ingredient	Finished Qty	Undiluted Qty
Selontra Rodent Bait		7969-382	0.0750%	n/a	Cholecalciferol	12.0000 Each	240.0000 Gram
Areas Applied: INDOOR							
Target Pests: Mice							

AREA COMMENTS

None Noted.

INSPECTION DETAIL

None Noted.

PRODUCTS APPLIED

Material	A.I. %	Finished Qty	Application Equipment	Application Rate	Time
EPA #	A.I. Concentration	Undiluted Qty	Application Method	Sq/Cu/L Ft	Lot #
Selontra Rodent Bait	0.0750%	12.0000 Each	Manual Placement of Mice/Rat	20g / 8 linear ft.	2:14:20 PM

TOWN&COUNTRY PEST SOLUTIONS INC.
2018 Latta Rd
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www.townandcountrysolutions.com
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Inspection Report

ORDER #: 430384

WORK DATE: 07/11/2025

34-1997721

PRODUCTS APPLIED

Material	A.I. %	Finished Qty	Application Equipment	Application Rate	Time
EPA #	A.I. Concentration	Undiluted Qty	Application Method	Sq/Cu/L Ft	Lot #
7969-382	n/a	240.0000 Gram	Bait Manual Placement of Mice/Rat Bait		

Target Pests: Mice
Areas Applied: INDOOR - INDOOR;

Weather: 0°, 0 MPH

FEE $1,110 — PAID CHECK #62750 / Tran #30023
#P-25-4035

City of Rochester

Neighborhood and Business Development
City Hall Room 121B, 30 Church Street
Rochester, New York 14614-1290
www.cityofrochester.gov

The Bureau of Zoning & Permitting

BUILDING PERMIT APPLICATION and ZONING COMPLIANCE REQUEST

PROPERTY ADDRESS: 5 Flint Street, Rochester, New York

USE: ☐ RESIDENTIAL (1 or 2 Family) ☐ COMMERCIAL ☑ MIXED USE

APPLICANT INFORMATION:

YOUR NAME: Sara Barrientos (not a company name) **YOUR PHONE NUMBER:** 781-569-4033

YOUR EMAIL ADDRESS: sbarrientos@rouxinc.com

YOUR MAILING ADDRESS: 200 Summit Drive, Suite 500, Burlington, MA 01803

PROPERTY OWNER:
[ ] Check if same as applicant above

Name: Exxon Mobil Corporation

Address: 647 Route 1, #14, PMB 253, York, ME
(Cannot be a PO Box) (include City or Town)

Zip: 03090 Phone: 207-363-8345

Email: elizabeth.e.zinkevicz@exxonmobil.com

CONTRACTOR: (check if same as:)
[ ] Owner [ ] Applicant (check both if applicable)

Name: Roux Associates Inc

Address: 200 Summit Drive, Suite 500, Burlington, MA
(Cannot be a PO Box) (include City or Town)

Zip: 01803 Phone: 781-569-4000

Email: ireed@rouxinc.com

ARCHITECT:
OR ENGINEER

PERMIT REQUEST:

DESCRIPTION: Demolition of concrete block and brick building.
Building slab and subsurface foundations will be left in place.

☐ ADDITION/NEW CONSTRUCTION ☐ INTERIOR RENOVATIONS ☐ EXTERIOR RENOVATIONS

☐ CHANGE/ESTABLISH USE ☐ DECK ☐ POOL/HOT TUB ☐ SHED/GARAGE/CARPORT

☐ HVAC/MECHANICAL/ELECTRICAL SYSTEMS ☐ OTHER: Building demolition

PROJECT COST ESTIMATE: (excluding plumbing & electrical) $ $455,000.00

YOUR SIGNATURE: **DATE:** June 9, 2025

City of Rochester

Permit Office

Bureau of Architecture and Engineering
Department of Environmental Services
City Hall Room 225B, 30 Church Street
Rochester, New York 14614-1290
www.cityofrochester.gov

RIGHT-OF-WAY PERMIT APPLICATION

Applicant Name:	5 Flint Street LLC	Contact Name:	Sara Barrientos
Address:	209 Shafter St, Islandia, NY	Address:	200 Summit Drive, Suite 500, Burlington, MA
Telephone:		Telephone:	781.569.4033
Fax /Cell:		Fax /Cell:	781.569.4000
Email:	sbarrientos@rouxinc.com	Email:	sbarrientos@rouxinc.com

Permit Type **(Please Check One)**:

_____ Excavation (Regular, Anode, Catch Basin, Manhole, Gas Cut Dead for Demo, Lateral Repair, New Sewer Service, New Water Service, Utility Pole Installation)
__X__ Street Obstruction/Barricade (Dumpster, POD, Sidewalk Closure)
_____ Driveway Work (Resurface, Widen, New Residential, New Commercial, Annual Resurfacing)
_____ Water Service Abandonment
_____ Hydrant Use
_____ Above Surface Encroachment (Arch. Details, Banner, Bridge, Sign, Sidewalk Café, Storm Enclosure, Marquee, Flagpole, Balcony, Fire Escape, Fixed Projection, Light Fixture)
_____ Sub-Surface Encroachment (Footings, Foundation Walls, Tunnel, Vault/Areaway)
_____ Over-dimension (Vehicle, Building)
_____ Annual Maintenance
_____ Sidewalk Construction/Repair
_____ New Street Construction/Repair
_____ Building Wall
_____ Other

Work Description:

Approximately 300 linear feet of the Genesee Riverway Trail adjacent the building on 5 Flint St, Rochester NY will be closed during building demolition scheduled for June 2025. Detour signs will be placed as shown on the attached map to direct pedestrian and bicycle traffic across Ford St Bridge from the bike path on the west side to the bike path on the east side of the Genessee River.

Will facilities be abandoned? _____Yes __X__ No If yes, _____ ***Remove*** or _____ ***Leave in Place***?
Type/ Description: _____

Work Location Information

Address (Number & Street)	Size of Cut	Impact Area **(check all that apply)** Sidewalk	Pavement	Tree-lawn	Driveway
Sidewalk at the Exchange St/Ford St Bridge intersection	NA	X			

Application for Right-of-Way Permit
Page 2

Are drawings attached to this application? ___X___Yes _____No

Dates of Proposed Work: From 6/9/2025 To: _____

The Riverway Trail closure is anticipated during the high risk portion of the building demolition scope-of-work to maintain required exclusion zones around the building. The specific schedule and duration of the closure will be determined by the City of Rochester Building Dept

Is proposed work being done in conjunction with City street project? _____Yes ___X___No
If yes, please identify street project: _____

If granted a permit for the proposed work, I agree to perform all work according to the City of Rochester's Standards for Work in the Right-of-Way and any additional restrictions imposed by the City as a condition of the permit.

_____ May 7, 2025

Signature of Applicant **Date**

Below this line for internal use only

Maps & Survey Monument Review:
Of Monuments Impacted: _____ *Monument Sheet Attached _____ Yes _____No*

_____ _____
Signature of Maps & Surveys Representative Date

Street Design Project Review:
Work Approved: ____ Yes ____ No *Work Begin Date: _____*
Work End Date: _____

_____ _____
Signature of Project Engineer Date

Permit Office Review:

_____ _____
Signature of Inspector Date

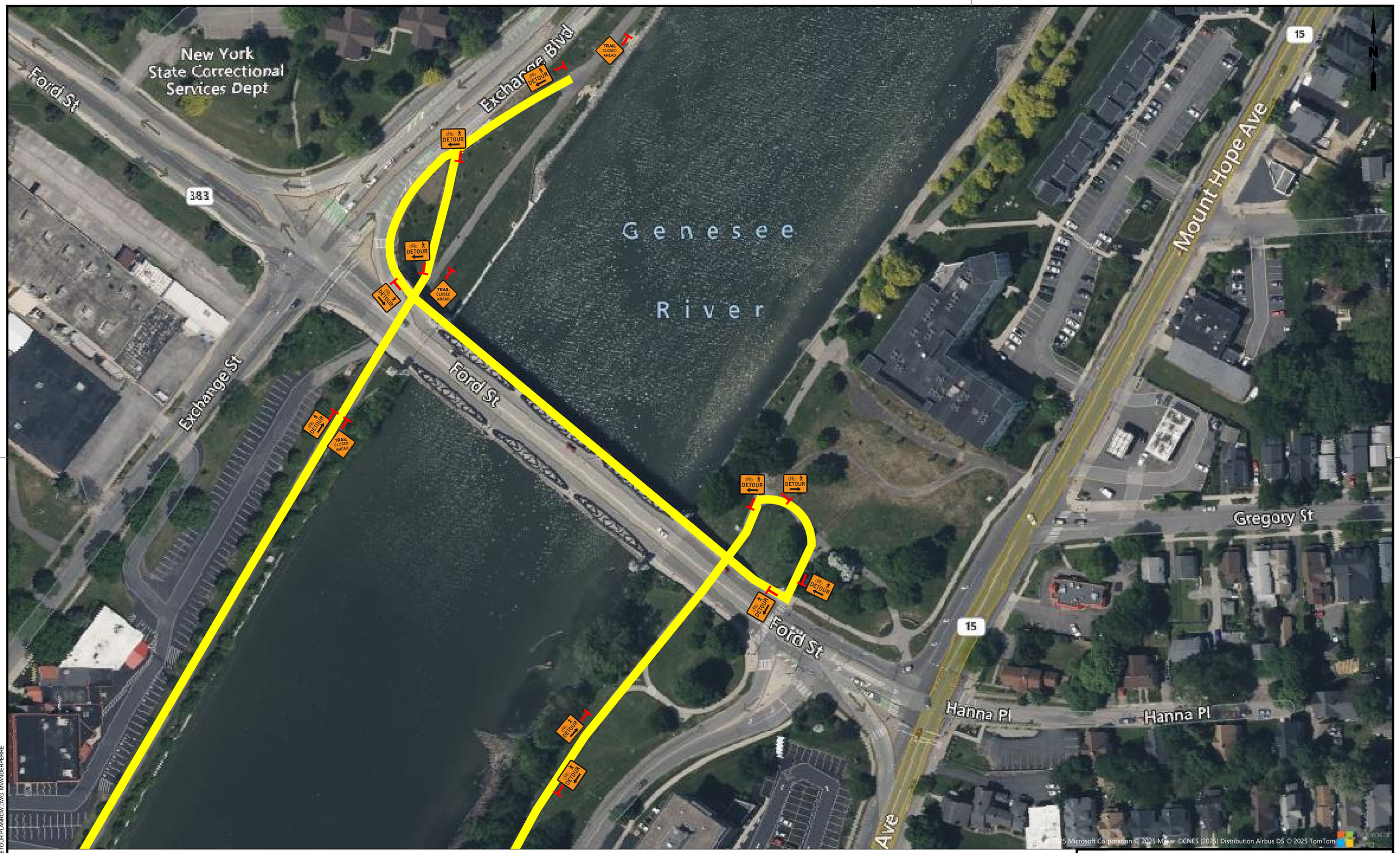
Fire Dept. Sidewalk Café Boundary Review:

_____ _____
Signature Date

Facilities Abandonment Plan Approval:

_____ _____
Signature Date

Special Conditions:
_____
_____
_____



LEGEND

DETOUR ROUTE

SIGN FACE DIRECTION





M4-9a

NOTES

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH MUTCD.
3. TEMPORARY CONSTRUCTION SIGNAGE AND ALL OTHER TRAFFIC CONTROL DEVICES SHAL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNAGE, BARRICADES, AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE PUBLIC RIGHT OF WAY OR COVERED WHEN NOT REQUIRED FOR TRAFFIC CONTROL.

75' 0 75'

Title:

RIGHT OF WAY AND SIGNAGE PLAN

5 FLINT STREET
ROCHESTER, NEW YORK

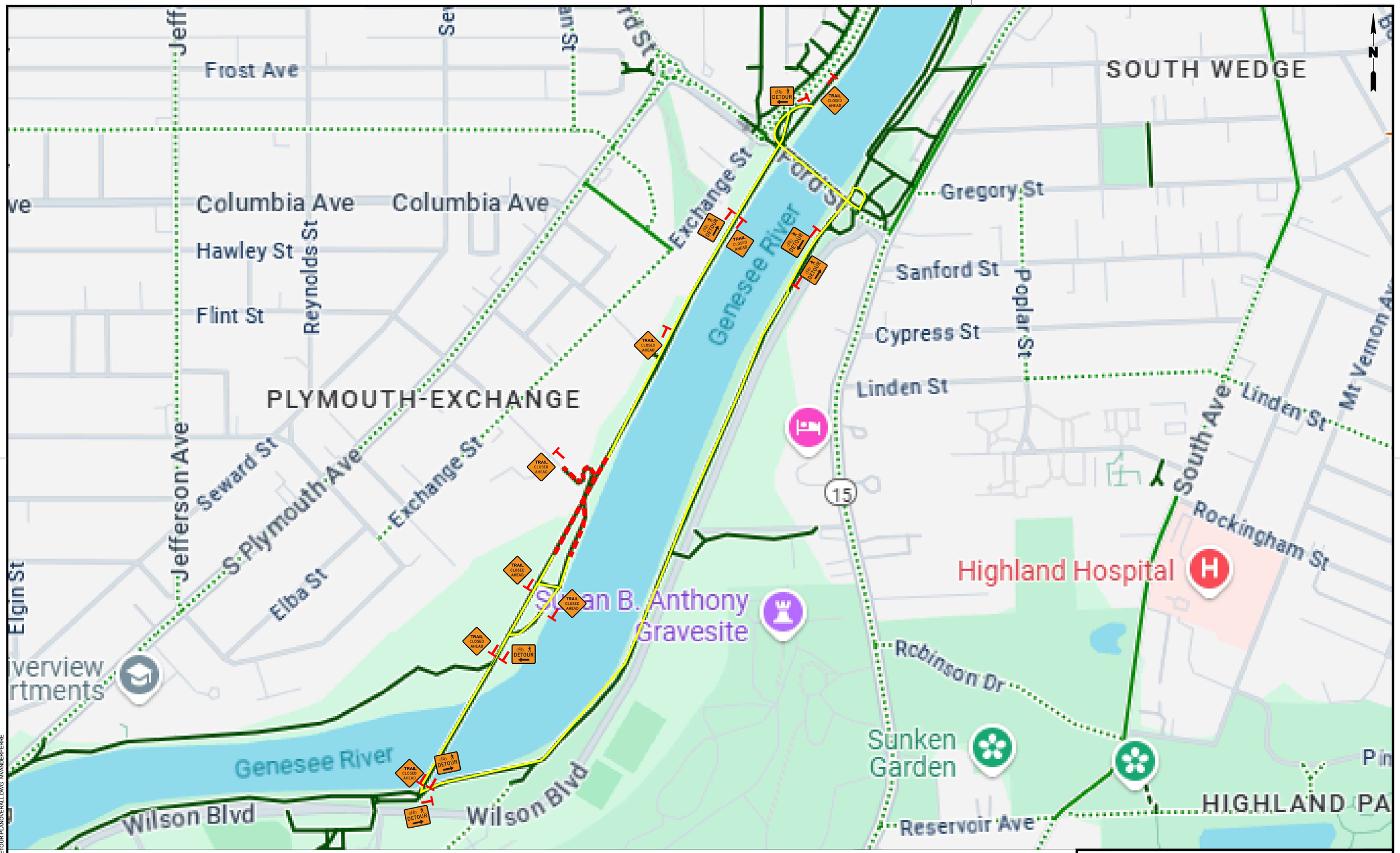
Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 6/13/2025	FIGURE
Prepared by: MV	Scale: AS SHOWN	1
Project Mgr: SB	Project: 4694.0001P000	
File: DETOUR PLANROW.DWG		

S:\CLIENTS\5 FLINT STREET LLC\COR ROW PERMIT\DETOUR PLAN\DETOUR PLANROW.DWG MVANDERPERRE



LEGEND

- Trails
- Dedicated lanes
- Bicycle-friendly roads
- Dirt/unpaved trails
- DETOUR ROUTE
- CLOSED SECTION OF PATHWAY
- SIGN FACE DIRECTION

TRAIL CLOSED AHEAD

DETOUR

M4-9a

350' 0 350'

Title:

OVERALL TEMPORARY DETOUR PLAN

5 FLINT STREET
ROCHESTER, NEW YORK

Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 5/7/2025	FIGURE
Prepared by: MV	Scale: AS SHOWN	1
Project Mgr: SB	Project: 4694.0001P000	
File: DETOUR PLANOVERALL.DWG		

S:\CLIENTS\5 FLINT STREET LLC\COR ROW PERMIT\DETOUR PLAN\DETOUR PLANOVERALL.DWG MVANDERPERRE

APPENDIX D

Hazardous Building Materials Survey

PARADIGM
ENVIRONMENTAL SERVICES

WWW.PARADIGMENV.COM

179 Lake Avenue, Rochester, NY 14608 PHONE: 585-647-2530 TOLL FREE: 800-724-1997 FAX: 585-647-3311

February 10, 2025

Ms. Sara Barrientos
Roux Inc.
200 Summit Drive, Suite 500
Burlington, Massachusetts 01803

Re: Polychlorinated Biphenyl (PCB) Sample and Analysis: 5 Flint St, Rochester, NY

Dear Ms. Barrientos,

On January 30, 2025, Paradigm Environmental Services, Inc. conducted PCB testing located at the above referenced location. A total of one (1) solid bulk sample was obtained and analyzed.

Field ID Number	Lab ID Number	Sample Description	Result (mg/kg)
WIG-01	250415-01	Exterior Window Glaze	Negative (<3.76 PCB)

Analysis Notes:

1. **The Toxic Substance Control Act, 40 CFR 761, defines PCB bulk product waste as non-liquid manufactured products containing ≥ 50 ppm or 50,000 µg/kg.**

2. Method references EPA 8082A & EPA 3546.

Paradigm appreciated this opportunity to provide you with our professional services. If you have any questions, please feel free to contact our office at (585)647-2530.

Sincerely,

Angela Liddell
Director of Field Operations

PARADIGM

PARADIGM
ENVIRONMENTAL SERVICES, INC

Analytical Report For

Roux Associates

For Lab Project ID

250415

Referencing

P25-1138 5 Flint St. Rochester, NY

Prepared

Thursday, February 6, 2025

Any noncompliant QC parameters or other notes impacting data interpretation are flagged or documented on the final report or are noted below.

Emily Farmer

Certifies that this report has been approved by the Technical Director or Designee

179 Lake Avenue • Rochester, NY 14608 • (585) 647-2530 • Fax (585) 647-3311 • ELAP ID# 10958

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

PARADIGM
ENVIRONMENTAL SERVICES, INC

Lab Project ID: 250415

Client: Roux Associates

Project Reference: P25-1138 5 Flint St. Rochester, NY

Sample Identifier: WIG-01 Exterior Window Glaze
Lab Sample ID: 250415-01 **Date Sampled:** 1/30/2025
Matrix: Caulk **Date Received** 1/30/2025

PCBs

Analyte	Result	Units	Qualifier	Date Analyzed
PCB-1016	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1221	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1232	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1242	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1248	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1254	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1260	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1262	< 3.76	mg/Kg		2/3/2025 19:55
PCB-1268	< 3.76	mg/Kg		2/3/2025 19:55

Surrogate	Percent Recovery	Limits	Outliers	Date Analyzed
Tetrachloro-m-xylene	**83.9**	16.1 - 102		2/3/2025 19:55

Method Reference(s): EPA 8082A
EPA 3546
Preparation Date: 2/3/2025

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

Report Prepared Thursday, February 6, 2025

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Appendix

The reported results relate only to the samples as they have been received by the laboratory.

Each page of this document is part of a multipage report. This document may not be reproduced except in its entirety, without the prior consent of Paradigm Environmental Services, Inc.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

Low level Volatiles blank reports for soil/solid matrix are based on a nominal 5 gram weight. Sample results and reporting limits are based on actual weight, which may be more or less than 5 grams.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of analyte-specific, frequently used data flags and their meaning:

"<" = Analyzed for but not detected at or above the quantitation limit.
"E" = Result has been estimated, calibration limit exceeded.
"H" = Denotes a parameter analyzed outside of holding time.
"Z" = See case narrative.
"D" = Sample, Laboratory Control Sample, or Matrix Spike Duplicate results above Relative Percent Difference limit.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.
"J" = Result estimated between the quantitation limit and half the quantitation limit.
"L" = Laboratory Control Sample recovery outside accepted QC limits.
"P" = Concentration differs by more than 40% between the primary and secondary analytical columns.
"NC" = Not calculable. Applicable to RPD if sample or duplicate result is non-detect or estimated (see primary report for data flags). Applicable to MS if sample is greater or equal to ten times the spike added. Applicable to sample surrogates or MS if sample dilution is 10x or higher.
"" = Indicates any recoveries outside associated acceptance windows. Surrogate outliers in samples are presumed matrix effects. LCS demonstrates method compliance unless otherwise noted.*
"(1)" = Indicates data from primary column used for QC calculation.
"A" = denotes a parameter for which ELAP does not offer approval as part of their laboratory certification program.
"F" = denotes a parameter for which Paradigm does not carry certification, the results for which should therefore only be used where ELAP certification is not required, such as personal exposure assessment.

GENERAL TERMS AND CONDITIONS
LABORATORY SERVICES

These Terms and Conditions embody the whole agreement of the parties in the absence of a signed and executed contract between the Laboratory (LAB) and Client. They shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties. The LAB specifically rejects all additional, inconsistent, or conflicting terms, whether printed or otherwise set forth in any purchase order or other communication from the Client to the LAB. The invalidity or unenforceability in whole or in part of any provision, tern or condition hereof shall not affect in any way the validity or enforceability of the remainder of the Terms and Conditions. No waiver by LAB of any provision, term, or condition hereof or of any breach by or obligation of the Client hereunder shall constitute a waiver of such provision, term, or condition on any other occasion or a waiver of any other breach by or obligation of the Client. This agreement shall be administered and interpreted under the laws of the state which services are procured.

Warranty. Recognizing that the nature of many samples is unknown and that some may contain potentially hazardous components, LAB warrants only that it will perform testing services, obtain findings, and prepare reports in accordance with generally accepted analytical laboratory principles and practices at the time of performance of services. LAB makes no other warranty, express or implied.

Scope and Compensation. LAB agrees to perform the services described in the chain of custody to which these terms and conditions are attached. Unless the parties agree in writing to the contrary, the duties of LAB shall not be construed to exceed the services specifically described. LAB wi use LAB default method for all tests unless specified otherwise on the Work Order.
Payment terms are net 30 days from the date of invoice. All overdue payments are subject to an interest charge of one and one-half percent (1-1/2%) per month or a portion thereof. Client shall also be responsible for costs of collection, including payment of reasonable attorney fees if such expense is incurred. The prices, unless stated, do not include any sale, use or other taxes. Such taxes will be added to invoice prices when required.

Prices. Compensation for services performed will be based on the current Lab Analytical Fee Schedule or on quotations agreed to in writing by the parties. Turnaround time based charges are determined from the time of resolution of all work order questions. Testimony, court appearances or data compilation for legal action will be charged separately. Evaluation and reporting of initial screening runs may incur additional fees.

Limitations of Liability. In the event of any error, omission, or other professional negligence, the sole and exclusive responsibility of LAB shall be to re-perform the deficient work at its own expense and LAB shall have no other liability whatsoever. All claims shall be deemed waived unless made in writing and received by LAB within ninety (90) days following completion of services.
LAB shall have no liability, obligation, or responsibility of any kind for losses, costs, expenses, or other damages (including but not limited to any special, direct, incidental or consequential damages) with respect to LAB's services or results.
All results provided by LAB are strictly for the use of its clients and LAB is in no way responsible for the use of such results by clients or third parties. All reports should be considered in their entirety, and LAB is not responsible for the separation, detachment, or other use of any portion of these reports. Client may not assign the lab report without the written consent of the LAB.
Client covenants and agrees, at its/his/her sole expense, to indemnify, protect, defend, and save harmless the LAB from and against any and all damages, losses, liabilities, obligations, penalties, claims, litigation, demands, defenses, judgments, suits, actions, proceedings, costs, disbursements and/or expenses (including, without limitation attorneys' and experts' fees and disbursements) of any kind whatsoever which may at any time be imposed upon, incurred by or asserted or awarded against client relating to, resulting from or arising out of (a) the breach of this agreement by this client, (b) the negligence of the client in handling, delivering or disclosing any hazardous substance, (c) the violation of the Client of any applicable law, (d) non-compliance by the Client with any environmental permit or (e) a material misrepresentation in disclosing the materials to be tested.

Hazard Disclosure. Client represents and warrants that any sample delivered to LAB will be preceded or accompanied by complete written disclosure of the presence of any hazardous substances known or suspected by Client. Client further warrants that any sample containing any hazardous substance that is to be delivered to LAB will be packaged, labeled, transported, and delivered properly and in accordance with applicable laws.

Sample Handling. Prior to LAB's acceptance of any sample (or after any revocation of acceptance), the entire risk of loss or of damage to such sample remains with Client. Samples are accepted when receipt is acknowledged on chain of custody documentation. In no event will LAB have any responsibility for the action or inaction of any carrier shipping or delivering any sample to or from LAB premises.
Client authorizes LAB to proceed with the analysis of samples as received by the laboratory, recognizing that any samples not in compliance with all current DOH-ELAP-NELAP requirements for containers, preservation or holding time will be noted as such on th final report.
Disposal of hazardous waste samples is the responsibility of the Client. If the Client does not wish such samples returned, LAB may add storage and disposal fees to the final invoice. Maximum storage time for samples is 30 days after completion of analysis unless modified by applicable state or federal laws. Client will be required to give the LAB written instructions concerning disposal of these samples.
LAB reserves the absolute right, exercisable at any time, to refuse to receive delivery of, refuse to accept, or revoke acceptance of any sample, which, in the sole judgment of LAB (a) is of unsuitable volume, (b) may be or become unsuitable for or may pose a risk in handling, transport, or processing for any health, safety, environmental or other reason whether or not due to the presence in the sample of any hazardous substance, and whether or not such presence has been disclosed to LAB by Client or (c) if the condition or sample date make the sample unsuitable for analysis.

Legal Responsibility. LAB is solely responsible for performance of this contract, and no affiliated company, director, officer, employee, or agent shall have any legal responsibility hereunder, whether in contract or tort including negligence.

Assignment. LAB may assign its performance obligations under this contract to other parties, as it deems necessary. LAB shall disclose to Client any assignee (subcontractor) by ELAP ID # on the submitted final report.

Force Majeure. LAB shall have no responsibility or liability to the Client for any failure or delay in performance by LAB, which results in whole or in part from any cause or circumstance beyond the reasonable control of LAB. Such causes and circumstances shall include, but not limited to, acts of God, acts or orders of any government authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, difficulties or delays in transportation, mail or delivery services, inability to obtain sufficient services or supplies from LAB's usual suppliers, or any other cause beyond LAB's reasonable control.

Law. This contract shall be continued under the laws of the State of New York without regard to its conflicts of laws provision.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

1 of 2

CHAIN OF CUSTODY

250415

PARADIGM ENVIRONMENTAL SERVICES

REPORT TO:		INVOICE TO:		LAB PROJECT ID
COMPANY:	Roux Inc.	COMPANY:	SAME	P25-1138
ADDRESS:	383 Summit Dr. Suite 500	ADDRESS:		Quotation #:
CITY: STATE: ZIP:	Burlington MA 01803	CITY: STATE: ZIP:		
PHONE: FAX:	(781)569-4033	PHONE: FAX:		Email:
ATTN:	Sara Barrientos	ATTN:		kasieber@paradigmenv.com

PROJECT REFERENCE: 5 Flint ST. Rochester NY

Matrix Codes:
AQ - Aqueous Liquid; NQ - Non-Aqueous Liquid; WA - Water; WG - Groundwater; DW - Drinking Water; WW - Wastewater; SO - Soil; SL - Sludge; SD - Solid; PT - Paint; WP - Wipe; CK - Caulk; OL - Oil; AR - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODE	NUMBER OF CONTAINERS	PCB	REMARKS	PARADIGM LAB SAMPLE NUMBER
1-30-25			✓	W14-01	CK	1	✓	Exterior window glaze	-01

Turnaround Time		Report Supplements		
Availability contingent upon lab approval; additional fees may apply.				
Standard 5 day	☒	None Required	☐	None Required ☐
10 day	☐	Batch QC	☐	Basic EDD ☐
Rush 3 day	☐	Category A	☐	NYSDEC EDD ☐
Rush 2 day	☐	Category B	☐	
Rush 1 day	☐			
Other please indicate date needed:	☐	Other please indicate package needed:	☐	Other EDD please indicate EDD needed: ☐

Sampled By: Geoffrey Siebert Date/Time: 1/30/25

Relinquished By: Date/Time: 1/30/25

Total Cost:

Received By: Date/Time: P.I.F.

Received @ Lab By: Date/Time: 1/30/25 1410

20.5°C 1/30/25 14:04

By signing this form, client agrees to Paradigm Terms and Conditions (reverse).

See additional page for sample conditions.

PARADIGM
ENVIRONMENTAL SERVICES

Chain of Custody Supplement

Client: Roux Inc. Completed by: Cedarcrest

Lab Project ID: 250415 Date: 1/30/25

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	NELAC compliance with the sample condition requirements upon receipt: Yes	No	N/A
Container Type	X		
Comments			
Transferred to method-compliant container			X
Headspace (<1 mL)			X
Comments			
Preservation			X
Comments			
Chlorine Absent (<0.10 ppm per test strip)			X
Comments			
Holding Time	X		
Comments			
Temperature		X	
Comments	20.5°C		
Compliant Sample Quantity/Type	X		
Comments			

APPENDIX E

Abatement Completion Documentation

Sessler Environmental Services

June 2, 2025

Re: 5 & 15 Flint Street, Rochester, NY **– Pre-Demolition Asbestos Abatement.**

To whom it may concern:

Roux, Inc. has contracted Sessler Environmental Services to remove all asbestos containing materials from the above referenced properties. All work was completed per the pre-demolition survey reports completed by Paradigm:

- 5 Flint St., Rochester, NY, dated January 30, 2025.
- 15 Flint St., Rochester, NY *(Brick Bldg. & Shed),* dated February 5, 2025
- 15 Flint St., Rochester, NY *(Out Bldg. – Roof & Windows),* January 30, 2025

Air Monitoring and visual clearance were performed by the 3rd party monitoring firm, Paradigm Environmental Services. SES visual inspections were also completed and logged by the SES project supervisor. SES accepts no responsibility for asbestos containing materials within the areas or spaces that were unknown to us, not accessible, not part of the project, not part of the asbestos surveys nor part of the contracted quantities and scope of work.

Services were performed in compliance with all state and federal regulations. The abated asbestos material waste was transported and disposed of in complete accordance with local, state and federal guidelines.

Please do not hesitate to contact me if you have any questions or require additional information.

Sincerely,

Geoffrey Smith
Project Manager
Sessler Environmental Services, LLC

Sessler Environmental Services

Decommissioning Services ● Remediation Services ● Facility Services ● Disaster Relief

6/10/2025

Roux, Inc.
Sara P Barrientos
200 Summit Drive, Suite 500
Burlington, MA

RE: 5 & 15 Flint Street - Pre-Demo Abatement Closeout

Sessler Environmental Services, LLC (SES) is pleased to provide this post abatement closeout package.

Attachments

Attachment-A	SES Asbestos License
Attachment-B	NYS DOL Notification
Attachment-C	Project Logbook
Attachment-D	Entry Exit Logs
Attachment-E	Project Waste Disposal

Should you have any questions or require additional information please contact me.

Respectfully,

Geoff Smith

Geoff Smith
Project Manager

Attachment-A

SES Asbestos License

WE ARE YOUR DOL

NEW YORK STATE | Department of Labor

DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

ASBESTOS HANDLING LICENSE

Sessler Environmental Services, LLC
1330 Research Forest, Macedon, NY, 14502

License Number: 99211
License Class: FULL
Date of Issue: 02/05/2025
Expiration Date: 02/28/2026
Duly Authorized Representative: Adam VonHahmann

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Amy Phillips, Director
For the Commissioner of Labor

Attachment-B

NYS DOL Notification

Asbestos Project Notification

Project Reference Number:	27113620	Type:	Amended Notification
Status:	Notification Received	Notification Received:	5/1/2025
Payment Status:	Paid in full	Number of amendments:	1
Notification Entered By:	Sessler Environmental Services, LLC		

Contractor Information

FEIN:814253263

Sessler Environmental Services, LLC

1330 Research Forest

Macedon NY 14502

Asbestos License Number: 99211

Mailing Address

Duly Authorized Representative

Adam VonHahmann, Other

Phone Number: 585-617-5710

E-mail Address: adam@sesslerenv.com

Project Information

Project Start Date:	5/19/2025
Project End Date:	5/19/2026
Project Location County:	Monroe

Worker Compensation

Worker Compensation Policy#:	
WC Exemption Certificate#:	
Number of your employees you expect to be on project:	
Will temporary workers be used?	NO
If yes, name of temporary agency:	

Project Location

Building Name:	
Room or Location:	
Bridge ID#:	
Address Line 1:	5 Flint Street
Address Line 2:	
City Town or Village:	Rochester
State:	New York
Zip Code:	14608

Building Information

Current Use:	Vacant
Prior Use:	Commercial
Approximate Year Built:	1940
Size(sq.ft):	31500
Is this fee exempt project?:	NO
Reason:	

Building Representative/Site Contact

Name:	Sara Barrientos
Phone Number:	781-569-4033
E-mail Address:	
Cell Phone Number:	

Phase Details

Phase #	Phase Start Date	Phase End Date	Phase Location	Phase Scope

Sub-Contractor Details

Name:	Asbestos License Number:

Night/Weekend/Shift Work Details

Shift Number	Work Days (Sat - Sun)	From	To
1	MTWTF	07:00 AM	03:30 PM

Party for Whom Work is being Performed

First Name:		Last Name:	
Organization:	Roux Inc		
Apt./Suite:	Suite 500	State:	MA
Address Line 1:	200 Summit Drive	Zip Code:	01803
Address Line 2:		Country:	United States
City Town or Village:	Burlington	Province:	
Contract Dollar Amount:	$1.00	Party for whom Gov Entity:	None

Variance Information

Individual Variance Petition Number: SH-65T9J

Procedures and Type of Equipment and Ventilation Systems Used

All work will be performed in accordance with NYS ICR 56

Air/Project Monitoring Firm

Name:	Asbestos License Number:
Paradigm Environmental Services, Inc.	62819

Laboratory Performing Analysis

Name:	ELAP Registration Number:
Paradigm	10958

Type of Asbestos Work

Pipe Related:	Yes	Siding:	No
Clean up:	Yes	Vessel covering:	No
Caulking/mastic:	No	Spray-on insulation:	No
Roofing/flashing:	Yes	VAT:	No
Demolition:	No	Demolition Ref#:	
Other-specify:	Transite Pipe, Transite Roofing		

Waste Transporter

Name:	Sessler Environmental Services
NYS DEC or EPA Permit Number:	8A-1051
Phone Number:	585-617-5710
Apt./Suite:	
Address Line 1:	1330 Research Forest
Address Line 2:	
City Town or Village:	Macedon
Province:	New York
State:	NY
Zip Code:	14502
Country:	United States

Landfill

Name:	WM-High Acres Landfill
Phone Number:	(585) 223-6132
Apt./Suite:	
Address Line 1:	425 Perinton Parkway
Address Line 2:	
City Town or Village:	Fairport
Province:	New York
State:	NY
Zip Code:	14810
Country:	United States

Type and Amount of Asbestos Containing Material

Friable linear feet:	30	Friable square feet:	1777
Non-friable linear feet:	265	Non-friable square feet:	720

Fee

Total linear feet:	295.0
Total square feet:	2497.0
Total Fee:	2200.0

Project Fee Schedule

If the notification was submitted prior to 4/7/09, the actual project fee is one half of the amount shown on the fee schedule

Linear Feet:	Fee	Square Feet:	Fee
0 - 259 feet:	$0	0 - 159 feet:	$0
260 - 429 feet:	$200	160 - 259 feet:	$200
430 - 824 feet:	$400	260 - 499 feet:	$400
825 - 1649 feet:	$1000	500 - 999 feet:	$1000
1650 or more feet:	$2000	1000 or more feet:	$2000

Remarks

Attachment-C

Project Logbook

Sessler Environmental Services

ABATEMENT PROJECT LOG

PROJECT NUMBER: 25-E071

PROJECT NAME: Flint St. Pre Abatement Demo

SITE ADDRESS: 5 Flint Street, Rochester, N.Y.

START DATE: May-19-2025

END DATE: May-30-2025

15 DAY LOG BOOK

BOOK NUMBER 1 OF 1

CONTRACTOR DAILY PROJECT LOG

CLIENT:	PROJECT:	
Roux INC.	5 Flint Pre Abatement Demo	
PROJECT LOCATION:	DATE:	JOB #:
5 Flint Street, Rochester, NY	May-19-2025	25-E071

ABATEMENT TYPE:	Asbestos: X	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:___ N/A: X

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A: X

1) Time:____ Level:____
2) Time:____ Level:____

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:___ N/A: X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:___ NO:___ N/A: X

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A: X

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A: X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A: X

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
7:30	Arrive on site myself (supv.) with Decon Trailer. Meet with GC and stage Decon Trailer
8:00	(4) crew members and Box Truck arrive on site. Crew members attend safety meeting and sign in.
8:30	Crew members begin staging egment - tools - and supplies in parking area in front of building
10:00	Truck is unloaded Box Truck off site. Crew members enter building and begin cleaning an area free of debris big enough to store egment - tools - and supplies.

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIK-SHAB DATE: 5-19-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES
11:30	① Crew member Arrives on site Attends safety meeting and signs in. Crew member helps other crew members begin taking all egment. - tools - and supplies inside building.
12:00	Break for lunch
12:45	Return from lunch - Box Truck Arrives with more 2x4x8's and 28 Hardwalls All members begin unloading Truck and staging in building.
2:00	Box Truck unloaded and of site. Crew continues taking egment - tools - supplies in building
3:30	Everything is in building - Crew members clean Area for set up of Decon and Bag Out.
4:00	Area is clean start moving Hardwalls to Area.
4:25	Pick up and clean up work Area shut down Generator
4:30	End of work shift site is secure off site.

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIX-SHAD DATE: 5-19-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

CONTRACTOR DAILY PROJECT LOG

CLIENT:		PROJECT:	
Roux Inc.		5 Flint Pre Abatement Demo	
PROJECT LOCATION:		DATE:	JOB #:
5 Flint Street, Rochester, N.Y.		May-20-2025	25-E071
ABATEMENT TYPE:	Asbestos: X	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:___ N/A: X

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A: X

1) Time:____ Level:____
2) Time:____ Level:____

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:___ N/A: X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:___ NO:___ N/A: X

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A: X

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A:X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A:X

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:30	Arrive on site myself unlock Gate start Generator and open building. Check on area and start paper work.
7:00	(4) crew members arrive on site sign in and attend safety meeting.
7:15	crew members begin framing Decon and Bag Out.
9:00	crew members begin hanging poly in Bag out and Decon.
11:00	Prep work continues in Bag Out and Decon
12:00	Break for lunch - Decon is up and fully functional
12:45	Return from lunch. crew members begin framing up work area - Barrier tape and signs up →

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIK-SHAB DATE: 5-20-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES
2:45	Crew continue putting up hardwalls around work area
4:45	All is going well crew members continue with hardwalls
5:15	Pick up and clean up - shut down Generators.
5:30	End of work shift site is secure. Off site.

SUPERVISOR'S NAME: Ken G. Frank Jr- CERT. #: 24-E071 DATE: 5-20-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr-

CONTRACTOR DAILY PROJECT LOG

CLIENT:	PROJECT:	
Roux Inc.	5 Flint St Pre Abatement Demo	
PROJECT LOCATION:	DATE:	JOB #:
5 Flint St. Rochester, N.Y.	May-21-2025	25-E071

ABATEMENT TYPE:	Asbestos: X	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS YES:___ NO:___ N/A: X

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : YES:___ NO:___ N/A: X

1) Time:___ Level:___
2) Time:___ Level:___

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A: X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A: X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A: X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : YES:___ NO:___ N/A: X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : YES:___ NO:___ N/A: X

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : YES:___ NO:___ N/A: X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A: X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A: X

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:30	Arrive on site myself (supv.) Unlock gate open building start Generator check on work Area And start Paperwork.
7:00	(3) Crew members Arrive on site sign in And Attend sAfety meeting. Crew members continue framing hardwAlls Around work Area.
7:45	(1) Crew member Arrives on site signs in Attends sAfety meeting. Crew member joins rest of crew framing hardwalls ground work Area.
@10:00	Crew finish framing work Area prep begins crew suits up And get ready for prep
10:15	Prep begins.

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIX-SHAD DATE: 5-21-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES
10:30	③ Crew members Arrive on site sign in Attend safety meeting suit up And join in on prep of work Area.
12:00	Break for lunch -
12:45	Return from lunch - crew continue prep work
2:45	All is going well - neg Airs Almost ready to turn on
3:00	Neg Airs up and running - prep work continues
3:15	Manometer is -0.021 prep continues
5:15	Crew members finished prep work Area ready for Removal clean up to start tomorrow. Crew Decon Out
5:30	End of work shift site is secure off site - Manometer -0.024

SUPERVISOR'S NAME: Ken C. Frank Jr. CERT. #: 24-61TIX-SHAB DATE: 5-21-25

SUPERVISOR'S SIGNATURE: Ken C. Frank Jr.

CONTRACTOR DAILY PROJECT LOG

CLIENT: Rour Inc.			PROJECT: 5 Flint Pre Abatement Demo	
PROJECT LOCATION: 5 Flint St. Rochester, N.Y.			DATE: MAY-22-2025	JOB #: 25-E071
ABATEMENT TYPE:	Asbestos: X	Lead:	PCB:	Other:

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:X N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:X NO:___ N/A:___

1) Time: 6:10 Level: 0.025
2) Time: 5:30 Level: 0.023

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:X NO:___ N/A:___

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS Gone!!! *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:X NO:___ N/A:___

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:X NO:___ N/A:___

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:X NO:___ N/A:___

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A:___

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A: X

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A: X

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:00	Arrive on site myself (supv.) Unlock gate open building start Generator check on work area start paperwork.
6:10	Manometer Reading -0.025 - 30 min run time begins.
6:45	30 min run time for neg airs has passed manometer still reading -0.025.
7:00	(7) crew members arrive on site attend safety meeting and sign in. (6) crew members suit up to begin Removal clean up. (1) crew member stays out for other work.
9:30	crew continues clean up of debris piles.
10:30	(1) crewmember off site.

SUPERVISOR'S NAME: Ken G. Frankson CERT. #: 24-61TIK-SH2B DATE: May 22 2025

SUPERVISOR'S SIGNATURE: Ken G. Frankson

Daily Work Log (continued)

TIME	NOTES
12:00	Break for lunch. -
12:45	Return from lunch - Bag Out begins
1:45	100 Bags came out - Bag Out complete Final clean begins
3:45	All is going well no issues
5:00	5 more bags came out of work Area.
5:10	Final clean is complete. crew members Decon out.
5:30	Work Area is ready for Final airs Visual Inspection tomorrow. End of work shift 30 min. run time begins for neg. Airs. Crew members off site.
6:00	End of 30 min run time for neg airs shut down Generator End of work shift site is secure off site.

SUPERVISOR'S NAME: Ken G. Franklin CERT. #: 24-GITIX-51165 DATE: 5-22-25

SUPERVISOR'S SIGNATURE: Ken G. Franklin

CONTRACTOR DAILY PROJECT LOG

CLIENT:	PROJECT:	
Roux Inc	5 Flint Pre Abatement Demo	
PROJECT LOCATION:	DATE:	JOB #:
5 Flint St. Rochester, NY	May-23-25	25-E071

ABATEMENT TYPE:	Asbestos: X	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:X N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:X NO:___ N/A:___

1) Time: 6:00 Level: -0.022
2) Time:___ Level:___

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:X NO:___ N/A:___

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS Gone!! — YES:___ NO:___ N/A:X
(Inspect/document daily, including non-work days) :

56.7.3 (e) INSPECTION BARRIERS — YES:X NO:___ N/A:___
(Inspect/document daily, including non-work days) :

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES — YES:X NO:___ N/A:___
(Inspect/document daily, document repairs) :

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:X NO:___ N/A:___

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:X NO:___ N/A:___

Inspection Details:_____

Supervisor Signature / Cert. #: Ken C. Franklin / 24-61TIX-SHAB

Project Monitor Signature / CO. / Cert. #: Mark Bradley 24-COLPA9 SHAB

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A: X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A: X

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:00	Arrive on site Myself (Supv.) Unlock gate open building start Generator neg airs on 30 min run time started. Check on work area and start paperwork.
6:30	30 min run time is good - P.M. and Myself suit up for Visual Inspection 1st Floor clean up area.
6:55	Myself Decon Out - Visual Pass Final airs will begin.
7:00	(2) Crew members Arrive on site attend safety meeting and sign in. Crew members gather supplies to prep 2 minor tents on 2nd Floor. #1 Transite debris clean up →

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIX-SHAB DATE: 5-23-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES
7:00	Minor pipe insulation removal Tent #2
8:30	Tent #1 Transite clean up begins crew members suit up.
10:00	Tent #1 complete. Crew members begin prep on Tent #2.
11:00	Prep on tent #2 complete Removal begins - suit up.
12:00	Break for lunch - Tent #2 is complete
12:45	Return from lunch - Received word that 1st Floor work area passed Final Airs crew members begin tear down in work area.
2:45	All is going well no issues
3:15	Bag out Poly tear down bags -
3:25	30 bags out - Area picked up and cleaned up.
3:30	End of work shift site is secure off site.

SUPERVISOR'S NAME: Ken G. Franklin Jr. CERT. #: 24-61TIX-SHAB DATE: 5-23-25

SUPERVISOR'S SIGNATURE: Ken G. Franklin Jr.

CONTRACTOR DAILY PROJECT LOG

CLIENT:		PROJECT:	
Rau Inc.		Flint St. Pre Abatement Demo	
PROJECT LOCATION:		DATE:	JOB #:
S Flint St. Rochester, N.Y.		May-27-2025	25-E071
ABATEMENT TYPE:	Asbestos: X	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO: X N/A: X

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A: X

1) Time:____ Level:____
2) Time:____ Level:____

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS Gone!! *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A: X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:___ N/A: X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:___ NO:___ N/A: X

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A: X

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A: X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A: X

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:30	Arrive on site myself (super) Gate is pushed over building has been broken Decon trailer and dumpster has been spray painted. Entering building built Decon and work area was broken into this work area passed final airs Friday started tearing down - Take pictures and sent Emails out to office. - Start paperwork.
7:00	(6) crew members arrive on site attend safety meeting and sign in - Received word that both tents on 2nd Floor passed Final Airs crew members begin with Finishing tear down on 1st Floor work area.

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIX-SHAB DATE: 5-27-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES
8:00	(1) Crew member arrives on site late signs in attends safety meeting and helps tear down
9:30	(3) Crew members begin tear down on 2nd Floor (4) crew members begin cleaning floor of debris on 1st Floor for next work areas. 1st Floor tear down is complete.
11:00	Box Truck Arrives on site unload Fall protection and load up Hard walls - neg Airs VACs and other supplies and equipt not in use
12:00	Break for lunch.
12:45	Return from lunch - (3) Crew members prep for minor tent inside doorway - (3) crew members clean 3rd Floor for work Area.
2:30	Tent prep complete - Removal begins - 3rd Floor clean continues
4:30	Tent minor door entrance inside complete. crew Decon out - Help clean on 3rd Floor.
5:15	clean up pick up.
5:30	End of work shift site is secure off site.

SUPERVISOR'S NAME: Ken G. Franklin Jr. CERT. #: 24-61TIX-SHAB DATE: 5-27-25

SUPERVISOR'S SIGNATURE: Ken G. Franklin Jr.

CONTRACTOR DAILY PROJECT LOG

CLIENT:	PROJECT:		
Roux Inc	5 Flint Pre Abatement Demo		
PROJECT LOCATION:	DATE:	JOB #:	
5 Flint Street, Rochester, NY.	5-28-2025	25-E071	
ABATEMENT TYPE:	Asbestos: N	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS YES:___ NO:N N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : YES:___ NO:___ N/A:N

1) Time:___ Level:___
2) Time:___ Level:___

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A:N

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS Gone!! YES:___ NO:___ N/A:N
(Inspect/document daily, including non-work days) :

56.7.3 (e) INSPECTION BARRIERS YES:___ NO:___ N/A:N
(Inspect/document daily, including non-work days) :

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES YES:___ NO:___ N/A:N
(Inspect/document daily, document repairs) :

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : YES:___ NO:___ N/A:N

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : YES:N NO:___ N/A:N

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A:___

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A:___

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:30	Arrive on site myself (supv.) - open gate start Generator - Ambek Decon open building - start paperwork.
7:00	(8) crew members Arrive on site. Attend safety meeting and sign in. 4 crew members gather supplies tools and egment for Flashing on Roof - (4) crew members gather supplies egment and tools for Transite stack running up the building walls outside.
8:00	(3) crew members suit up and begin Roof Flashing (1) crew member is outside Guy running for needs. (3) crew members suit up and begin Transite stacks 1 crew member stays outside to run/get needs →

SUPERVISOR'S NAME: Ken C. Frank Jr CERT. #24-61111-SHAB DATE: 5-28-25

SUPERVISOR'S SIGNATURE: Ken C Frank Jr

Daily Work Log (continued)

TIME	NOTES
10:00	Transite stacks are coming down intact bagging And wrapping once on drop cloth. Roof Flashing crew members working chipping with Hatchets.
12:00	Break for lunch -
12:45	Return from lunch - crew continue tasks given Roof and Transite.
1:30	Stacks are down and bagged and wrapped Crew begins Transite Roof At Loading dock Roof Flashing continues -
3:15	Clean up And pick up, work Areas Decon Out.
3:30	End of work shift site is secure Crew members off site - shut down Generators
4:00	Load up Generators into Truck - secure building entrance Lock up Decon Trailer and dumpsters
4:30	Lock up Gates site secure off site.
	90 - Bags - 2 wraps

SUPERVISOR'S NAME: Ken C. Frank Jr. CERT. #: 24-CITIX-51195 DATE: 5-28-25

SUPERVISOR'S SIGNATURE: Ken C Frank Jr

CONTRACTOR DAILY PROJECT LOG

CLIENT: Roux Inc	PROJECT: 5 Flint Pre Abatement Demo	
PROJECT LOCATION: 5 Flint Street Rochester, NY.	DATE: May-29-2025	JOB #: 25-E071

ABATEMENT TYPE:	Asbestos: ✓	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:X N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A:X

1) Time:___ Level:___
2) Time:___ Level:___

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS Gone *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:___ N/A:X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:X NO:___ N/A:___

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A:X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES: X NO:___ N/A:X

Inspection Details:_____

Supervisor Signature / Cert. #: Ken G Franks / 24-61TIX-SHAB

Project Monitor Signature / CO. / Cert. #: Mark Beeder 24 GLP AQ SHAB

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A:X

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:00	Arrive on site open Gate unlock Decon start Generators - Open building check on work areas and start paper work
7:00	(8) crew members Arrive on site attend safety meeting and sign in (4) Crew members continue Roof Flashing - (2) Crew members continue Transite Roof at loading dock (2) crew members doing outside work non-Abatement.
8:30	Transite Roof at loading dock is complete. Crew members Decon out to start other work. (4) crew men Continue Flashing on Roof. (2) crew members continue outside work non-Abatement

SUPERVISOR'S NAME: Ken G. Franks CERT. #: 24-61TIX-SHAB DATE: 5-29-25

SUPERVISOR'S SIGNATURE: Ken G. Franks

Daily Work Log (continued)

TIME	NOTES
10:30	All is going well no issues - continue chipping tar with Hatchets.
12:00	Break for lunch-
12:45	Return from lunch - crew members suit up and continue Roof Flashing.
2:45	crew members continue Flashing Removal on Roof. using Hatchets and Hammers.
4:45	All is going well no issues
5:15	Crew members pick up and clean up
5:30	End of work shift site is secure off site

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIX-SHAB DATE: 5-29-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

CONTRACTOR DAILY PROJECT LOG

CLIENT:	PROJECT:	
Rosa Inc	5 Flint Pre Abatement Demo	
PROJECT LOCATION:	DATE:	JOB #:
5 Flint Street, Rochester, N.Y.	May-30-2025	25-E071

ABATEMENT TYPE:	Asbestos: X	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:0 N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A:X

1) Time:___ Level:___
2) Time:___ Level:___

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS Gone!! *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:___ N/A:X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:___ NO:___ N/A:X

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:X NO:___ N/A:X

Inspection Details:_____

Supervisor Signature / Cert. #: Ken G. Frank Jr / 24-61TK-SHAB

Project Monitor Signature / CO. / Cert. #: Mark Dasher 24 COLP AQ SHAB

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES:___ NO:___ N/A: X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A:___

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
6:00	Arrive on site myself (supvi) unlock gate
	Unlock Decon open building start Generators
6:30	Check on work areas and start paperwork
7:00	(6) crew members arrive on site Attend safety
	meeting And sign in. Crew members gather
	supplies and tools to set up for wrap And cut
	on 3rd Floor - Barrier tape and signs
7:30	Crew members lay out drop cloth set up
	scaffolding and suit up And begin.
9:30	Crew members continue wrap And cut on
	3rd Floor.
11:30	3rd Floor is complete clean up pick up
	move to 2st Floor wrap and cut →

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIX-SHAB DATE: 5-30-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES
12:00	Break for lunch. -
12:45	Return from lunch - crew continue wrap and cut on 1st Floor.
2:45	All is going well no issues
3:15	1st Floor wrap and cut is complete. Crew Decon Out - Load all Bags and wraps into dumpster.
3:30	End of work shift site is secure off site.

SUPERVISOR'S NAME: Ken G. Franklin CERT. #: 24-61TLK-SHOR DATE: 5-30-25

SUPERVISOR'S SIGNATURE: Ken G. Franklin

CONTRACTOR DAILY PROJECT LOG

CLIENT:		PROJECT:	
PROJECT LOCATION:		DATE:	JOB #:
ABATEMENT TYPE:	Asbestos:_____	Lead:_____	PCB:_____ Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS YES:___ NO:___ N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : YES:___ NO:___ N/A:___

1) Time:___ Level:___
2) Time:___ Level:___

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A:___

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A:___

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A:___

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : YES:___ NO:___ N/A:___

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : YES:___ NO:___ N/A:___

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : YES:___ NO:___ N/A:___

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

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Sessler Environmental Services

ABATEMENT PROJECT LOG

PROJECT NUMBER: 25-E071

PROJECT NAME: Brick Building

SITE ADDRESS: 15 Flint Street, Rochester, NY.

START DATE: May-29-2025

END DATE: May-29-2025

3 DAY LOG BOOK

BOOK NUMBER 1 OF 1

CONTRACTOR DAILY PROJECT LOG

CLIENT:	PROJECT:	
Roux Inc.	Brick Building	
PROJECT LOCATION:	DATE:	JOB #:
15 Flint Street Rochester, NY.	5-29-2025	25-E071

ABATEMENT TYPE:	Asbestos: X	Lead:____	PCB:____	Other:____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:X N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A:X

1) Time:___ Level:___
2) Time:___ Level:___

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:___ N/A:X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:___ NO:___ N/A:X

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A:X

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES: ✓ NO:___ N/A:___

Inspection Details:_____

Supervisor Signature / Cert. #: J. Lyp 24-6075

Project Monitor Signature / CO. / Cert. #: Marissa Kennis 25-6ABNL-SWAB

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A:___

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
8:30	(2) Crew members gather supplies and tools and egment for exterior window Removal.
	myself ran barrier Tape and sign to establish work area.
9:00	(2) crew members suit up and begin.
	poly drop cloth windows poly from inside
	building. Crew pull windows outside building.
11:00	All is going well no issues.
12:00	Break for lunch.
12:45	Return from lunch - crew members suit up
	and continue window removal.
1:30	All windows are out of building. All are bagged
	up Brick Building complete. →

SUPERVISOR'S NAME: Ken G Frank Jr - CERT. #: 24-6171X-SWAB DATE: 5-29-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES
	Crew members set up for another work
	Area - Crew Decon out End of work
	for this Brick Building.

SUPERVISOR'S NAME: Vern C Franklin CERT. #24-61TIX-S DATE: 5-29-25

SUPERVISOR'S SIGNATURE: Vern C Franklin

CONTRACTOR DAILY PROJECT LOG

CLIENT:			PROJECT:	
PROJECT LOCATION:			DATE:	JOB #:
ABATEMENT TYPE:	Asbestos:_____	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS YES:___ NO:___ N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : YES:___ NO:___ N/A:___

1) Time:____ Level:____
2) Time:____ Level:____

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A:___

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A:___

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : YES:___ NO:___ N/A:___

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : YES:___ NO:___ N/A:___

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : YES:___ NO:___ N/A:___

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : YES:___ NO:___ N/A:___

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

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Sessler Environmental Services

ABATEMENT PROJECT LOG

PROJECT NUMBER: 25-E071

PROJECT NAME: Metal Shed

SITE ADDRESS: 15 Flint Street, Rochester NY.

START DATE: May-29-2025

END DATE: May-29-2025

3 DAY LOG BOOK

BOOK NUMBER 1 OF 1

CONTRACTOR DAILY PROJECT LOG

CLIENT:		PROJECT:	
Roux Inc.		Metal Shed	
PROJECT LOCATION:		DATE:	JOB #:
15 Flint Street, Rochester, NY		May-29-2025	25-E.071
ABATEMENT TYPE:	Asbestos: X	Lead:____	PCB:____ Other:____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:X N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A:X

1) Time:____ Level:____
2) Time:____ Level:____

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:X

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:___ N/A:X

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:___ NO:___ N/A:X

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A:X

Inspection Details:_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)* : YES: ✓ NO:___ N/A:___

Inspection Details:_____

Supervisor Signature / Cert. #: T. Lyn 24-61275

Project Monitor Signature / CO. / Cert. #: Elaine Kunis 25-CASNL-SHAB

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)* : YES:___ NO:___ N/A:___

Supervisor Signature / Cert. #:_____

Daily Work Log

TIME	NOTES
1:30	Crew members set up for window removal poly drop cloth barrier tape and signs poly windows inside building to pull windows out.
2:05	crew members suit up and begin Removal.
3:15	Removal is complete windows out crew members clean up and pick up - all bags are in dumpsters 8 Bags.
3:30	End of work shift (3) crew members off site.

SUPERVISOR'S NAME: Ken G. Frank Jr. CERT. #: 24-61TIX-SHAB DATE: 5-29-25

SUPERVISOR'S SIGNATURE: Ken G. Frank Jr.

Daily Work Log (continued)

TIME	NOTES

SUPERVISOR'S NAME:_____ CERT. #:_____ DATE:_____

SUPERVISOR'S SIGNATURE:_____

Blank pages 3-10

Sessler Environmental Services

ABATEMENT PROJECT LOG

PROJECT NUMBER: 25-E071

PROJECT NAME: Out Building

SITE ADDRESS: 15 Flint Street, Rochester, N.Y.

START DATE: 6/2/25

END DATE: 6/2/25

3 DAY LOG BOOK

BOOK NUMBER 1 OF 1

CONTRACTOR DAILY PROJECT LOG

CLIENT:	PROJECT:	
Rwx Inc.	5 Flint St. Pre Abate Demo	
PROJECT LOCATION: 5 Flint St.	DATE: 6/2/25	JOB #: 25-E071

ABATEMENT TYPE:	Asbestos: ✓	Lead:_____	PCB:_____	Other:_____

Code Rule Inspection Items

56.7.3 (a) WORK STOPPAGE DUE TO HIGH AIR RESULTS — YES:___ NO:✓ N/A:___

1) Time of Work Cessation
2) Record of findings of barrier & negative air system inspection. Include a summary of cleanings and/or repairs

56.7.3 (b) MANOMETER READINGS FOR ALL CLASS 1 LARGE AND SMALL PROJECTS *(Twice per shift)* : — YES:___ NO:___ N/A:✓

1) Time:____ Level:____
2) Time:____ Level:____

56.7.3 (c) NEGATIVE AIR SYSTEM *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:✓

1) Record findings of negative air systems inspection. Include a summary of repairs.

56.7.3 (d) HVAC SYSTEM POSITIVE PRESSURIZATIONS *(Inspect/document daily, including non-work days)* : — YES:___ NO:___ N/A:✓

56.7.3 (e) INSPECTION BARRIERS *(Inspect/document daily, including non-work days)* : — YES:✓ NO:___ N/A:___

1) First Inspection at start of shift and/or work stoppage. Record findings and a summary of repairs.

56.7.3 (f) TESTING OF BARRIERS AND ENCLOSURES *(Inspect/document daily, document repairs)* : — YES:___ NO:✓ N/A:___

56.7.3 (g) DAILY CLEANING OF ENCLOSURES *(At end of work shift)* : — YES:✓ NO:___ N/A:___

56.7.3 (i) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Interior) *(Prior to clearance air sampling for completeness of abatement)* : — YES:___ NO:___ N/A:___

Inspection Details:_____

_____

Supervisor Signature / Cert. #:_____

Project Monitor Signature / CO. / Cert. #:_____

Code Rule Inspection Items

56.7.3 (j) VISUAL INSPECTION BY PROJECT SUPERVISOR & PROJECT MONITOR (Exterior) *(For regulated work areas **exempt** from clearance)*: YES: ✓ NO:___ N/A:___

Inspection Details: Window Frames & Glazing

Supervisor Signature / Cert. #: T. Lipp 24-61QT5

Project Monitor Signature / CO. / Cert. #: [illegible] 23-CASNL-SHAB

56.7.3 (k) PROJECT SUPERVISION FINAL INSPECTION *(At completion of project after all waste has been removed)*: YES:___ NO:___ N/A:___

Supervisor Signature / Cert. #:___

Daily Work Log

TIME	NOTES
7:00 -	Sign in. Suit up. Tailgate.
7:30-	Drop Cloth & Criticals for Exterior window removal.
11:00 -	Stop. Bag/Wrap all debris
11:45 -	Shower Out for Break
12:45-	Drop Cloth under next window. Remove.
2:45-	Everything removed, bagged, wrapped, cleaned up
-	Put waste in dumpster.
3:15-	Shower Out.

SUPERVISOR'S NAME: Tom Lipp CERT. #: 24-61QT5 DATE: 6/2/25

SUPERVISOR'S SIGNATURE: T. Lipp

Daily Work Log (continued)

TIME	NOTES

SUPERVISOR'S NAME:_____ CERT. #:_____ DATE:_____

SUPERVISOR'S SIGNATURE:_____

Unused 3-10

Attachment-D

Entry Exit Logs

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: 5 Flint - 1st Floor
Supervisor: Ken G. Fran K Jr.
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: Flint St. Pre Abatement Demo
Date: May - 21 - 2025

Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1 Arthur S. Ross	[signature]	[illegible]	1/2	10:30	12:00	12:45	5:15		
2 [illegible]	[signature]			10:00	12:00	12:45	5:15		
3 Shymarrio S	[signature]			10:30	12:00	12:45	5:15		
4 Vandel colon	[signature]			10:00	12:00	12:45	5:15		
5 Jakie Strong	[signature]			10:00	12:00	12:45	5:15		
6 Jahrell Williams	[signature]			10:00	12:00	12:45	5:15		
7 Leroy Thompson	[signature]			1:00	5:15				
8 Luis Rivera	[signature]			10:30	12:00	12:45	5:15		
9									
10									
11									
12									
13									
14									
15									

Sessler Environmental Services

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Fran K Jr.

Date: May - 21 - 2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: 1st Floor Flint 5
Supervisor: Ken G. Frank Jr.
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: 5 Flint Pre Abatement Demo
Date: May-22-2025

Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1 Ken G Frank Jr	Ken G Frank Jr		1/2	7:45	8:20	10:30	11:00	2:30	3:00
2 Jethro Williams				7:15	12:00	12:45	5:10		
3 Seymour Miles				7:15	12:00	12:45	5:10		
4 Yandel colon	Yandel colon			7:15	12:00	—	—	—	—
5 MARK PARKER	Mark Parker			7:15	12:00	Left	site	—	—
6 Jakie Strong				7:15	12:00	12:45	5:10		
7 Robert Sessler	Robert Sessler			7:15	10:30	—	—	—	—
8 Luis Rivera	Luis Rivera			N.A.	N.A.	N.A.	N.A.	—	—
9									
10									
11 Mark Seeber	Mark Seeber	24 COLP A9 SHAB		745	820	2:30	3:00		
12									
13									
14									
15									

Sessler Environmental Services

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Frank Jr.

Date: May-22-2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: 1st Floor Flint 5
Supervisor: Ken G. Frank Jr.
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: Flint Pre Abatement Demo
Date: May - 23 - 2025

	Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1	Ken G. Frank Jr.	Ken G. Frank Jr.	24-611K-SHAW	1/2	6:30	6:55				
2										
3	Mark Seeber	Mark Seeber	GLP AS SHAW		0630	0710	0935	0943		
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

Sessler Environmental Services

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Frank Jr. **Date:** May - 23 - 2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: 2nd Floor Flint 5
Supervisor: Ken G. Frank Jr.
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: Flint 5
Date: May-23-2025

	Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1	Ken G. Frank Jr	Ken G. Frank Jr	24-6176-SMAB	1/2	9:15	9:45	11:15	11:45	—	—
2	Luis Rivera	Luis Rivera			8:30	9:45	10:50	12:00	—	—
3	Yandel colon	Yandel colon			8:30	9:45	10:50	12:00	—	—
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

Sessler Environmental Services

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Frank Jr.

Date: May-23-2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: 1st Floor Tear down
Supervisor: Ken G. Frank Jr.
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: 5 Flint
Date: May - 27 - 2025

	Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1	Saimour Miles	[signature]		1/2	7:15	10:30	—	—	—	—
2	Robert Frank Jones	[signature]			7:15	10:30	—	—	—	—
3	Luis Rivera	[signature]			7:15	10:30	—	—	—	—
4	Kevin Conyers	[signature]			7:15	10:30	—	—	—	—
5	Jaxie Strong	[signature]			7:15	10:30	12:50	4:30	—	—
6	Jahrell Williams	[signature]			7:16	10:30	12:50	4:30	—	—
7	Mark Parker	[signature]			7:15	10:30	12:50	4:30	—	—
8										
9										
10										
11										
12										
13										
14										
15										

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Frank Jr.

Date: May - 27 - 2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: Exterior Roof Flashing/Transite Stack
Supervisor: Ken G. Frank Jr.
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: 5 Flint Pl. Abatement Demo
Date: May-28-2025

Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1 Jamie Strong			1/2	8:00	8:02	—	—	—	—
2 Luis Rivera			1/2	8:00	8:02	—	—	—	—
3 Seymour Miles			1/2	8:00	12:00	12:45	3:15		
4 Jahred Williams			1/2	8:00	12:00	12:45	3:15		
5 Henri Cortigno			1/2	8:00	12:00	12:45	3:15		
6 Tom Lippe		24-6182TS	1/2 F	8:00	12:00	12:45	3:15		
7 Robert Lundy			1/2 F	8:00	12:00	12:45	3:15		
8 MARK PARKER			1/2	8:00	12:00	12:45	3:15		
9									
10									
11									
12									
13									
14									
15									

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Frank Jr.

Date: May-28-2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: Roof Flashing and Windows
Supervisor: Ken G. Frank Jr.
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: 5 Flint and 15 Flint
Date: May - 29 - 2025

	Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1	Seymar miles			1/2	7:15	12:00	12:45	5:15		
2	Jahre'll Williams			1/2	7:15	12:00	12:45	5:15		
3	[illegible]			1/2	7:15	12:00	12:45	5:15		
4	Hair Loriano			1/2	7:15	12:00	12:45	3:15		
5	[illegible]			1/2 F	7:15	10:45	—	—	—	—
6	Tom Lippe		24-VIATS	1/2 F	7:15	12:00	12:45	3:15		
7										
8										
9										
10										
11										
12										
13										
14										
15										

Sessler Environmental Services

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Frank Jr.

Date: May - 29 - 2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area: Roof - 3rd and 2nd Floor
Supervisor: Ken G Frank
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: 5 Flint
Date: May-30-2025

	Print Name	Signature	Asbestos License #	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1	Jahre'll Williams			½	7:30	12:00	12:45	3:15		
2	Seymour Miles				7:30	12:00	12:45	3:15		
3	Mattie Parker				7:30	12:00	12:45	3:15		
4	Kevin Grono				7:30	12:00	12:45	3:15		
5	Luis Rivera				7:30	12:00	12:45	3:15		
6	Jakie Strong				7:30	12:00	12:45	3:15		
7										
8	Ken G. Frank Jr.	Ken G. Frank Jr.	24-61TIK		11:00	11:25	3:00	3:25		
9	Mark Seeber	Mark Seeber	24 GLPA9		11:00	11:25	3:00	3:25		M.S.
10										
11										
12										
13										
14										
15										

Sessler Environmental Services

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: Ken G. Frank Jr. **Date:** May-30-2025

Sessler Environmental Services

REGULATED AREA ENTRY/EXIT LOG

Work Area : Out Building
Supervisor: Tom Lippa
Project Manager: Geoff Smith

Project Number: 25-E071
Project Name: Flint St. Pre Abate. Demo
Date: 6/2/25 Mon.

	Print Name	Signature	Respiratory Protection	Time In	Time Out	Time In	Time Out	Time In	Time Out
1	Tom Lippa		1/2F	7:30	11:00				
2	Kevin Grigas			7:30	11:45	1245	3:00		
3	Jakie Strong			7:30	1145	1245	3:00		
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

I certify that all individuals entering this work area were wearing proper personal protective equipment. I have checked all critical barriers for leaks at least twice during this shift and maintained a constant negative pressure within the containment (if applicable).

Supervisor's Signature: T. Lippa **Date:** 6/2/25

Attachment-E

Project Waste Disposal

WASTE SHIPMENT RECORD

GENERATOR

1. Owner's name and mailing address Exxon Mobil Corporation 647 Rt. 1, #14, PMB 253, York, ME 03909	Project name and location Site Address: 5 Flint St., Rochester, NY	Owner's telephone no. 207-363-8345
2. Operator's name and address Sessler Environmental Services, LLC 1330 Research Forest, Macedon, NY 14502	Project number 25-E071	Operator's telephone no. 585.617.5710
3. Waste Disposal Site (WDS) High Acres Landfill Name Mailing Address 425 Perinton Parkway Fairport, NY 14450 Physical Site Location Same	WDS telephone no. 866.909.4458 Additional information Friable Asbestos Purchase Order: 25-E071 Profile: 118353NY	
4. Name and address of responsible agency US EPA Region II Attn: Regional Administrator 26 Federal Plaza, New York, NY 10278		

5. Description of materials	6. Containers No.	Type	7. Total quantity m³ (yd³)
RQ, NA2212, Asbestos, 9, PGIII			
Friable	300	BAGS	
Non-Friable			
8. Special handling instructions and additional information			

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Printed/typed name & title	Signature	Month	Day	Year
PROJECT GEOLOGIST ALEX STERIA ON BEHALF OF EXXON MOBIL		6	3	2025

TRANSPORTER

10. Transporter 1 (Acknowledgment of receipt of materials)				
Printed/typed name & title	Signature	Month	Day	Year
Joseph Goodman / Driver		6	3	25
Address and telephone no.				
11. Transporter 2 (Acknowledgment of receipt of materials)				
Printed/typed name & title	Signature	Month	Day	Year
Address and telephone no.				

DISPOSAL SITE

12. Discrepancy indication space				
13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.	Grid Coordinates East____ North____ El____			
Printed/typed name & title	Signature	Month	Day	Year
Noah Teeter		6	3	25

Copy 1 - Generator Copy 2 - Operator Copy 3 - Waste Disposal Site

Waste Management High Acres LF
425 Perinton Pkwy
Fairport, NY, 14450
Ph: (585) 223-6132

Reprint
Ticket# 1629015

Customer Name	SESSLERENVIRONMENTAL-118353NY	Carrier	SES SESSLER WRECKING		
Ticket Date	06/03/2025	Vehicle#	201	Volume	
Payment Type	Credit Account	Container			
Manual Ticket#		Driver			
Hauling Ticket#		Check#			
Route		Billing #	0007268		
State Waste Code		Gen EPA ID			
Manifest	NA	Grid	CELL 13A		
Destination					
PO					
Profile	118353NY (FRIABLE ASBESTOS)				
Generator	190-SESSLERENVIRONMENTALVARIOU SESSLER ENVIRONMENTAL (VARIOUS)				

	Time	Scale	Operator	Inbound		
In	06/03/2025 10:23	A_Scale_1	Noah Teeter		Gross	44080 lb
Out	06/03/2025 10:42	B_Scale_2	Noah Teeter		Tare	36940 lb
					Net	7140 lb
					Tons	3.57

Comments

	Product	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1	Asb Friable-Tons-A	100	3.57	Tons				MON
2	WWM-P650-Waste Wat	100		%				MON

Total Fees

Total Ticket

Driver`s Signature_____

Waste Management High Acres LF
425 Perinton Pkwy
Fairport, NY, 14450
Ph: (585) 223-6132

Reprint
Ticket# 1629382

Customer Name SESSLERENVIRONMENTAL-118353NY
Ticket Date 06/05/2025
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest na
Destination
PO
Profile 118353NY (FRIABLE ASBESTOS)
Generator 190-SESSLERENVIRONMENTALVARIOU SESSLER ENVIRONMENTAL (VARIOUS)

Carrier SES SESSLER WRECKING
Vehicle# 201
Container
Driver
Check#
Billing # 0007268
Gen EPA ID
Grid CELL 13A

Volume

	Time	Scale	Operator	Inbound		
In	06/05/2025 13:42	A_Scale_1	Tammy Bancroft		Gross	42040 lb*
Out	06/05/2025 14:00	B_Scale_2	Noah Teeter		Tare	37240 lb
					Net	4800 lb
			* Manual Weight		Tons	2.40

Comments

	Product	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1	Asb Friable-Tons-A	100	2.40	Tons				MON
2	WWM-P650-Waste Wat	100		%				MON

Total Fees
Total Ticket

Driver`s Signature_____

WASTE SHIPMENT RECORD

GENERATOR

1. Owner's name and mailing address	Project name and location	Owner's telephone no.
Exxon Mobil Corporation 647 Rt. 1, #14, PMB 283, York, ME 03909	Site Address: 15 Flint St., Rochester, NY	207-363-8345

2. Operator's name and address	Project number	Operator's telephone no.
Sessler Environmental Services, LLC 1330 Research Forest, Macedon, NY 14502	25-E071	585.617.5710

3. Waste Disposal Site (WDS)	WDS telephone no.
Name: High Acres Landfill Mailing Address: 425 Perinton Parkway Fairport, NY 14450 Physical Site Location: Same	866.909.4458

Additional information

~~Non~~ Friable Asbestos
Purchase Order: 25-E071
Profile: 118353NY

4. Name and address of responsible agency

US EPA Region II Attn: Regional Administrator
26 Federal Plaza, New York, NY 10278

5. Description of materials	6. Containers No.	Type	7. Total quantity m³ (yd³)
RQ, NA2212, Asbestos, 9, PGIII			
Friable	25	BAGS	
Non-Friable	~~25~~		

8. Special handling instructions and additional information

9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

Printed/typed name & title	Signature	Month	Day	Year
PROJECT GEOLOGIST ALEX STERJA ON BEHALF OF EXXON MOBIL		6	3	2025

TRANSPORTER

10. Transporter 1 (Acknowledgment of receipt of materials)

Printed/typed name & title	Signature	Month	Day	Year
Joseph Goodman / Driver		6	3	25

Address and telephone no.

11. Transporter 2 (Acknowledgment of receipt of materials)

Printed/typed name & title	Signature	Month	Day	Year

Address and telephone no.

DISPOSAL SITE

12. Discrepancy indication space

13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item 12.

Grid Coordinates: East____ North____ El____

Printed/typed name & title	Signature	Month	Day	Year
Noah Teeter		6	5	25

Copy 1 - Generator *Copy 2 - Operator* *Copy 3 - Waste Disposal Site*

PARADIGM
ENVIRONMENTAL SERVICES

WWW.PARADIGMENV.COM

179 Lake Avenue, Rochester, NY 14608 PHONE: 585-647-2530 TOLL-FREE: 800-724-1997 FAX: 585-647-3311

June 3, 2025

Sara Barrientos
Roux Associates Inc.
200 Summit Drive, Suite 500
Burlington, Massachusetts 01803

RE: Clearance Air Sampling at 5 Flint Street, Rochester, New York 14608

Dear Sara Barrientos,

At the request of the client, Paradigm Environmental Services, Inc. conducted asbestos air sampling for Roux Associates Inc. located above the above-mentioned location. The work began on April 29, 2025, and was concluded on May 30, 2025. Performed by Paradigm, final clearance air sampling and final visual inspections have passed.

At the completion of the project, Paradigm concluded that all asbestos containing materials listed in the scope of work have been abated.

Angella Liddell
Director of Field Operations
aliddell@paradigmenv.com

Corporate Headquarters
179 Lake Avenue
Rochester, NY 14608
585.647.2530

New York City
205 E. 42nd Street
New York, NY 10017
315.771.3738

Capital District
790 Watervliet Shaker Road
Latham, NY 12110
518.782.1466

Central New York
6950 E. Genesee Street, #2
Fayetteville, NY 13066
315.455.2714

Hudson Valley
3 Neptune Road
Suite A18E
Poughkeepsie, NY 12601

Southern Tier
51 Center Street
Hornell, NY 14843
607.661.4037

Western New York
1430B Millersport Highway
Williamsville, NY 14221
716.775.5777

Binghamton
7 South Washington Street
Binghamton, NY 13903
607.744.5100

PARADIGM
ENVIRONMENTAL SERVICES

Asbestos Air Sampling Report

5 Flint Street
Rochester, New York 14608

Prepared For:

Roux Associates Inc.
200 Summit Drive, Suite 500
Burlington, Massachusetts 01803

On Site Days:

May 19-30, 2025

Paradigm Number: P25-1808

EXECUTIVE SUMMARY

Paradigm Environmental Services, Inc. was retained by **Roux Associates Inc.** to perform all field activities, sample analysis, and reporting in conjunction with the asbestos abatement project located at **5 Flint Street, Rochester, New York.**

ASBESTOS ABATEMENT AIR MONITORING

The scope of work for this large project consisted of the clean-up and removal of asbestos containing Pipe Insulation Debris from the First Floor.

Paradigm provided a New York State Department of Labor certified air technician to conduct asbestos abatement air sampling and a project monitor to complete a visual inspection. Air sampling consisted of **Phase IIA (Preparation), Phase IIB (Work in Progress), and Phase IIC (Clearance)** sampling to monitor the concentrations of airborne fibrous material within the specified areas. The visual inspection passed, see attached visual inspection report. **Per the site specific variance, Phase IB (Background) sampling was not performed.**

Paradigm conducted the air sampling in general accordance of the New York State Department of Labor (NYSDOL) Asbestos Industrial Code Rule 56, 12NYCRR 56 as Amended March 21, 2007.

The PCM air sampling is satisfactory as each sample demonstrated an airborne concentration of fibers of less than 0.01 fibers per cubic centimeter, or the established level(s), whichever is greater.

LABORATORY ANALYSIS

The samples were individually preserved within a container and transported to the Paradigm analytical laboratory for fiber content analysis.

Paradigm is accredited through NYSDOH/ELAP (Lab ID# 10958) for Solid and Hazardous Waste, and Air and Emissions. Samples are stored at the laboratory for 90 days.

The analytical methodology used is as follows:

- Airborne Fibrous Material Samples - All analyses will be performed utilizing Phase Contrast Microscopy (PCM) according to NIOSH Analytical Method 7400 as prescribed in Title 12 NYCRR, Part 56, Subpart 56-4.6. Calculated intra and inter laboratory variability is provided on the analytical data report.

Laboratory QA/QC is conducted in accordance with requirements for Paradigm laboratory accreditations. These requirements include:

- 10% Duplicate Analysis
- Standard Reference Samples
- Proficiency Samples

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 1st Floor

Lab Log No: 4343-25
Sample Date: 05/19/2025
Sampling Tech.: J. Pizarro
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IIA (Preparation)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	O-6	O-7	O-8	O-9	O-10	B-1	B-2					
Sample Volume (L):	1920	1920	1920	1920	1920	N/A	N/A					

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	41049	41050	41051	41052	41053	41054	41055					
Fibers / 100 Fields:	2	1	1	1	0	0	0					
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0					
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A					

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/21/2025
Microscope: Olympus 8H06485
Analyst: *E. Santiago*

Relative Standard Deviations	Fiber Ranges		
	5 -20	**20 - 50**	**50 - 100**
E. Santiago	0.320	0.212	0.292
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: Fernanda Weinman
Asbestos Technical Director or Designee

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2 of 2 DS

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530

Lab Job #: 4343-25

Job Ticket #: 18C923

Project #: P25-1408

Date: 5-19-25

PCM ☒ TEM ☐

Asbestos Air Monitoring Chain of Custody

Meets NYCRR 56 amended March 21, 2007

Roux
Client

Send Results to:

S Flint St — 3rd Floor
Building/Location — Work Area

Ishii, P. — 585 229 9002
Air Technician — Phone

S Flint St
Building Address

Sessler
Contractor

TSI
Materials to be Removed

02-05
Rotameter #

Cassette Lot #

Project Phase

Phase IB ☐ *Background*

Phase IIA ☒ Work Area Preparation

Phase IIB ☐ Asbestos Handling

Phase IIC ☐ Final Cleaning

Phase IIC ☐ Clearance Airs

Env. ☐

Field Sample #	06	07	08	09	010		B1	B2				
Pre-Calibrated Flow Rate	4	4	4	4	4							
Post-Calibrated Flow Rate	4	4	4	4	4							
Average Flow Rate	4	4	4	4	4							
Start Time Military Time	0820	0822	0824	0826	0824							
End Time Military Time	1620	1622	1624	1626	1624							
Duration (Minutes)	480	480	480	480	480							
Sample Volume (Liters)	1920	1920	1920	1920	1920							

☐ Buf ELAP ID #11955 ☐ Roch ELAP ID # 10958

Lab Sample #	41049	050	051	052	053		054	055				
Time Analyzed	1307	1309	1311	1313	1314		1316	1317	1318			
Fibers/100 Fields:	2	1	1	1	0		0	0				
Blank Corrected Fibers/100 Fields	N/A	→	→	→	→		→	→				
Fibers/cc:	<0.01	<0.01	<0.01	<0.01	<0.01		N/A	N/A				

Sampled by:	Date Sampled: 5-19-25
Relinquished by:	Date Relinquished: 5-19-25
Received in Lab by: Molly Ward	Date and Time Received: 5/21/25 1257
Analyzed By: Edward Slater	Date Analyzed: 5/21/25
Microscope Make, Model, and No. Y 81-10648S	Turn-around Time Immed. 24 Hr. (48 Hr.)

Comments:

DS

White-Lab Original Yellow-Lab Copy

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 1st Floor

Lab Log No: 4388-25
Sample Date: 05/21/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IIA (Preparation)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	O-6	O-7	O-8	O-9	O-10	O-11	B-1	B-2				
Sample Volume (L):	1209	1209	1209	1209	1209	1209	N/A	N/A				

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	41273	41274	41275	41276	41277	41278	41279	41280				
Fibers / 100 Fields:	19.5	6.5	11.5	6	0	16.5	0	0				
Fibers / mm2:	24.4	8.1	14.4	7.5	<7.0	20.6	<7.0	<7.0				
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A				

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/23/2025
Microscope: Olympus 4G42361
Analyst: *A. Henning*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
A. Henning	0.352	0.422	0.200
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: Fernanda Weinman
Asbestos Technical Director or Designee

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2 of 2 DS

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530

5/23 1700

Lab Job #: 4388-25

Job Ticket #: 188294

Project #: P25-1808

Date: 5/21/25

PCM ☒ TEM ☐

Asbestos Air Monitoring Chain of Custody

Meets NYCRR 56 amended March 21, 2007

Client: Roux Associates Roch	Send Results to: Sara Barrientos
Building/Location: 5 Flint St. / 1st Floor	Air Technician: Mark Seeber 414-5476
Work Area	Phone
Building Address: 5 Flint St. Rochester	Contractor: Sessler Geoff Smith
Materials to be Removed: PI debri	Rotameter #: P10 Cassette Lot #: 42587

Project Phase Phase IB ☐ *Background* | Phase IIA ☒ Work Area Preparation | Phase IIB ☐ Asbestos Handling | Phase IIC ☐ Final Cleaning | Phase IIC ☐ Clearance Airs | Env. ☐

Field Sample #	0-6	0-7	0-8	0-9	0-10	0-11		B-1	B-2			
Pre-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1	3.1						
Post-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1	3.1						
Average Flow Rate	3.1	3.1	3.1	3.1	3.1	3.1						
Start Time Military Time (Am)	1030	1031	1033	1035	1037	1038						
End Time Military Time (Pm)	1700	1701	1703	1705	1707	1708						
Duration (Minutes)	390	390	390	390	390	390						
Sample Volume (Liters)	1209	1209	1209	1209	1209	1209		0	0			

☐ Buf ELAP ID #11955 ☐ Roch ELAP ID # 10958

Lab Sample #	41273	274	275	276	277	278		279	280			
Time Analyzed	1006	1008	1010	1011	1013	1015		1016	1018	1018		
Fibers/100 Fields:	19.5	6.5	11.5	6	0	16.5		0	0			
Blank Corrected Fibers/100 Fields	NA											
Fibers/cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		NA	NA			

Sampled by: Mark Seeber	Date Sampled: 5/21/25
Relinquished by: M.S.	Date Relinquished: 5/21/25
Received in Lab by:	Date and Time Received: 5/22/25 946
Analyzed By:	Date Analyzed: 5/23/25
Microscope Make, Model, and No. AO 42361	Turn-around Time: Immed. 24 Hr. (48 Hr.)

Comments:

DS

White-Lab Original Yellow-Lab Copy

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 1st Floor

Lab Log No: 4445-25
Sample Date: 05/22/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IIB (Work In Progress)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	O-6	O-7	O-8	O-9	O-10	O-11	B-1	B-2				
Sample Volume (L):	1984	1984	1984	1984	1984	1984	N/A	N/A				

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	41903	41904	41905	41906	41907	41908	41909	41910				
Fibers / 100 Fields:	8	0	5	7	0	0	0	0				
Fibers / mm2:	10.0	<7.0	<7.0	8.8	<7.0	<7.0	<7.0	<7.0				
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A				

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/24/2025
Microscope: Olympus 4G42361
Analyst: *A. Henning*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
A. Henning	0.352	0.422	0.200
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: Fernanda Weinman
Asbestos Technical Director or Designee

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2 of 2 DS

PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530 • Fax 585-647-3311

Lab Job # 4445-25

Job Ticket # 188296

Project # P25-1808

Asbestos Air Monitoring
Chain of Custody
As per 12NYCRR Part 56 Amended March 21, 2007

Client: Roux Associates — Client Contact: Sara Barrientos CWR

Building/Location: 5 Flint St. / 1st Floor — Work Area: Pipe Insulation Debris — Client Contact Phone: Mark Seeber 414-5476 CWR

Materials to be Removed: P10 — Air Technician: Sessler — Air Technician Phone: Geoff Smith CWR

Rotometer #: — Cassette Lot #: 42587 — Contractor — Contact Name & Phone

E-mail/Fax Results to

Project Phase: Phase IB ☐ Background; Phase IIA ☐ Work Area Preparation; Phase IIB ☒ Asbestos Handling; Phase IIC ☐ Final Cleaning; Phase IIC ☐ Clearance Airs; Env. ☐

Field Sample #	06	07	08	09	010	041		B-1	B-2			
Pre-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1	3.1						
Post-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1	3.1						
Average Flow Rate	3.1	3.1	3.1	3.1	3.1	3.1						
AM Start Time Military Time	0630	0631	0633	0635	0637	0638						
PM End Time Military Time	1710	1711	1713	1715	1717	1718						
Duration (Minutes)	640	640	640	640	640	640						
Sample Volume (Liters)	1984	1984	1984	1984	1984	1984		0	0			

☐ Buf ELAP ID #11955 ☐ Roch ELAP ID # 10958

Lab Sample #	41903	904	905	906	907	908		909	910			
Time Analyzed	1214	1216	1217	1214	1223	1224		1225	1226	1227		
Fibers/100 Fields:	8	0	9	7	0	0		0	0			
Fibers/cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		NA	NA			

Sampled by: Mark Seeber	Date: 5/22/25
Relinquished by: M.S	Date: 5/22/25
Received in Lab by: Elliott Sun	Date: 5/23/25 1002
Analyzed By: Andrew Mang	Date: 5/24/25
Microscope Make, Model & #: 4642361	Turn-around Time: Immed. 24 Hr. (48 Hr.)

Comments:

DS

White - Lab Original Yellow - Lab Copy Pink - Project Folder Goldenrod - Technician

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 1st Floor

Lab Log No: 4444-25
Sample Date: 05/23/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IIC (Clearance)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	I-1	I-2	I-3	I-4	I-5	O-6	O-7	O-8	O-9	O-10	B-1	B-2
Sample Volume (L):	600	600	600	600	600	600	600	600	600	600	N/A	N/A

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	41891	41892	41893	41894	41895	41896	41897	41898	41899	41900	41901	41902
Fibers / 100 Fields:	0	0	0	0	0	0	0	0	0	0	0	0
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/23/2025
Microscope: Olympus 8H06485
Analyst: *E. Santiago*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
E. Santiago	0.320	0.212	0.292
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: Fernanda Weinman
Asbestos Technical Director or Designee

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2 of 2 DS

PARADIGM
ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530 • Fax 585-647-3311

Lab Job # 4444-25

Job Ticket # 188295

Project # P25-1808

Asbestos Air Monitoring
Chain of Custody
As per 12NYCRR Part 56 Amended March 21, 2007

Client: Roux Associates	Client Contact: Sara Barrientos CWR
Building/Location: 5 Flint St. - 1st Floor, Roch	Client Contact Phone: Mark Seeber 414-5476 CWR
Materials to be Removed: Pipe Insulation	Work Area: debri
Rotometer #: P10	Cassette Lot #: 42587
Air Technician: Sessler	Air Technician Phone: Geoff Smith CWR
Contractor	Contact Name & Phone
E-mail/Fax Results to	

Project Phase: Phase IB ☐ Background; Phase IIA ☐ Work Area Preparation; Phase IIB ☐ Asbestos Handling; Phase IIC ☐ Final Cleaning; Phase IIC ☒ Clearance Airs; Env. ☐

Field Sample #	1-1	1-2	1-3	1-4	1-5	0-6	0-7	0-8	0-9	0-10	B-1	B-2
Pre-Calibrated Flow Rate	4	4	4	4	4	4	4	4	4	4		
Post-Calibrated Flow Rate	4	4	4	4	4	4	4	4	4	4		
Average Flow Rate	4	4	4	4	4	4	4	4	4	4		
AM Start Time Military Time	0705	0706	0707	0707	0708	0713	0714	0714	0715	0716		
AM End Time Military Time	0935	0936	0937	0937	0938	0943	0944	0944	0945	0946		
Duration (Minutes)	150	150	150	150	150	150	150	150	150	150		
Sample Volume (Liters)	600	600	600	600	600	600	600	600	600	600	0	0

☐ Buf ELAP ID #11955 ☐ Roch ELAP ID # 10958

Lab Sample #	41891	892	893	894	895	896	897	898	899	900	901	902
Time Analyzed	1019	1020	1021	1022	1024	1025	1026	1027	1028	1029	1030	1031
Fibers/100 Fields:	0	0	0	0	0	0	0	0	0	0	0	0
Fibers/cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A

Sampled by: Mark Seeber	Date: 5/23/25
Relinquished by: MS	Date: 5/23/25
Received in Lab by: [signature]	Date: 5/23/25 1000
Analyzed By: [signature]	Date: 5/23/25
Microscope Make, Model & #: 81706485	Turn-around Time: (Immed.) 24 Hr. 48 Hr.

Comments: Verbal to MS. ES.

DS

White - Lab Original Yellow - Lab Copy Pink - Project Folder Goldenrod - Technician

PARADIGM
ENVIRONMENTAL SERVICES

Project Monitor Visual Inspection Report

As per 12NYCRR Part 56 Amended March 21, 2007

Building & Location: 5 Flint St. Roch / 1st Floor — Job Ticket # 188295
Project Description — Work Area

BOUXE Associates — Sara Barrientos — PROJECT # P25-1808
Client/Owner (Print Name) — Client/Owner Representative (print name)

Sessler — Ken G Frank — 24-6ITIX-SHAR
Abatement Contractor: — Supervisor (print name) — NYSDOL Asbestos Handling Certificate Number

Yes ☑ No ☐
Supervisors Visual Inspection Completed?

Mark Seeber — 24-6LPA9-SHAB — 5/23/25
Project Monitor (Print Name) — NYSDOL Asbestos Handling Certificate Number — Date

Site Emergency Phone:

Job Type: Class I ☒ Class II ☐ — Material: Pipe Insulation debri
Job Size: Large ☒ Small ☐

Sq Ln Ft

Project Monitor Visual Inspection Checklist — Project with Multiple Removals ☐

Section A ☐				Section B ☐				Section C ☐			
Inspectors Checklist	SAT	Needs Action	N/A	Visual Inspection	SAT	Needs Action	N/A	Procedures/ Paperwork	SAT	Needs Action	N/A
Equipment	Not Required			**Personal Decontamination Unit**	Required to Pass			**Paperwork & Procedures**	Required to Pass		
1. Flashlight	☒	☐	☐	22. Clean & Free of Debris & Dust	☒	☐	☐	42. Written Scope of Work (attached)	☐	☐	☒
2. Knife or pointed object	☐	☐	☒	23. No Visible Pools of Liquid	☒	☐	☐	43. Verbal Scope of Work (see below)	☒	☐	☐
3. Respirator	☒	☐	☐	24. No condensation	☒	☐	☐	44. Supervisor Present	☒	☐	☐
4. Hard Hat	☒	☐	☐	25. All Isolation Barriers intact	☐	☐	☐	45. Wait period observed	☒	☐	☐
5. Safety Glasses	☒	☐	☐	**Waste Decontamination Unit**	Required to Pass						
6. Tyvex Suit	☒	☐	☐	26. Clean & Free of Debris & Dust	☒	☐	☐	**Paperwork & Procedures**	Not Required		
7. Gloves	☐	☐	☒	27. No Visible Pools of Liquid	☒	☐	☐	45. Area Asbestos Survey	☒	☐	☐
Inspection	Not Required			28. No condensation	☒	☐	☐	46. Sign into work area	☒	☐	☐
8. Enter all Spaces	☒	☐	☐	29. All Isolation Barriers intact	☐	☐	☐	47. Sign out of work area	☒	☐	☐
9. Inspect at Close Range	☒	☐	☐	**Regulated Abatement Work Area**	Required to Pass			48. Entry into Supervisors Log	☒	☐	☐
Areas to Inspect	Not Required			30. No Visible Pools of Liquid	☒	☐	☐	49. Detail Findings	☒	☐	☐
10. Permanent Fixtures	☐	☐	☒	31. No condensation	☒	☐	☐	50. Enter Full Name	☒	☐	☐
11. Light Fixtures	☐	☐	☒	32. All Criticals intact	☒	☐	☐	51. Enter AH Cert. Number	☒	☐	☐
12. Ductwork	☐	☐	☒	33. All Isolation Barriers Intact	☒	☐	☐	52. Worker Present	☒	☐	☐
13. Elevated Horizontal Surfaces	☐	☐	☒	34. No Unremoved Materials	☒	☐	☐		☐	☐	☐
14. Pipes	☐	☐	☒	35. No Visible Debris	☒	☐	☐		☐	☐	☐
15. Ceiling Grids/Sprinkler Heads	☐	☐	☒	36. No Visible Dust	☒	☐	☐		☐	☐	☐
16. Conduits	☐	☐	☒	37. Examine Contractor Equipment	☒	☐	☐		☐	☐	☐
17. Hauserman Channels	☐	☐	☒	38. Negative Air in Operation	☒	☐	☐		☐	☐	☐
18. Floor and Wall Penetrations	☐	☐	☒	39. No Debris or Water under Plastic	☒	☐	☐		☐	☐	☐
19. Creases & Folds in Criticals	☒	☐	☐	40. Completeness of Abatement**	☒	☐	☐		☐	☐	☐
20. Walls & Corners	☒	☐	☐	41. Completeness of Clean-up**	☒	☐	☐		☐	☐	☐
21. Floors	☒	☐	☐		☐	☐	☐		☐	☐	☐

Inspection requires a project monitor review of a written scope of work prior to the visual inspection to assure completeness of abatement and clean up.

Deficiencies, Corrections or notes — *Briefly list all deficiencies and target compliance dates*

1. All work completed Under Variance # SH65T9J
2.
3.
4.

Verbal Scope of Work (any verbal scope of work supplied by the contractor must be written below, if materials within the regulated are to remain also state this).

#42- Verbal Scope of work given by Ken of Sessler
Removal of P.I. debri as per Code Rule 56

Supervisors Signature: Ken G. Frank Jr. — Date: 5-23-25

Project Monitor Signature: Mark Seeber — Date: 5/23/25

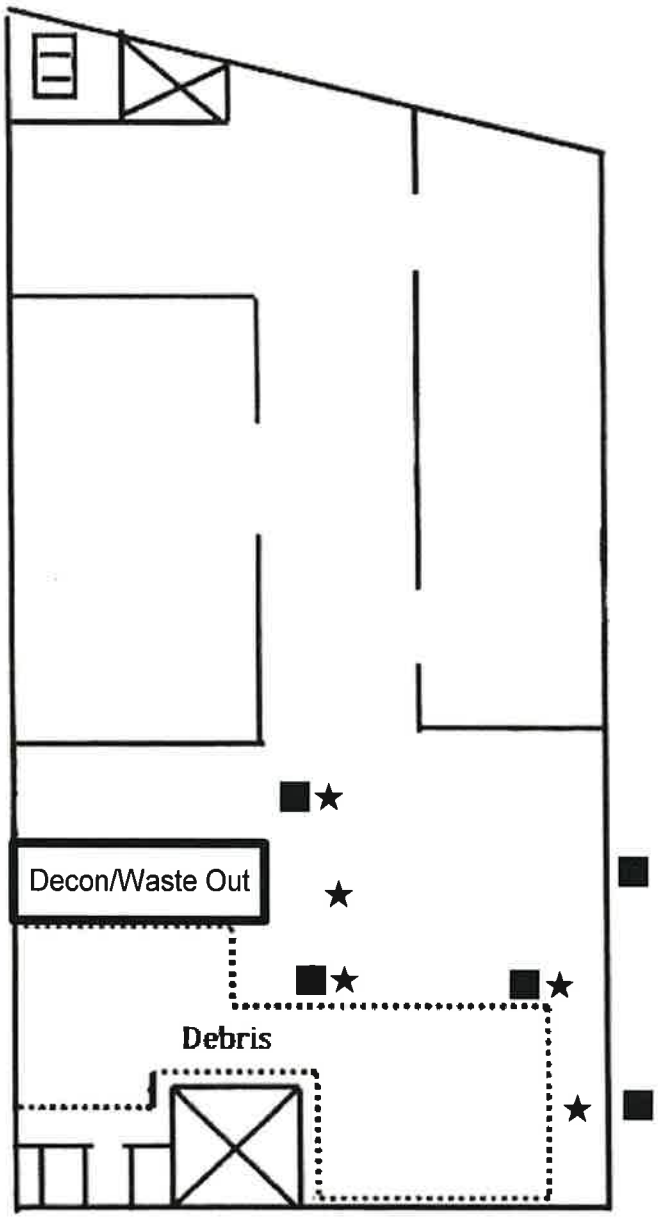
PASS ☑ Area Cleared to proceed with Clearance Airs — **FAIL** ☐ Area needs Reclean and Reinspection

This report represents the condition of the above mentioned site at the time and date the observations were made.
Inspection performed by certified project monitor, scope does not include full project monitoring responsibilities as defined by 12 NYCRR Part 56-3.2(d)(8).
Inspection was performed in accordance with 12NYCRR 56-9.1(d) & (d)(1) and ASTM document E-1386-05, (8.4.1 & 8.4.5). Visual inspections do not include inspections behind, under or above critical or isolation barriers. This inpsection is the responsiblity of the asbestos abatement's supervior under subpart 56-9.3 of ICR-56.

Copy delivered to: — On Date: — By:

FVI form

White - Paradigm — Yellow - Contractor



Key
● Phase IB - Background
■ Phase IIA - Prep Phase IIB - Work in Progress
★ Phase IIC - Clearance

Client: Roux Associates Inc.	
Location: 5 Flint Street, Rochester, New York	Date: May 19-23, 2025
Work Area: 1st Floor	Project Number: P25-1808

PARADIGM
ENVIRONMENTAL SERVICES

Minor 1st Floor Pipe Insulation

EXECUTIVE SUMMARY

Paradigm Environmental Services, Inc. was retained by **Roux Associates Inc.** to perform all field activities, sample analysis, and reporting in conjunction with the asbestos abatement project located at **5 Flint Street, Rochester, New York.**

ASBESTOS ABATEMENT AIR MONITORING

The scope of work for this minor project consisted of the clean-up and removal of asbestos containing Pipe Insulation from the First Floor.

Paradigm provided a New York State Department of Labor certified air technician to conduct asbestos abatement air sampling and a project monitor to complete a visual inspection. Air sampling consisted of **Phase IIC (Clearance)** sampling to monitor the concentrations of airborne fibrous material within the specified areas.

Paradigm conducted the air sampling in general accordance of the New York State Department of Labor (NYSDOL) Asbestos Industrial Code Rule 56, 12NYCRR 56 as Amended March 21, 2007.

The PCM air sampling is satisfactory as each sample demonstrated an airborne concentration of fibers of less than 0.01 fibers per cubic centimeter, or the established level(s), whichever is greater.

LABORATORY ANALYSIS

The samples were individually preserved within a container and transported to the Paradigm analytical laboratory for fiber content analysis.

Paradigm is accredited through NYSDOH/ELAP (Lab ID# 10958) for Solid and Hazardous Waste, and Air and Emissions. Samples are stored at the laboratory for 90 days.

The analytical methodology used is as follows:

- Airborne Fibrous Material Samples - All analyses will be performed utilizing Phase Contrast Microscopy (PCM) according to NIOSH Analytical Method 7400 as prescribed in Title 12 NYCRR, Part 56, Subpart 56-4.6. Calculated intra and inter laboratory variability is provided on the analytical data report.

Laboratory QA/QC is conducted in accordance with requirements for Paradigm laboratory accreditations. These requirements include:

- 10% Duplicate Analysis
- Standard Reference Samples
- Proficiency Samples

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 1st Floor at Dock

Lab Log No: 4554-25
Sample Date: 05/28/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IIC (Clearance)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	I-1	O-2	B-1	B-2								
Sample Volume (L):	700	700	N/A	N/A								

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	43005	43006	43007	43008								
Fibers / 100 Fields:	0	0	0	0								
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0								
Fibers / cc:	<0.01	<0.01	N/A	N/A								

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/28/2025
Microscope: Olympus 4G42361
Analyst: *A. Henning*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
A. Henning	0.352	0.422	0.200
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: _____
Asbestos Technical Director or Designee Fernanda Weinman

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2 of 2 DS

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530

Lab Job #: 4554-25

Job Ticket #: 184250

Project #: P25-1808

Date: 5/28/25

PCM [X] TEM [ ]

Asbestos Air Monitoring Chain of Custody

Meets NYCRR 56 amended March 21, 2007

Rouxe Associates — Client

Sara Barrientos — Send Results to:

5 Flint St. Rochester / 1st Floor At Dock — Building/Location / Work Area

Mark Seeber 414-54766 — Air Technician / Phone

5 Flint St. Rochester — Building Address

Sessler — Contractor

Geoff Smith

Pipe Insulation — Materials to be Removed

P10 — Rotameter #

42587 — Cassette Lot #

Project Phase — Phase IB [ ] Background; Phase IIA [ ] Work Area Preparation; Phase IIB [ ] Asbestos Handling; Phase IIC [ ] Final Cleaning; Phase IIC [X] Clearance Airs; Env. [ ]

Field Sample #	1-1	02		B-1	B-2							
Pre-Calibrated Flow Rate	10	10										
Post-Calibrated Flow Rate	10	10										
Average Flow Rate	10	10										
Start Time Military Time	0720	0723										
End Time Military Time	0830	0833										
Duration (Minutes)	70	70										
Sample Volume (Liters)	700	700		0	0							

Buf ELAP ID #11955 [ ] Roch ELAP ID # 10958 [ ]

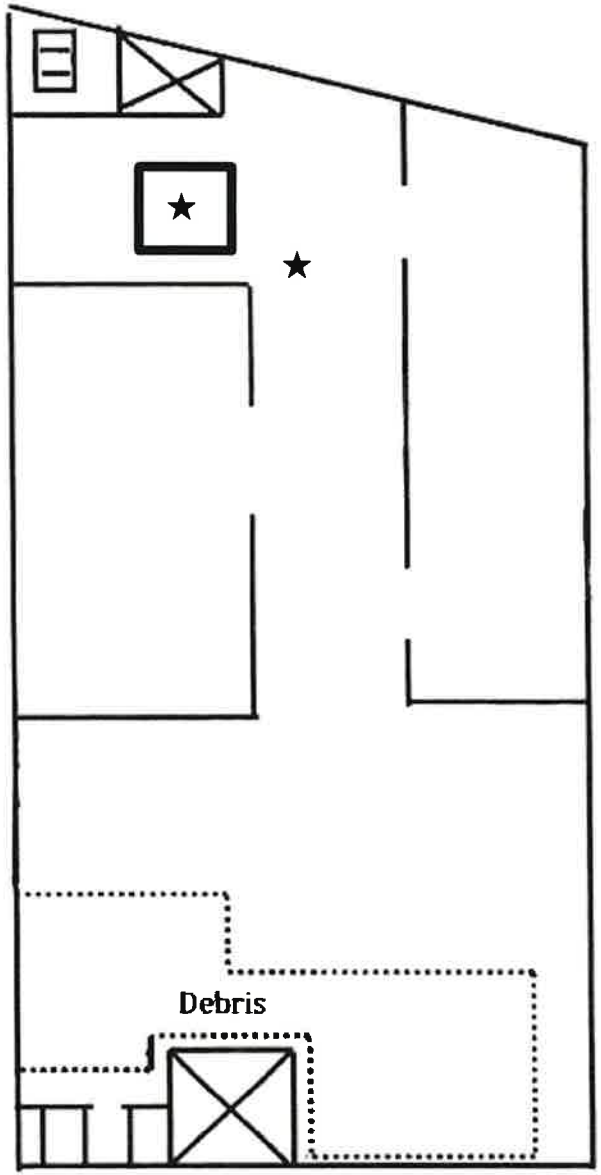
Lab Sample #	48005	006		007	008							
Time Analyzed	1540	1542		1542	1543							
Fibers/100 Fields:	0	0		0	0							
Blank Corrected Fibers/100 Fields	NA											
Fibers/cc:	calc	calc		NA	NA							

Sampled by: Mark Seeber	Date Sampled: 5/28/25
Relinquished by: M.S.	Date Relinquished: 5/28/25
Received in Lab by: Edel Soto	Date and Time Received: 5/28/25 1527
Analyzed By: [signature]	Date Analyzed: 5/28/25 1544
Microscope Make, Model, and No. 4-42361	Turn-around Time: (Immed.) 24 Hr. 48 Hr.

Comments: VERBAL to MS at 1545 5/28/25 AH

DS

White-Lab Original — Yellow-Lab Copy



Key
● Phase IB - Background
■ Phase IIA - Prep Phase IIB - Work in Progress
★ Phase IIC - Clearance

Client: Roux Associates Inc.	
Location: 5 Flint Street, Rochester, New York	Date: May 28-30, 2025
Work Area: 1st Floor	Project Number: P25-1808

PARADIGM
ENVIRONMENTAL SERVICES

2nd Floor Minors

EXECUTIVE SUMMARY

Paradigm Environmental Services, Inc. was retained by **Roux Associates Inc.** to perform all field activities, sample analysis, and reporting in conjunction with the asbestos abatement project located at **5 Flint Street, Rochester, New York.**

ASBESTOS ABATEMENT AIR MONITORING

The scope of work for these minor projects consisted of the removal of asbestos containing Transite from these Second Floor Minors.

Paradigm provided a New York State Department of Labor certified air technician to conduct asbestos abatement air sampling. Air sampling consisted of **Phase IIC (Clearance)** sampling to monitor the concentrations of airborne fibrous material within the specified areas.

Paradigm conducted the air sampling in general accordance of New York State Department of Labor (NYSDOL) Asbestos Industrial Code Rule 56, 12NYCRR 56 as Amended March 21, 2007.

The PCM air sampling is satisfactory as each sample demonstrated an airborne concentration of fibers of less than 0.01 fibers per cubic centimeter, or the established level(s), whichever is greater.

LABORATORY ANALYSIS

The samples were individually preserved within a container and transported to the Paradigm analytical laboratory for fiber content analysis.

Paradigm is accredited through NYSDOH/ELAP (Lab ID# 10958) for Solid and Hazardous Waste, and Air and Emissions. Samples are stored at the laboratory for 90 days.

The analytical methodology used is as follows:

- Airborne Fibrous Material Samples - All analyses will be performed utilizing Phase Contrast Microscopy (PCM) according to NIOSH Analytical Method 7400 as prescribed in Title 12 NYCRR, Part 56, Subpart 56-4.6. Calculated intra and inter laboratory variability is provided on the analytical data report.

Laboratory QA/QC is conducted in accordance with requirements for Paradigm laboratory accreditations. These requirements include:

- 10% Duplicate Analysis
- Standard Reference Samples
- Proficiency Samples

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 2nd Floor

Lab Log No: 4461-25
Sample Date: 05/23/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IIC (Clearance)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	Tent 1 I-1	Tent 1 O-2	B-1	B-2	Tent 2 I-1	Tent 2 O-2	B-1	B-2				
Sample Volume (L):	700	700	N/A	N/A	700	700	N/A	N/A				

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	42022	42023	42024	42025	42026	42027	42028	42029				
Fibers / 100 Fields:	0	0	0	0	0	0	0	0				
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0				
Fibers / cc:	<0.01	<0.01	N/A	N/A	<0.01	<0.01	N/A	N/A				

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/23/2025
Microscope: Olympus 4G42361
Analyst: *A. Henning*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
A. Henning	0.352	0.422	0.200
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: Fernanda Weinman
Asbestos Technical Director or Designee

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2 of 2 DS

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530

Lab Job #: 4461-25

Job Ticket #: 188295

Project #: P25-1808

Date: 5/23/25

PCM [X] TEM [ ]

Asbestos Air Monitoring Chain of Custody

Meets NYCRR 56 amended March 21, 2007

ROUXE Associates — Sara Barrientos
Client Roch — Send Results to:

5 Flint St. / 2nd Floor — Mark Seeber 414-5476
Building/Location — Work Area — Air Technician — Phone

5 Flint St. Rochester — Sessler — Geoff Smith
Building Address — Contractor

Transite — P10 — 42587
Materials to be Removed — Rotameter # — Cassette Lot #

Project Phase — Phase IB [ ] Background; Phase IIA [ ] Work Area Preparation; Phase IIB [ ] Asbestos Handling; Phase IIC [ ] Final Cleaning; Phase IIC [X] Clearance Airs; Env. [ ]

Tent 1 / Tent 2

Field Sample #	I-1	O-2		B-1	B-2		I-1	O-2		B-1	B-2	
Pre-Calibrated Flow Rate	10	10					10	10				
Post-Calibrated Flow Rate	10	10					10	10				
Average Flow Rate	10	10					10	10				
Start Time Military Time	1220	1224					1230	1234				
End Time Military Time	1330	1334					1340	1344				
Duration (Minutes)	70	70					70	70				
Sample Volume (Liters)	700	700		0	0		700	700		0	0	

[ ] Buf ELAP ID #11955 [ ] Roch ELAP ID # 10958

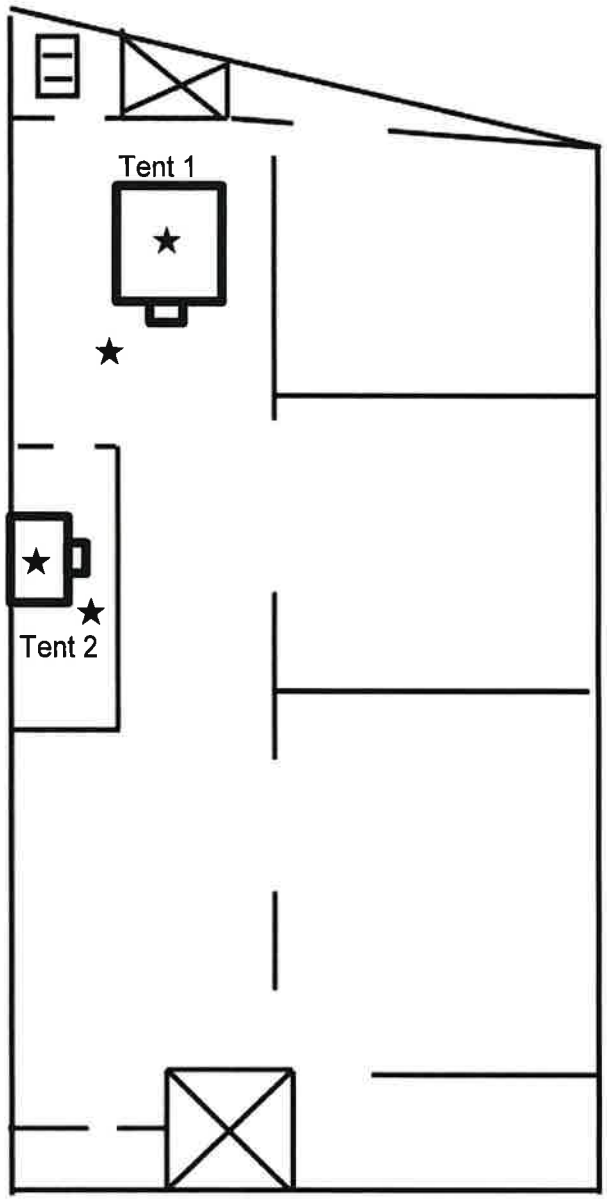
Lab Sample #	42022	023		024	025		026	027		028	029	
Time Analyzed	1508	1509		1510	1511		1512	1514		1514	1516	
Fibers/100 Fields:	0	0		0	0		0	0		0	0	
Blank Corrected Fibers/100 Fields	NA										→	
Fibers/cc:	<0.01	<0.01		NA	NA		<0.01	<0.01		NA	NA	

Sampled by: Mark Seeber	Date Sampled: 5/23/25
Relinquished by: M.S.	Date Relinquished: 5/23/25
Received in Lab by: E.J.U.	Date and Time Received: 5/23/25 1403
Analyzed By: [signature]	Date Analyzed: 5/23/25
Microscope Make, Model, and No. 4642361	Turn-around Time: (Immed.) 24 Hr. 48 Hr.

Comments:
Voicemail to MS at 1518 5/23/25 AH

White-Lab Original Yellow-Lab Copy

DS



Key
● Phase IB - Background
■ Phase IIA - Prep Phase IIB - Work in Progress
★ Phase IIC - Clearance

Client: Roux Associates Inc.	
Location: 5 Flint Street, Rochester, New York	Date: May 23, 2025
Work Area: 2nd Floor	Project Number: P25-1808

PARADIGM
ENVIRONMENTAL SERVICES

3rd Floor Small Transite Pipe Removal

EXECUTIVE SUMMARY

Paradigm Environmental Services, Inc. was retained by **Roux Associates Inc.** to perform all field activities, sample analysis, and reporting in conjunction with the asbestos abatement project located at **5 Flint Street, Rochester, New York.**

ASBESTOS ABATEMENT AIR MONITORING

The scope of work for this small project consisted of the removal of asbestos containing Transite Pipe from the 3rd Floor.

Paradigm provided a New York State Department of Labor certified air technician to conduct asbestos abatement air sampling and a project monitor to complete a visual inspection. Air sampling consisted of **Phase IB (Background), Phase IIB (Work in Progress), and Phase IIC (Clearance)** sampling to monitor the concentrations of airborne fibrous material within the specified areas. The visual inspection passed, see attached visual inspection report. **Also, Phase IIB (Work in Progress) was treated as IIC (Clearance). Per the site specific variance, Phase IB (Background) sampling was not performed.**

Paradigm conducted the air sampling in general accordance of the New York State Department of Labor (NYSDOL) Asbestos Industrial Code Rule 56, 12NYCRR 56 as Amended March 21, 2007.

The PCM air sampling is satisfactory as each sample demonstrated an airborne concentration of fibers of less than 0.01 fibers per cubic centimeter, or the established level(s), whichever is greater.

LABORATORY ANALYSIS

The samples were individually preserved within a container and transported to the Paradigm analytical laboratory for fiber content analysis.

Paradigm is accredited through NYSDOH/ELAP (Lab ID# 10958) for Solid and Hazardous Waste, and Air and Emissions. Samples are stored at the laboratory for 90 days.

The analytical methodology used is as follows:

- Airborne Fibrous Material Samples - All analyses will be performed utilizing Phase Contrast Microscopy (PCM) according to NIOSH Analytical Method 7400 as prescribed in Title 12 NYCRR, Part 56, Subpart 56-4.6. Calculated intra and inter laboratory variability is provided on the analytical data report.

Laboratory QA/QC is conducted in accordance with requirements for Paradigm laboratory accreditations. These requirements include:

- 10% Duplicate Analysis
- Standard Reference Samples
- Proficiency Samples

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 3rd Floor Small
Project No.: P25-1808
Activity: Phase IB (Background)

Lab Log No: 4590-25
Sample Date: 05/28/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	I-1	I-2	I-3	O-4	O-5	O-6	B-1	B-2				
Sample Volume (L):	600	600	600	600	600	600	N/A	N/A				

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	43267	43268	43269	43270	43271	43272	43273	43274				
Fibers / 100 Fields:	3	1	0	1	1	0	0	0				
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0				
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A				

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/30/2025
Microscope: Olympus 4G42361
Analyst: *A. Henning*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
A. Henning	0.352	0.422	0.200
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: _____
Asbestos Technical Director or Designee Fernanda Weinman

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2 of 2 DS

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530

Lab Job #: 4590-25

Job Ticket #: 184250

Project #: P25-1808

Date: 5/28/25

PCM [X] TEM [ ]

Asbestos Air Monitoring Chain of Custody

Meets NYCRR 56 amended March 21, 2007

ROUEX Associates — Client

Sara Barrientos — Send Results to:

5 Flint St. Roch. / 3rd Floor - Small — Building/Location — Work Area

Mark Seeber 414-5476 — Air Technician — Phone

5 Flint St. Rochester — Building Address

Sessler — Contractor — Geoff Smith

Transite — Materials to be Removed

P10 — Rotameter # — 42587 — Cassette Lot #

Project Phase — Phase IB [X] Background; Phase IIA [ ] Work Area Preparation; Phase IIB [ ] Asbestos Handling; Phase IIC [ ] Final Cleaning; Phase IIC [ ] Clearance Airs; Env. [ ]

Field Sample #	1-1	1-2	1-3	0-4	0-5	0-6		R-1	B-2			
Pre-Calibrated Flow Rate	4	4	4	4	4	4						
Post-Calibrated Flow Rate	4	4	4	4	4	4						
Average Flow Rate	4	4	4	4	4	4						
PM Start Time Military Time	1315	1316	1317	1318	1319	1320						
PM End Time Military Time	1545	1546	1547	1548	1549	1550						
Duration (Minutes)	150	150	150	150	150	150						
Sample Volume (Liters)	600	600	600	600	600	600		0	0			

[ ] Buf ELAP ID #11955 [ ] Roch ELAP ID # 10958

Lab Sample #	43267	268	269	270	271	272		273	274			
Time Analyzed	801	804	805	807	809	812		815	817	819		
Fibers/100 Fields:	3	1	0	1	1	0		0	0			
Blank Corrected Fibers/100 Fields	NA											
Fibers/cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		NA	NA			

Sampled by: Mark Seeber	Date Sampled: 5/28/25
Relinquished by: M.S.	Date Relinquished: 5/28/25
Received in Lab by: EJM	Date and Time Received: 5/29/25 1539
Analyzed By: [signature]	Date Analyzed: 5/30/25
Microscope Make, Model, and No. 4642361	Turn-around Time: Immed. 24 Hr. (48 Hr.)

Comments:

DS

White-Lab Original Yellow-Lab Copy

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 3rd Floor

Lab Log No: 4621-25
Sample Date: 05/30/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IIB (Work In Progress)/Phase IIC (Clearance)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	O-6	O-7	O-8	O-9	O-10	B-1	B-2					
Sample Volume (L):	651	651	651	651	651	N/A	N/A					

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	43668	43669	43670	43671	43672	43673	43674					
Fibers / 100 Fields:	0	0	0	0	0	0	0					
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0					
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A					

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/30/2025
Microscope: Olympus 4G42361
Analyst: *A. Henning*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
A. Henning	0.352	0.422	0.200
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: Fernanda Weinman
Asbestos Technical Director or Designee

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2 of 2 DS

PARADIGM
ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530 • Fax 585-647-3311

(11B Finals)

Lab Job # 4621-25

Job Ticket # 188297

Project # P25-1808

Asbestos Air Monitoring

Chain of Custody

As per 12NYCRR Part 56 Amended March 21, 2007

Client: Bouxe Associates	Client Contact: Sara Barrientos CWR
Building/Location: 5 Flint St. Rochester / 3rd Floor	Work Area
Materials to be Removed: Transite Pipe	Client Contact Phone: Mark Seeber 414-5476 CWR
Rotometer #: P10	Cassette Lot #: 42587
Air Technician: Sessler	Air Technician Phone: Geoff Smith CWR
Contractor	Contact Name & Phone
	E-mail/Fax Results to

Project Phase: **Phase IB** ☐ Background; **Phase IIA** ☐ Work Area Preparation; **Phase IIB** ☒ Asbestos Handling (Final); **Phase IIC** ☐ Final Cleaning; **Phase IIC** ☐ Clearance Airs; **Env.** ☐

Field Sample #	0-6	0-7	0-8	0-9	0-10		B-1	B-2				
Pre-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1							
Post-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1							
Average Flow Rate	3.1	3.1	3.1	3.1	3.1							
Start Time Military Time	0730	0731	0733	0735	0737							
End Time Military Time	1100	1101	1103	1105	1107							
Duration (Minutes)	210	210	210	210	210							
Sample Volume (Liters)	651	651	651	651	651		0	0				

Buf ELAP ID #11955 ☐ Roch ELAP ID # 10958 ☐

Lab Sample #	6668	6669	6670	6671	6672		6673	6674				
Time Analyzed	1612	1612	1614	1614	1616		1616	1617				
Fibers/100 Fields:	0	0	0	0	0		0	0				
Fibers/cc:	calc	calc	calc	calc	calc		NA	NA				

Sampled by: Mark Seeber	Date: 5/30/25
Relinquished by: M.S.	Date: 5/30/25
Received in Lab by:	Date: 5.30.25 1537
Analyzed By:	Date: 5/30/25
Microscope Make, Model & #: 4642361	Turn-around Time: (Immed.) 24 Hr. 48 Hr.

Comments:

VERBAL to MS at 1620 5/30/25 AT

DS

White - Lab Original Yellow - Lab Copy Pink - Project Folder Goldenrod - Technician

PARADIGM

Project Monitor Visual Inspection Report

As per 12NYCRR Part 56 Amended March 21, 2007

Building & Location: 5 Flint St. Rochester / 3rd Floor — Job Ticket # 188297
(Project Description / Work Area)

ROUXE Associates — Sara Barrientos — PROJECT # P25-1808
(Client/Owner (Print Name) / Client/Owner Representative (print name))

Sessler — Ken G Frank Jr — 24-6 ITIX-SHAB
(Abatement Contractor / Supervisor (print name) / NYSDOL Asbestos Handling Certificate Number)

Yes ☑ No ☐ — Ken G. Frank Jr. — 24-6 ITIX-SHAB — Date
(Supervisors Visual inspection Completed? / Supervisor Completing Visual Inspection (print name) / NYSDOL Asbestos Handling Certificate Number)

Mark Seeber — 24-6 LPA9 SHAB — 5/30/25
(Project Monitor (Print Name) / NYSDOL Asbestos Handling Certificate Number / Date)

Site Emergency Phone:

Job Type: Class I ☐ Class II ☒ — Material: Transite Pipe — 40 Sq (Ln) Ft

Job Size: Large ☐ Small ☑

Project Monitor Visual Inspection Checklist — Project with Multiple Removals ☐

Section A ☐ Inspectors Checklist	SAT	Needs Action	N/A
Equipment	Not Required		
1. Flashlight	☐	☐	☒
2. Knife or pointed object	☐	☐	☒
3. Respirator	☒	☐	☐
4. Hard Hat	☒	☐	☐
5. Safety Glasses	☒	☐	☐
6. Tyvex Suit	☒	☐	☐
7. Gloves	☐	☐	☒
Inspection	Not Required		
8. Enter all Spaces	☒	☐	☐
9. Inspect at Close Range	☒	☐	☐
Areas to Inspect	Not Required		
10. Permanent Fixtures	☐	☐	☒
11. Light Fixtures	☐	☐	☒
12. Ductwork	☐	☐	☒
13. Elevated Horizontal Surfaces	☐	☐	☒
14. Pipes	☐	☐	☒
15. Ceiling Grids/Sprinkler Heads	☐	☐	☒
16. Conduits	☐	☐	☒
17. Hauserman Channels	☐	☐	☒
18. Floor and Wall Penetrations	☐	☐	☒
19. Creases & Folds in Criticals	☒	☐	☐
20. Walls & Corners	☒	☐	☐
21. Floors	☒	☐	☐

Section B ☐ Visual Inspection	SAT	Needs Action	N/A
Personal Decontamination Unit	Required to Pass		
22. Clean & Free of Debris & Dust	☒	☐	☐
23. No Visible Pools of Liquid	☒	☐	☐
24. No condensation	☒	☐	☐
25. All Isolation Barriers intact	☒	☐	☐
Waste Decontamination Unit	Required to Pass		
26. Clean & Free of Debris & Dust	☐	☐	☒
27. No Visible Pools of Liquid	☐	☐	☒
28. No condensation	☐	☐	☒
29. All Isolation Barriers intact	☐	☐	☒
Regulated Abatement Work Area	Required to Pass		
30. No Visible Pools of Liquid	☒	☐	☐
31. No condensation	☒	☐	☐
32. All Criticals intact	☒	☐	☐
33. All Isolation Barriers Intact	☒	☐	☐
34. No Unremoved Materials	☒	☐	☐
35. No Visible Debris	☒	☐	☐
36. No Visible Dust	☒	☐	☐
37. Examine Contractor Equipment	☒	☐	☐
38. Negative Air in Operation	☐	☐	☒
39. No Debris or Water under Plastic	☒	☐	☐
40. Completeness of Abatement**	☒	☐	☐
41. Completeness of Clean-up**	☒	☐	☐

Section C ☐ Procedures/ Paperwork	SAT	Needs Action	N/A
Paperwork & Procedures	Required to Pass		
42. Written Scope of Work (attached)	☐	☐	☒
43. Verbal Scope of Work (see below)	☒	☐	☐
44. Supervisor Present	☒	☐	☐
45. Wait period observed	☒	☐	☐
Paperwork & Procedures	Not Required		
45. Area Asbestos Survey	☒	☐	☐
46. Sign into work area	☒	☐	☐
47. Sign out of work area	☒	☐	☐
48. Entry into Supervisors Log	☒	☐	☐
49. Detail Findings	☒	☐	☐
50. Enter Full Name	☒	☐	☐
51. Enter AH Cert. Number	☒	☐	☐
52. Worker Present	☒	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐

Inspection requires a project monitor review of a written scope of work prior to the visual inspection to assure completeness of abatement and clean up.

Deficiencies, Corrections or notes — *Briefly list all deficiencies and target compliance dates*

1. All work completed under Variance Amendment
2.
3.
4.

Verbal Scope of Work (any verbal scope of work supplied by the contractor must be written below. if materials within the regulated are to remain also state this).

#42 - Verbal Scope of work given by Ken of Sessler

Removal of Transite Pipe as per Code Rule 56

Supervisors Signature: Ken G. Frank Jr. — Date: 5-30-25

Project Monitor Signature: Mark Seeber — Date: 5/30/25

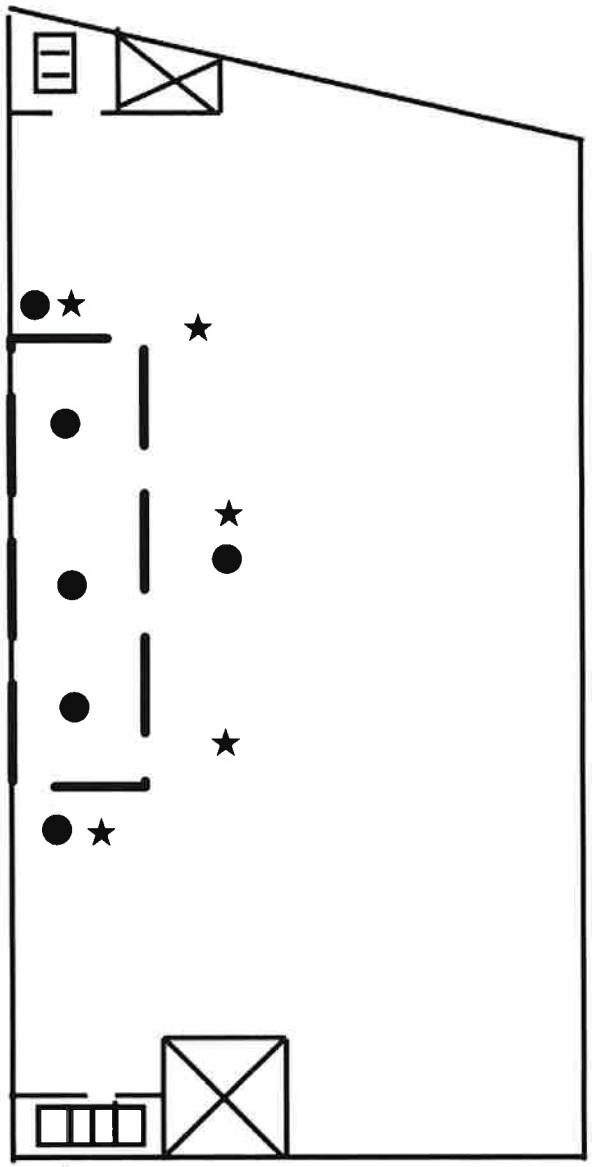
PASS ☑ Area Cleared to proceed with Clearance Airs — **FAIL** ☐ Area needs Reclean and Reinspection

This report represents the condition of the above mentioned site at the time and date the observations were made.
Inspection performed by certified project monitor, scope does not include full project monitoring responsibilities as defined by 12 NYCRR Part 56-3.2(d)(8).
Inspection was performed in accordance with 12NYCRR 56-9.1(d) & (d)(1) and ASTM document E-1386-05, (8.4.1 & 8.4.5). Visual inspections do not include inspections behind, under or above crtical or isolation barriers. This inpsection is the responsiblity of the asbestos abatement's supervior under subpart 56-9.3 of ICR-56.

Copy delivered to: — On Date: — By:

FVI form

White - Paradigm — Yellow - Contractor



Key
● Phase IB - Background
■ Phase IIA - Prep Phase IIB - Work in Progress
★ Phase IIC - Clearance

Client: Roux Associates Inc.	
Location: 5 Flint Street, Rochester, New York	Date: May 28-30, 2025
Work Area: 3rd Floor	Project Number: P25-1808

PARADIGM
ENVIRONMENTAL SERVICES

1st Floor IIB as IIC

EXECUTIVE SUMMARY

Paradigm Environmental Services, Inc. was retained by **Roux Associates Inc.** to perform all field activities, sample analysis, and reporting in conjunction with the asbestos abatement project located at **5 Flint Street, Rochester, New York.**

ASBESTOS ABATEMENT AIR MONITORING

The scope of work for this small project consisted of the removal of asbestos containing Transite Pipe from the 1st Floor.

Paradigm provided a New York State Department of Labor certified air technician to conduct asbestos abatement air sampling and a project monitor to complete a visual inspection. Air sampling consisted of **Phase IIB (Work in Progress), and Phase IIC (Clearance)** sampling to monitor the concentrations of airborne fibrous material within the specified areas. The visual inspection passed, see attached visual inspection report. **Also, Phase IIB (Work in Progress) was treated as IIC (Clearance). Per the site specific variance, Phase IB (Background) sampling was not performed.**

Paradigm conducted the air sampling in general accordance of the New York State Department of Labor (NYSDOL) Asbestos Industrial Code Rule 56, 12NYCRR 56 as Amended March 21, 2007.

The PCM air sampling is satisfactory as each sample demonstrated an airborne concentration of fibers of less than 0.01 fibers per cubic centimeter, or the established level(s), whichever is greater.

LABORATORY ANALYSIS

The samples were individually preserved within a container and transported to the Paradigm analytical laboratory for fiber content analysis.

Paradigm is accredited through NYSDOH/ELAP (Lab ID# 10958) for Solid and Hazardous Waste, and Air and Emissions. Samples are stored at the laboratory for 90 days.

The analytical methodology used is as follows:

- Airborne Fibrous Material Samples - All analyses will be performed utilizing Phase Contrast Microscopy (PCM) according to NIOSH Analytical Method 7400 as prescribed in Title 12 NYCRR, Part 56, Subpart 56-4.6. Calculated intra and inter laboratory variability is provided on the analytical data report.

Laboratory QA/QC is conducted in accordance with requirements for Paradigm laboratory accreditations. These requirements include:

- 10% Duplicate Analysis
- Standard Reference Samples
- Proficiency Samples

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 1st Floor Small

Lab Log No: 4556-25
Sample Date: 05/28/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Project No.: P25-1808
Activity: Phase IB (Background)

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	I-1	I-2	I-3	O-4	O-5	O-6	B-1	B-2				
Sample Volume (L):	600	600	600	600	600	600	N/A	N/A				

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	43017	43018	43019	43020	43021	43022	43023	43024				
Fibers / 100 Fields:	2	1	0	1	0	1	0	0				
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0				
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A				

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/29/2025
Microscope: Olympus 8H06485
Analyst: *E. Santiago*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
E. Santiago	0.320	0.212	0.292
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: _____
Asbestos Technical Director or Designee Fernanda Weinman

Paradigm Environmental Services, Inc. is not responsible for the data supplied by an independent inspector. New York State Department of Health Environmental Laboratory Approval Program (ELAP) requirements mandate that this report must not be reproduced except in full without the approval of the laboratory. These PCM results relate only to the items tested as received by the lab. This report must not be used to claim product endorsement by NYS ELAP or any agency of the U.S. Government. Quality control data (including 95% confidence limits and laboratory or analysts' precision) is available upon request. Fiber counts outside the 100-1300 fiber/mm² range shall be reported as having "greater then optimal variability" and as being "probably biased."

2 of 2 SS

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530

Lab Job #: 4556-25

Job Ticket #: 184250

Project #: P25-1808

Date: 5/28/25

PCM ☒ TEM ☐

Asbestos Air Monitoring Chain of Custody

Meets NYCRR 56 amended March 21, 2007

5/5 1132

Robex Associates — Client

Sara Barrientos — Send Results to:

5 Flint St. Rochester / 1st Floor Small — Building/Location / Work Area

Mark Seeber 414-5476 — Air Technician / Phone

5 Flint St. Rochester — Building Address

Sessler Geoff Smith — Contractor

Transite — Materials to be Removed

P10 — Rotameter #

42587 — Cassette Lot #

Project Phase — Phase IB (Background) ☒ | Phase IIA (Work Area Preparation) ☐ | Phase IIB (Asbestos Handling) ☐ | Phase IIC (Final Cleaning) ☐ | Phase IIC (Clearance Airs) ☐ | Env. ☐

Field Sample #	1-1	1-2	1-3	0-4	0-5	0-6		B-1	B-2			
Pre-Calibrated Flow Rate	4	4	4	4	4	4						
Post-Calibrated Flow Rate	4	4	4	4	4	4						
Average Flow Rate	4	4	4	4	4	4						
Start Time Military Time	0900	0901	0902	0905	0906	0907		↓	↓			
End Time Military Time	1130	1131	1132	1135	1136	1137						
Duration (Minutes)	150	150	150	150	150	150						
Sample Volume (Liters)	600	600	600	600	600	600		0	0			

Air Air

☐ Buf ELAP ID #11955 ☐ Roch ELAP ID # 10958

Lab Sample #	43017	018	019	020	021	022		023	024			
Time Analyzed	1320	1321	1322	1323	1324	1325		1326	1327	1328		
Fibers/100 Fields:	2	1	0	1	0	1		0	0			
Blank Corrected Fibers/100 Fields	N/A	→	→	→	→	→		→	→			
Fibers/cc:	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		N/A	N/A			

Sampled by: Mark Seeber	Date Sampled: 5/28/25
Relinquished by: M.S.	Date Relinquished: 5/28/25
Received in Lab by:	Date and Time Received: 5/28/25 1617
Analyzed By:	Date Analyzed: 5/29/25
Microscope Make, Model, and No. #1064587	Turn-around Time: Immed. 24 Hr. (48 Hr.)

Comments:

White-Lab Original Yellow-Lab Copy

PARADIGM
ENVIRONMENTAL SERVICES

179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

PCM AIR REPORT

Client: Roux Associates Inc.
Location: 5 Flint Street, Rochester, New York
Work Area: 1st Floor
Project No.: P25-1808
Activity: Phase IIB (Work In Progress)/Phase IIC (Clearance)

Lab Log No: 4620-25
Sample Date: 05/30/2025
Sampling Tech.: M. Seeber
Page : 1 of 2

Abatement Contractor: Sessler Environmental Services

Field Data and Sampling Provided By: **Paradigm Environmental Services, Inc.**

Field Sample ID:	O-6	O-7	O-8	O-9	O-10	B-1	B-2					
Sample Volume (L):	651	651	651	651	651	N/A	N/A					

Laboratory Analysis Performed By: **Paradigm Environmental Services, Inc. Rochester, New York** **ELAP ID No: 10958**

Lab Sample ID:	43661	43662	43663	43664	43665	43666	43667					
Fibers / 100 Fields:	0	0	0	0	0	0	0					
Fibers / mm2:	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0	<7.0					
Fibers / cc:	<0.01	<0.01	<0.01	<0.01	<0.01	N/A	N/A					

Legend: I=Inside O=Outside E=Environmental B=Blank These results relate only to the items tested or to the samples as received by the laboratory.

Samples were analyzed according to the NIOSH 7400 method.

Comments:

Date of Analysis: 05/30/2025
Microscope: Olympus 4G42361
Analyst: *A. Henning*

Relative Standard Deviations	Fiber Ranges		
	5 -20	20 - 50	50 - 100
A. Henning	0.352	0.422	0.200
Laboratory	0.348	0.264	0.162

Laboratory Results Approved By: Fernanda Weinman
Asbestos Technical Director or Designee

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2042 DS

PARADIGM
ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue, Rochester, NY 14608 • Phone 585-647-2530 • Fax 585-647-3311

Lab Job # 4620-25

Job Ticket # 188297

Project # P25-1808

Asbestos Air Monitoring
Chain of Custody
As per 12NYCRR Part 56 Amended March 21, 2007

Rouxe Associates — *Client*
5 Flint St. Rochester / 1st Floor — *Building/Location* / *Work Area*
Transite Pipe — *Materials to be Removed*
PID — *Rotometer #*
42587 — *Cassette Lot #*

Sara Barrientos — *Client Contact* — CWR
Mark Seeber 414-5476 — *Air Technician* / *Air Technician Phone* — CWR
Sessler / Geoff Smith — *Contractor* / *Contact Name & Phone* — CWR
E-mail/Fax Results to

Project Phase
- **Phase IB** ☐ *Background*
- **Phase IIA** ☐ *Work Area Preparation*
- **Phase IIB** ☒ *Asbestos Handling* (Final)
- **Phase IIC** ☐ *Final Cleaning*
- **Phase IIC** ☐ *Clearance Airs*
- **Env.** ☐

Field Sample #	06	07	08	09	10		B1	B2				
Pre-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1							
Post-Calibrated Flow Rate	3.1	3.1	3.1	3.1	3.1							
Average Flow Rate	3.1	3.1	3.1	3.1	3.1							
Start Time Military Time (AM)	1130	1131	1133	1135	1137		V	V				
End Time Military Time (PM)	1500	1501	1503	1505	1507		V	V				
Duration (Minutes)	210	210	210	210	210							
Sample Volume (Liters)	651	651	651	651	651		0	0				

☐ Buf ELAP ID #11955 ☐ Roch ELAP ID # 10958

Lab Sample #	6061 (63)	6062	6063	6064	6065		6066	6067				
Time Analyzed	1601	1603	1603	1605	1606		1607	1610	1611			
Fibers/100 Fields:	0	0	0	0	0		0	0				
Fibers/cc:	<0.01	<0.01	<0.01	<0.01	<0.01		NA	NA				

Sampled by: Mark Seeber	Date: 5/30/25
Relinquished by: MS.	Date: 5/30/25
Received in Lab by:	Date: 5.30.25 1534
Analyzed By:	Date: 5/30/25
Microscope Make, Model & #: 4642361	Turn-around Time (Immed.) 24 Hr. 48 Hr.

Comments:
VERBAL to MS at 1620 5/30/25 AH

DS

White - Lab Original Yellow - Lab Copy Pink - Project Folder Goldenrod - Technician

PARADIGM

Project Monitor Visual Inspection Report

As per 12NYCRR Part 56 Amended March 21, 2007

Building & Location: 5 Flint St. Roch. / 1st Floor — Job Ticket # 188297
Project Description / *Work Area*

ROUXE Associates — Sara Barrientos — PROJECT # P25-1808
Client/Owner (Print Name) / *Client/Owner Representative (print name)*

Sessler — Ken G. Frank Jr. — 24-61TK-SHAB
Abatement Contractor / *Supervisor (print name)* / *NYSDOL Asbestos Handling Certificate Number*

Yes ☑ **No** ☐ — Ken G. Frank Jr. — 24-61TK-SHAB
Supervisors Visual inspection Completed? / *Supervisor Completing Visual Inspection (print name)* / *NYSDOL Asbestos Handling Certificate Number*

Mark Seeber — 24-6LPA9 SHAB — 5/30/25
Project Monitor (Print Name) / *NYSDOL Asbestos Handling Certificate Number* / *Date*

Site Emergency Phone:

Job Type: Class I ☐ Class II ☒ — Transite Pipe — 45
Job Size: Large ☐ Small ☒ — *Material* — *Sq* / *Ln* / *Ft*

Project Monitor Visual Inspection Checklist — Project with Multiple Removals ☐

Section A ☐ Inspectors Checklist	SAT	Needs Action	N/A
Equipment	**Not Required**		
1. Flashlight	☐	☐	☒
2. Knife or pointed object	☒	☐	☐
3. Respirator	☒	☐	☐
4. Hard Hat	☒	☐	☐
5. Safety Glasses	☒	☐	☐
6. Tyvex Suit	☒	☐	☐
7. Gloves	☐	☐	☒
Inspection	**Not Required**		
8. Enter all Spaces	☒	☐	☐
9. Inspect at Close Range	☒	☐	☐
Areas to Inspect	**Not Required**		
10. Permanent Fixtures	☐	☐	☒
11. Light Fixtures	☐	☐	☒
12. Ductwork	☐	☐	☒
13. Elevated Horizontal Surfaces	☐	☐	☒
14. Pipes	☐	☐	☒
15. Ceiling Grids/Sprinkler Heads	☐	☐	☒
16. Conduits	☐	☐	☒
17. Hauserman Channels	☐	☐	☒
18. Floor and Wall Penetrations	☐	☐	☒
19. Creases & Folds in Criticals	☒	☐	☐
20. Walls & Corners	☒	☐	☐
21. Floors	☒	☐	☐

Section B ☐ Visual Inspection	SAT	Needs Action	N/A
Personal Decontamination Unit	**Required to Pass**		
22. Clean & Free of Debris & Dust	☒	☐	☐
23. No Visible Pools of Liquid	☒	☐	☐
24. No condensation	☒	☐	☐
25. All Isolation Barriers intact	☒	☐	☐
Waste Decontamination Unit	**Required to Pass**		
26. Clean & Free of Debris & Dust	☐	☐	☒
27. No Visible Pools of Liquid	☐	☐	☒
28. No condensation	☐	☐	☒
29. All Isolation Barriers intact	☐	☐	☒
Regulated Abatement Work Area	**Required to Pass**		
30. No Visible Pools of Liquid	☒	☐	☐
31. No condensation	☒	☐	☐
32. All Criticals intact	☒	☐	☐
33. All Isolation Barriers Intact	☒	☐	☐
34. No Unremoved Materials	☒	☐	☐
35. No Visible Debris	☒	☐	☐
36. No Visible Dust	☒	☐	☐
37. Examine Contractor Equipment	☒	☐	☐
38. Negative Air in Operation	☐	☐	☒
39. No Debris or Water under Plastic	☒	☐	☐
40. Completeness of Abatement**	☒	☐	☐
41. Completeness of Clean-up**	☒	☐	☐

Section C ☐ Procedures/ Paperwork	SAT	Needs Action	N/A
Paperwork & Procedures	**Required to Pass**		
42. Written Scope of Work (attached)	☐	☐	☒
43. Verbal Scope of Work (see below)	☒	☐	☐
44. Supervisor Present	☒	☐	☐
45. Wait period observed	☒	☐	☐
Paperwork & Procedures	**Not Required**		
45. Area Asbestos Survey	☒	☐	☐
46. Sign into work area	☒	☐	☐
47. Sign out of work area	☒	☐	☐
48. Entry into Supervisors Log	☒	☐	☐
49. Detail Findings	☒	☐	☐
50. Enter Full Name	☒	☐	☐
51. Enter AH Cert. Number	☒	☐	☐
52. Worker Present	☒	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐

Inspection requires a project monitor review of a written scope of work prior to the visual inspection to assure completeness of abatement and clean up.

Deficiencies, Corrections or notes — *Briefly list all deficiencies and target compliance dates*

1. All work completed under Variance Amendment
2.
3.
4.

Verbal Scope of Work (any verbal scope of work supplied by the contractor must be written below, if materials within the regulated are to remain also state this).

#42 Verbal Scope of work given by Ken of Sessler
Removal of Transite pipe as per Code Rule 56

Supervisors Signature Ken G. Frank Jr. — *Date* 5-30-25

Project Monitor Signature Mark Seeber — *Date* 5/30/25

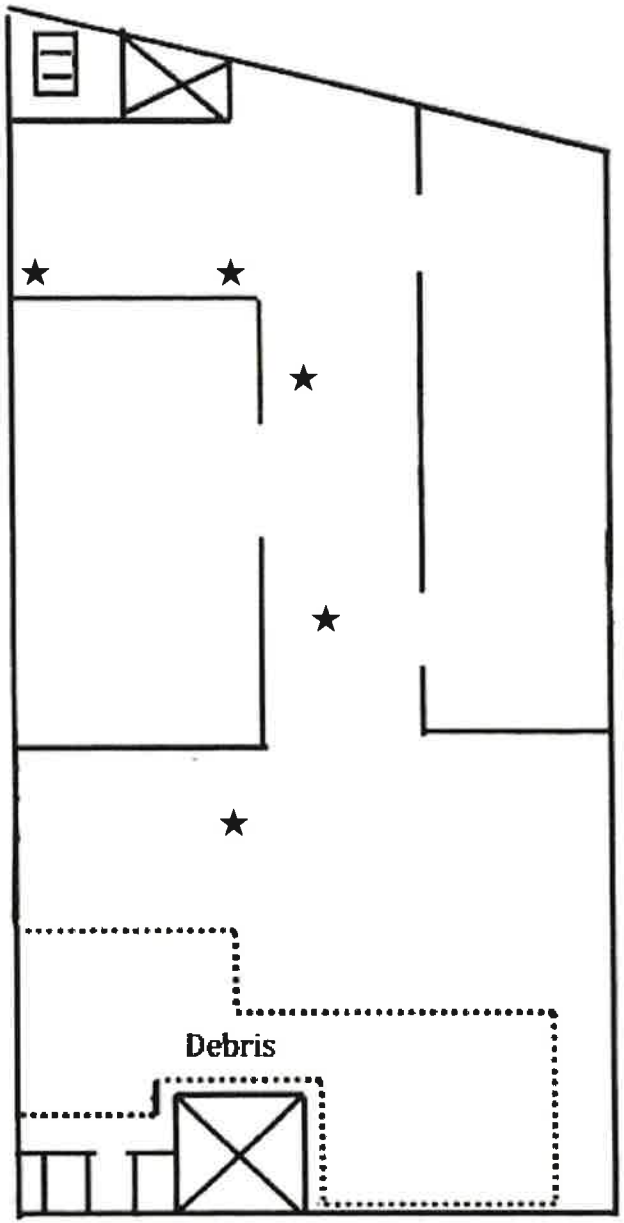
PASS ☑ *Area Cleared to proceed with Clearance Airs* — **FAIL** ☐ *Area needs Reclean and Reinspection*

This report represents the condition of the above mentioned site at the time and date the observations were made.
Inspection performed by certified project monitor, scope does not include full project monitoring responsibilities as defined by 12 NYCRR Part 56-3.2(d)(8).
Inspection was performed in accordance with 12NYCRR 56-9.1(d) & (d)(1) and ASTM document E-1386-05, (8.4.1 & 8.4.5). Visual inspections do not include inspections behind, under or above crtical or isolation barriers. This inpsection is the responsiblity of the asbestos abatement's supervior under subpart 56-9.3 of ICR-56.

Copy delivered to: — *On Date:* — *By:*

FVI form

White - Paradigm **Yellow - Contractor**



Key
● Phase IB - Background
■ Phase IIA - Prep Phase IIB - Work in Progress
★ Phase IIC - Clearance

Client: Roux Associates Inc.	
Location: 5 Flint Street, Rochester, New York	Date: May 30, 2025
Work Area: 1st Floor	Project Number: P25-1808

PARADIGM
ENVIRONMENTAL SERVICES

Final Visual Inspections

EXECUTIVE SUMMARY

Paradigm Environmental Services, Inc. was retained by **Roux Associates Inc.** to conduct all field activities, including a visual inspection at **5 Flint Street, Rochester, New York.**

ASBESTOS ABATEMENT VISUAL INSPECTIONS

The scope of work for this project consisted of the removal of asbestos containing flashing Transite from the Building Exteriors.

Paradigm Environmental Services, Inc. provided a New York State Department of Labor certified project monitor to complete a visual inspection.

The visual inspection passed, see attached visual inspection report.

Paradigm Environmental Services, Inc. conducted the visual inspection in general accordance of New York State Department of Labor (NYSDOL) Asbestos Industrial Code Rule 56, 12NYCRR 56 as amended March 21, 2007.

EXECUTIVE SUMMARY

Paradigm Environmental Services, Inc. was retained by **Roux Associates Inc.** to conduct all field activities, including a visual inspection at **5 Flint Street, Rochester, New York.**

ASBESTOS ABATEMENT VISUAL INSPECTIONS

The scope of work for this project consisted of the removal of asbestos containing flashing Transite from the Roof and Dock.

Paradigm Environmental Services, Inc. provided a New York State Department of Labor certified project monitor to complete a visual inspection.

The visual inspection passed, see attached visual inspection report.

Paradigm Environmental Services, Inc. conducted the visual inspection in general accordance of New York State Department of Labor (NYSDOL) Asbestos Industrial Code Rule 56, 12NYCRR 56 as amended March 21, 2007.

PARADIGM

Project Monitor Visual Inspection Report

As per 12NYCRR Part 56 Amended March 21, 2007

Building & Location: Roch 5 Flint St. (Project Description) — Building Exterior (Work Area) — Job Ticket # 184250

ROUEX Associates (Client/Owner (Print Name)) — Sara Barrientos (Client/Owner Representative (print name)) — PROJECT # P25-1808

Sessler (Abatement Contractor:) — Ken G Frank Jr (Supervisor (print name)) — 24-6ITIX-SHAB (NYSDOL Asbestos Handling Certificate Number)

Yes ☑ No ☐ (Supervisors Visual inspection Completed?) — Ken G Frank Jr (Supervisor Completing Visual Inspection (print name)) — 24-6ITIX-SHAB (NYSDOL Asbestos Handling Certificate Number) — Date

Mark Seeber (Project Monitor (Print Name)) — 24-6OLPAG SHAB (NYSDOL Asbestos Handling Certificate Number) — 5/28/25 (Date)

Site Emergency Phone:

Job Type: Class I ☐ Class II ☒ — Material: Flashing - Transite

Job Size: Large ☒ Small ☐ — Sq Ln Ft

Project Monitor Visual Inspection Checklist — Project with Multiple Removals ☐

Section A ☐ Inspectors Checklist	SAT	Needs Action	N/A
Equipment	Not Required		
1. Flashlight	☐	☐	☒
2. Knife or pointed object	☐	☐	☒
3. Respirator	☒	☐	☐
4. Hard Hat	☒	☐	☐
5. Safety Glasses	☒	☐	☐
6. Tyvex Suit	☒	☐	☐
7. Gloves	☐	☐	☒
Inspection	Not Required		
8. Enter all Spaces	☒	☐	☐
9. Inspect at Close Range	☒	☐	☐
Areas to Inspect	Not Required		
10. Permanent Fixtures	☐	☐	☒
11. Light Fixtures	☐	☐	☒
12. Ductwork	☐	☐	☒
13. Elevated Horizontal Surfaces	☒	☐	☐
14. Pipes	☐	☐	☒
15. Ceiling Grids/Sprinkler Heads	☐	☐	☒
16. Conduits	☐	☐	☒
17. Hauserman Channels	☐	☐	☒
18. Floor and Wall Penetrations	☒	☐	☐
19. Creases & Folds in Criticals	☒	☐	☐
20. Walls & Corners	☒	☐	☐
21. Floors	☒	☐	☐

Section B ☐ Visual Inspection	SAT	Needs Action	N/A
Personal Decontamination Unit	Required to Pass		
22. Clean & Free of Debris & Dust	☒	☐	☐
23. No Visible Pools of Liquid	☒	☐	☐
24. No condensation	☒	☐	☐
25. All Isolation Barriers intact	☒	☐	☐
Waste Decontamination Unit	Required to Pass		
26. Clean & Free of Debris & Dust	☐	☐	☒
27. No Visible Pools of Liquid	☐	☐	☒
28. No condensation	☐	☐	☒
29. All Isolation Barriers intact	☐	☐	☒
Regulated Abatement Work Area	Required to Pass		
30. No Visible Pools of Liquid	☒	☐	☐
31. No condensation	☒	☐	☐
32. All Criticals intact	☒	☐	☐
33. All Isolation Barriers Intact	☒	☐	☐
34. No Unremoved Materials	☐	☐	☐
35. No Visible Debris	☒	☐	☐
36. No Visible Dust	☒	☐	☐
37. Examine Contractor Equipment	☒	☐	☐
38. Negative Air in Operation	☐	☐	☒
39. No Debris or Water under Plastic	☒	☐	☐
40. Completeness of Abatement**	☒	☐	☐
41. Completeness of Clean-up**	☒	☐	☐

Section C ☐ Procedures/ Paperwork	SAT	Needs Action	N/A
Paperwork & Procedures	Required to Pass		
42. Written Scope of Work (attached)	☐	☐	☒
43. Verbal Scope of Work (see below)	☒	☐	☐
44. Supervisor Present	☒	☐	☐
45. Wait period observed	☒	☐	☐
Paperwork & Procedures	Not Required		
45. Area Asbestos Survey	☒	☐	☐
46. Sign into work area	☒	☐	☐
47. Sign out of work area	☒	☐	☐
48. Entry into Supervisors Log	☒	☐	☐
49. Detail Findings	☒	☐	☐
50. Enter Full Name	☒	☐	☐
51. Enter AH Cert. Number	☒	☐	☐
52. Worker Present	☒	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐

Inspection requires a project monitor review of a written scope of work prior to the visual inspection to assure completeness of abatement and clean up.

Deficiencies, Corrections or notes — Briefly list all deficiencies and target compliance dates

1. Remote decon on Site For Class II removal
2. (Dock)
3. Transite sheets at overhang - Transite Pipe (6 total)
4. Roof Flashing

Verbal Scope of Work (any verbal scope of work supplied by the contractor must be written below, if materials within the regulated are to remain also state this).

#42 - Verbal Scope of Work given by Ken of Sessler

Removal of Class II materials as per Code Rule 56

Supervisors Signature: Ken G. Frank Jr. — Date: 5-25-25

Project Monitor Signature: Mark Seeber — Date: 5/28/25

PASS ☑ Area Cleared to proceed with Clearance Airs — **FAIL** ☐ Area needs Reclean and Reinspection

This report represents the condition of the above mentioned site at the time and date the observations were made.
Inspection performed by certified project monitor, scope does not include full project monitoring responsibilities as defined by 12 NYCRR Part 56-3.2(d)(8).
Inspection was performed in accordance with 12NYCRR 56-9.1(d) & (d)(1) and ASTM document E-1386-05, (8.4.1 & 8.4.5). Visual inspections do not include inspections behind, under or above crtical or isolation barriers. This inpsection is the responsiblity of the asbestos abatement's supervior under subpart 56-9.3 of ICR-56.

Copy delivered to: — On Date: — By:

PARADIGM ENVIRONMENTAL SERVICES, INC

Project Monitor Visual Inspection Report

As per 12NYCRR Part 56 Amended March 21, 2007

Building & Location: 5 Flint St, Roch. / Roof + Dock (Project Description / Work Area) — Job Ticket # 186861

ROUXE Associates (Client/Owner (Print Name)) — Sara Barrientos (Client/Owner Representative (print name)) — PROJECT # P25-1808

Sessler (Abatement Contractor) — Ken G. Frank Jr. (Supervisor (print name)) — 24-6ITIX-SHAB (NYSDOL Asbestos Handling Certificate Number)

Yes ☑ No ☐ (Supervisors visual inspection Completed?) — Ken G. Frank Jr. (Supervisor Completing Visual Inspection (print name)) — 24-6ITIX-SHAB (NYSDOL Asbestos Handling Certificate Number) — 5-29-25 (Date)

Mark Seeber (Project Monitor (Print Name)) — 24-6LPA9 SHAB (NYSDOL Asbestos Handling Certificate Number) — 5/29/25 (Date)

Site Emergency Phone:

Job Type: Class I ☐ Class II ☒ — Material: Transite - Flashing

Job Size: Large ☒ Small ☐ — Sq Ln Ft

Project Monitor Visual Inspection Checklist — Project with Multiple Removals ☐

Section A ☐ Inspectors Checklist	SAT	Needs Action	N/A
Equipment	Not Required		
1. Flashlight	☐	☐	☒
2. Knife or pointed object	☐	☐	☒
3. Respirator	☒	☐	☐
4. Hard Hat	☒	☐	☐
5. Safety Glasses	☒	☐	☐
6. Tyvex Suit	☒	☐	☐
7. Gloves	☐	☐	☒
Inspection	Not Required		
8. Enter all Spaces	☒	☐	☐
9. Inspect at Close Range	☒	☐	☐
Areas to Inspect	Not Required		
10. Permanent Fixtures	☐	☐	☒
11. Light Fixtures	☐	☐	☒
12. Ductwork	☐	☐	☒
13. Elevated Horizontal Surfaces	☒	☐	☐
14. Pipes	☐	☐	☒
15. Ceiling Grids/Sprinkler Heads	☐	☐	☒
16. Conduits	☐	☐	☒
17. Hauserman Channels	☐	☐	☒
18. Floor and Wall Penetrations	☒	☐	☐
19. Creases & Folds in Criticals	☒	☐	☐
20. Walls & Corners	☒	☐	☐
21. Floors	☒	☐	☐

Section B ☐ Visual Inspection	SAT	Needs Action	N/A
Personal Decontamination Unit	Required to Pass		
22. Clean & Free of Debris & Dust	☒	☐	☐
23. No Visible Pools of Liquid	☒	☐	☐
24. No condensation	☒	☐	☐
25. All Isolation Barriers intact	☒	☐	☐
Waste Decontamination Unit	Required to Pass		
26. Clean & Free of Debris & Dust	☐	☐	☒
27. No Visible Pools of Liquid	☐	☐	☒
28. No condensation	☐	☐	☒
29. All Isolation Barriers intact	☐	☐	☒
Regulated Abatement Work Area	Required to Pass		
30. No Visible Pools of Liquid	☒	☐	☐
31. No condensation	☒	☐	☐
32. All Criticals intact	☒	☐	☐
33. All Isolation Barriers Intact	☒	☐	☐
34. No Unremoved Materials	☒	☐	☐
35. No Visible Debris	☒	☐	☐
36. No Visible Dust	☒	☐	☐
37. Examine Contractor Equipment	☒	☐	☐
38. Negative Air in Operation	☐	☐	☒
39. No Debris or Water under Plastic	☒	☐	☐
40. Completeness of Abatement**	☒	☐	☐
41. Completeness of Clean-up**	☒	☐	☐

Section C ☐ Procedures/ Paperwork	SAT	Needs Action	N/A
Paperwork & Procedures	Required to Pass		
42. Written Scope of Work (attached)	☐	☐	☒
43. Verbal Scope of Work (see below)	☒	☐	☐
44. Supervisor Present	☒	☐	☐
45. Wait period observed	☒	☐	☐
Paperwork & Procedures	Not Required		
45. Area Asbestos Survey	☒	☐	☐
46. Sign into work area	☒	☐	☐
47. Sign out of work area	☒	☐	☐
48. Entry into Supervisors Log	☒	☐	☐
49. Detail Findings	☒	☐	☐
50. Enter Full Name	☒	☐	☐
51. Enter AH Cert. Number	☒	☐	☐
52. Worker Present	☒	☐	☐

Inspection requires a project monitor review of a written scope of work prior to the visual inspection to assure completeness of abatement and clean up.

Deficiencies, Corrections or notes — Briefly list all deficiencies and target compliance dates

1. All work completed for transite removal at the dock
2.
3. All flashing removal completed on Roof
4.

Verbal Scope of Work (any verbal scope of work supplied by the contractor must be written below, if materials within the regulated are to remain also state this).

#42 - Verbal Scope of Work given by Ken of Sessler

Removal of Roofing and Transite Materials as per Code Rule 56

Supervisors Signature: Ken G. Frank Jr. — Date: 5-29-25

Project Monitor Signature: Mark Seeber — Date: 5/29/25

PASS ☑ Area Cleared to proceed with Clearance Airs — **FAIL** ☐ Area needs Reclean and Reinspection

This report represents the condition of the above mentioned site at the time and date the observations were made.
Inspection performed by certified project monitor, scope does not include full project monitoring responsibilities as defined by 12 NYCRR Part 56-3.2(d)(8).
Inspection was performed in accordance with 12NYCRR 56-9.1(d) & (d)(1) and ASTM document E-1386-05, (8.4.1 & 8.4.5). Visual inspections do not include inspections behind, under or above crtical or isolation barriers. This inpsection is the responsiblity of the asbestos abatement's supervior under subpart 56-9.3 of ICR-56.

Copy delivered to: — On Date: — By:

White - Paradigm — Yellow - Contractor

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber

Project #: P25-1808
Date: 5/20/25
Job Ticket #: 188291

Building / Location: 5 Flint St. Roch
Work Area:
Shift (A) B C

Project Description

Client / Owner (Print Name): Roux Associates
Client / Owner Representative (Print Name):
Client Contact (Print Name): Sara Barrientos

Abatement Contractor (Print Name): Sessler
Abatement Supervisor (Print Name): Ken
NYSDOL Asbestos Handling Certificate Number

Map Completed: Yes ☒ No ☐
Rotometer Number: P10
Date of Last Calibration: 3/20/25

Project Phase: Phase IB ☐ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☐ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☐; Class II ☐; Large ☐; Small ☐; Minor ☐

Type of Material: Sq/ft Ln/ft Project with multiple removals ☐

1st Check	2nd Check	3rd Check	4th Check	5th Check

Time of air sampling pump check

Notes

Project Monitor

I Met with Ken For todays job Scope

Crew doing a general clean of 1st Floor - (No asbestos disturbed)

Crew Setting up the decon + waste out - Power and water was hooked up.

Crew Setting up hard walls For the Containment

IIA prep air Samples will be set up tomorrow.

All work Completed under Variance# SH-65795

Paradigm license is posted at the decon.

All going well - More prep Set For tomorrow

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑ Air Technician: ☐ Name: Mark Seeber Date: 5/21/25 Project #: P25-1808 Job Ticket #: 188294

Building / Location: Roch 5 Flint St. Work Area: 1st Floor Shift (A) B C

Project Description

Client / Owner (Print Name): ROUX Associates | Client / Owner Representative (Print Name): | Client Contact (Print Name): Sara Barrientos

Abatement Contractor (Print Name): Sessler Env. Services | Abatement Supervisor (Print Name): KEN | NYSDOL Asbestos Handling Certificate Number

Map Completed: Yes ☑ No ☐ | Rotometer Number: P10 | Date of Last Calibration: 3/20/25

Project Phase: Phase IB ☐ Backgrounds | Phase IIA ☒ Work Preparation samples | Phase IIB ☐ Asbestos Handling Samples | Phase IIC ☐ Final Cleaning Samples | Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☒ | Class II ☐ | Large ☒ | Small ☐ | Minor ☐

Type of Material: P.I debri Sq/ft Ln/ft Project with multiple removals ☐

Time of air sampling pump check: 1st Check 1030 2nd Check 1215 3rd Check 1400 4th Check 1530 5th Check 1700

Notes

I met with Ken For todays job Scope

Crew Completed the hard Wall Set UP

IIA prep air Samples were Set UP

Samples Checked at times above

See Map For Sample locations

Crew hanging poly For the Containment

Barrier tape is UP - Signs are posted

Neg Air Machines were Set UP

All prepwork Completed - Removal set For tomorrow

Samples taken to Paradigm Labs

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber Date: 5/22/25

Project #: P25-1808
Job Ticket #: 188296

Building / Location: 5 Flint St. Roch
Work Area: 1st Floor
Shift (A) B C

Project Description

Client / Owner (Print Name): Roux Associates
Client / Owner Representative (Print Name):
Client Contact (Print Name): Sara Barrientos

Abatement Contractor (Print Name): Sessler
Abatement Supervisor (Print Name): Ken
NYSDOL Asbestos Handling Certificate Number:

Map Completed: Yes ☑ No ☐
Rotometer Number: P10
Date of Last Calibration: 3/20/25

Project Phase: Phase IB ☐ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☒ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☒; Class II ☐; Large ☒; Small ☐; Minor ☐

Type of Material: Pipe Insulation debri Sq/ft Ln/ft Project with multiple removals ☐

Time of air sampling pump check: 1st Check 0630 2nd Check 0830 3rd Check 1100 4th Check 1330 5th Check 1710

Notes

I Met with Ken For todays job Scope

As per variance the Neg-Air Machines were turned on to reach the -02 Neg pressure needed

IIB WIP air Samples were set up

Samples checked at times above

See Map For Sample locations

Sessler Completing a Cleanup of the 1st Floor Containment

PPE worn For all work inside the Containment.

Dumpster on Site - Preped with Poly

Crew removed all A bags - All clean when removed

Crew completed cleanup of Containment

Mark Seeber (Samples taken to Paradigm labs)

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project #: P25-1808

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber Date: 5/23/25 Job Ticket #: 188295

Building / Location: Roch 5 Flint St. Work Area: 1st Floor Shift (A) B C

Project Description

Client / Owner (Print Name): Rouxassociates
Client / Owner Representative (Print Name)
Client Contact (Print Name): Sara Barrientos

Abatement Contractor (Print Name): Sessler
Abatement Supervisor (Print Name): Ken
NYSDOL Asbestos Handling Certificate Number

Map Completed: Yes ☑ No ☐
Rotometer Number: PID
Date of Last Calibration: 3/20/25

Project Phase: Phase IB ☐ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☐ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☒ Clearance Air Samples

Job Type: Class I ☒ Class II ☐ Large ☒ Small ☐ Minor ☐

Type of Material: Pipe Insulation debri Sq/ft Ln/ft Project with multiple removals ☐

Time of air sampling pump check: 1st Check 0705 2nd Check 0825 3rd Check 0935 4th Check 5th Check

Notes

I Met with Ken and we Completed the FVI For the 1st Floor Containment.

All went well - No debri found - Passed

IIc Final air Samples were Set up

Samples checked at times above

See Map For Sample locations

Samples taken to Paradigm Labs

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑ Air Technician: ☐ Name: Mark Seeber Date: 5/23/25 Project #: P25-1808 Job Ticket #: 188295

Building / Location: 5 Flint St. Roch Work Area: 2nd Floor Shift (A) B C

Project Description

Client / Owner (Print Name)	Client / Owner Representative (Print Name)	Client Contact (Print Name)
Roux & Associates		Sara Barrientos

Abatement Contractor (Print Name)	Abatement Supervisor (Print Name)	NYSDOL Asbestos Handling Cerlificate Number
Sessler	Ken	

Map Completed	Rotometer Number	Date of Last Calibration
Yes ☑ No ☐	P10	3/20/25

Project Phase	Backgrounds	Work Preparation samples	Asbestos Handling Samples	Final Cleaning Samples	Clearance Air Samples
	Phase IB ☐	Phase IIA ☐	Phase IIB ☐	Phase IIC ☐	Phase IIC ☒

Class I ☒	Class II ☒	Large ☐	Small ☐	Minor ☒ x2

Job Type: T-1 Transite / TSI T-2 Sq/ft Ln/ft Project with multiple removals ☐

Type of Material: Tent 1 Tent 2

1st Check 1220 2nd Check 1330 3rd Check 1230 4th Check 1340 5th Check

Time of air sampling pump check

Notes

I Met With Ken For todays job Scope

2 Minor tents Set up For removal (Transite + TSI)

All work Completed

20 Min Wait

IIC Final air samples were set up

Samples Checked at times above

See Map For Sample locations

Samples taken to Paradigm Labs

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber

Project #: P25-1808
Date: 5/27/25
Job Ticket #: 188298

Building / Location: Roch 5 Flint St.
Work Area: 1st & 3rd Floors
Shift: (A) B C

Project Description

Client / Owner (Print Name): ROUXE
Client / Owner Representative (Print Name): Sara Barrientos
Client Contact (Print Name)

Abatement Contractor (Print Name): Sessler
Abatement Supervisor (Print Name): Ken
NYSDOL Asbestos Handling Certificate Number

Map Completed: Yes ☒ No ☐
Rotometer Number: P10
Date of Last Calibration: 3/20/25

Project Phase: Phase IB ☐ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☐ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☐; Class II ☐; Large ☐; Small ☐; Minor ☐

Type of Material: Sq/ft Ln/ft Project with multiple removals ☐

1st Check	2nd Check	3rd Check	4th Check	5th Check
Time of air sampling pump check				

Notes

Project Monitor

I met with Ken For todays job Scope

The 1st Floor Final did Pass. Sessler will complete the teardown of Containment. They will leave the decon + waste out up to use as the remote decon on Site.

Crew Setting up 1st Floor tent (Minor) For PI removal

Crew Completing a general clean up of 3rd Floor under PI to be removed

Crew Set up a tent (Minor) and removed PI.
- Final airs set For Morning -

Exterior removal Set For tomorrow - Flashing + Transite

Sessler working 10 hours because of holiday

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project #: P25-1808

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber Date: 5/28/25 Job Ticket #: 184250

Building / Location: Roch 5 Flint St. Work Area: 1st Floor At Dock Shift (A) B C

Project Description

ROUXE Associates — Client / Owner (Print Name)
Sara Barrientas — Client Contact (Print Name)
Client / Owner Representative (Print Name)

Sessler — Abatement Contractor (Print Name)
Ken — Abatement Supervisor (Print Name)
NYSDOL Asbestos Handling Certificate Number

Yes ☑ No ☐ — Map Completed
P10 — Rotometer Number
3/20/25 — Date of Last Calibration

Project Phase: Phase IB ☐ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☐ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☒ Clearance Air Samples

Job Type: Class I ☒; Class II ☐; Large ☐; Small ☐; Minor ☒

Type of Material: Pipe Insulation Sq/ft Ln/ft Project with multiple removals ☐

1st Check 0720 2nd Check 0750 3rd Check 0830 4th Check 5th Check
Time of air sampling pump check

Notes

I Met with Ken For todays job Scope.

IIC Final air Samples were Set up

Samples checked at times above

See Map For Sample locations

Samples taken to Paradigm labs

Mark Seeber
Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber Date: 5/28/25

Project #: P25-1808
Job Ticket #: 184250

Building / Location: Roch 5 Flint St.
Work Area: 1st Floor - Small
Shift: (A) B C

Project Description

ROUEX Associates
Client / Owner (Print Name)

Client / Owner Representative (Print Name)

Sara Barrientos
Client Contact (Print Name)

Sessler
Abatement Contractor (Print Name)

Ken
Abatement Supervisor (Print Name)

NYSDOL Asbestos Handling Certificate Number

Yes ☑ No ☐
Map Completed

P10
Rotometer Number

3/20/25
Date of Last Calibration

Project Phase: Phase IB ☒ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☐ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☐; Class II ☒; Large ☐; Small ☒; Minor ☐

Transite
Type of Material

Sq/ft Ln/ft Project with multiple removals ☐

1st Check 0900 2nd Check 1015 3rd Check 1130 4th Check 5th Check
Time of air sampling pump check

Notes

I Met with Ken For todays job scope

1B background air Samples were set up

Samples Checked at times above

See Map For Sample locations

Samples taken to Paradigm Labs

Mark Seeber
Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber Date: 5/28/25

Project #: P25-1808
Job Ticket #: 184256

Building / Location: 5 Flint St. Roch. Work Area: 3rd Floor-Small

Shift (A) B C

Project Description

Client / Owner (Print Name): ROWEX Associates
Client / Owner Representative (Print Name):
Client Contact (Print Name): Sara Barrientos

Abatement Contractor (Print Name): Sessler
Abatement Supervisor (Print Name): Ken
NYSDOL Asbestos Handling Certificate Number:

Map Completed: Yes ☑ No ☐
Rotometer Number: P10
Date of Last Calibration: 3/20/25

Project Phase: Phase IB ☒ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☐ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☐ Class II ☒ Large ☐ Small ☒ Minor ☐

Type of Material: Transite Sq/ft Ln/ft Project with multiple removals ☐

Time of air sampling pump check:
1st Check 1315 2nd Check 1445 3rd Check 1545 4th Check 5th Check

Notes

I Met With Ken For todays job scope.

IB-background air Samples were set up

Samples checked at times above

See Map For Sample locations

Samples taken to Paradigm Labs

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑ Air Technician: ☐ Name: Mark Seeber Date: 5/29/25 Project #: P25-1808 Job Ticket #: 1868861

Building / Location: 5 Flint St. Roch. Work Area: Roof - Out Bldgs. Shift (A) B C

Project Description

BOUXE Associates — Client / Owner (Print Name)

Sara Barrientos — Client Contact (Print Name)

Sessler — Abatement Contractor (Print Name)

Ken — Abatement Supervisor (Print Name)

NYSDOL Asbestos Handling Certificate Number

Yes ☒ No ☐ Map Completed

Rotometer Number

Date of Last Calibration

Project Phase: Phase IB ☐ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☐ Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☐ Class II ☐ Large ☐ Small ☐ Minor ☐

Type of Material: Sq/ft Ln/ft Project with multiple removals ☐

1st Check	2nd Check	3rd Check	4th Check	5th Check
Time of air sampling pump check				

Notes

Project Monitor

I Met With Ken For todays job Scope.

Sessler is back on the roof working on the removal of the Flashing Material.

Crew also working on the dock overhang removal

Crew removing windows From the out buildings All materials were put into bags or wraped with poly

All removal and clean up completed for the Main building ~~Exterior~~ Exterior Class II work

The three out buildings will be completed with the window removal on Monday.

We will complete the wrap and cut of the transite pipes on the 1st + 3rd Floors tomorrow

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

(IIB Final)

PARADIGM
ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project Monitor: ☑ Air Technician: ☐ Name: Mark Seeber Date: 5/30/25 Project #: P25-1808 Job Ticket #: 188297

Building / Location: 5 Flint St. Roch. Work Area: 1st Floor Shift (A) B C

Project Description

Client / Owner (Print Name): ROUXE Associates

Client / Owner Representative (Print Name): Ken

Client Contact (Print Name): Sara Barrientos

Abatement Contractor (Print Name): Sessler

Abatement Supervisor (Print Name): Ken

NYSDOL Asbestos Handling Certificate Number: 3/20/25

Map Completed: Yes ☑ No ☐

Rotometer Number: P10

Date of Last Calibration

Project Phase	Phase IB Backgrounds	Phase IIA Work Preparation samples	Phase IIB Asbestos Handling Samples	Phase IIC Final Cleaning Samples	Phase IIC Clearance Air Samples
	☐	☐	☒ Final	☐	☐

Job Type	Class I	Class II	Large	Small	Minor
	☐	☒	☐	☒	☐

Type of Material: Transite Pipe Sq/ft Ln/ft Project with multiple removals ☐

Time of air sampling pump check: 1st Check 1130 2nd Check 1230 3rd Check 1330 4th Check 1500 5th Check

Notes

I met with Ken For todays job Scope

All Work Completed Under Variance SH-65T9J Amendment

IIB WIP Final air Samples were Set up

Samples checked at times above

See Map For Sample locations

Samples taken to Paradigm Labs

Mark Seeber

Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

(IIB WIP Final)

PARADIGM ENVIRONMENTAL SERVICES

Air Sampling Log Book

As per 12NYCRR Part 56 Amended March 21, 2007

Project #: P25-1808

Project Monitor: ☑
Air Technician: ☐ Name: Mark Seeber Date: 5/30/25 Job Ticket #: 188297

Building / Location: 5 Flint St. Roch. Work Area: 3rd Floor Shift (A) B C

Project Description

Bouxe Associates — Client / Owner (Print Name)
Sara Barrientas — Client Contact (Print Name)

Sessler — Abatement Contractor (Print Name)
Ken — Abatement Supervisor (Print Name)

Yes ☑ No ☐ — Map Completed
P10 — Rotometer Number
3/20/25 — Date of Last Calibration

Project Phase: Phase IB ☐ Backgrounds; Phase IIA ☐ Work Preparation samples; Phase IIB ☒ Final Asbestos Handling Samples; Phase IIC ☐ Final Cleaning Samples; Phase IIC ☐ Clearance Air Samples

Job Type: Class I ☐ Class II ☒ Large ☐ Small ☒ Minor ☐

Transite Pipe — Type of Material
40' (Sq/ft) (Ln/ft)
Project with multiple removals ☐

1st Check 0730 2nd Check 0830 3rd Check 0930 4th Check 1100 5th Check
Time of air sampling pump check

Notes

I Met With Ken For todays job Scope

All work to be Completed Under Variance SH 65795 Amendment

IIB WIP Final air Samples were Set Up

Samples checked at times above

See Map For Sample locations

Sessler Completing Wrap + Cut operations

Barrier tape is up — Signs are Posted

Samples taken to Paradigm Labs

Mark Seeber
Air Technician Signature

The Air Monitoring Log Book is a multi-page document which must be viewed in its entirety.

Certifications

WE ARE YOUR DOL

NEW YORK STATE | Department of Labor

DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

ASBESTOS HANDLING LICENSE

Paradigm Environmental Services, Inc.
179 Lake Ave., Rochester, NY, 14608

License Number: 62819
License Class: RESTRICTED
Date of Issue: 02/05/2025
Expiration Date: 02/28/2026
Duly Authorized Representative: Mary Dohr

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.



Amy Phillips, Director
For the Commissioner of Labor

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2026
Issued April 01, 2025

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. STEVE DEVITO
PARADIGM ENVIRONMENTAL SERVICES INC
179 LAKE AVENUE
ROCHESTER, NY 14608

NY Lab Id No: 10958

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES AIR AND EMISSIONS
All approved subcategories and/or analytes are listed below:

Metals I	
Lead, Total	NIOSH 7303
Miscellaneous	
Asbestos	40 CFR 763 APX A No. III
	NIOSH 7402
Fibers	NIOSH 7400 A RULES
Polychlorinated Biphenyls	
PCBs and Aroclors	NIOSH 5503

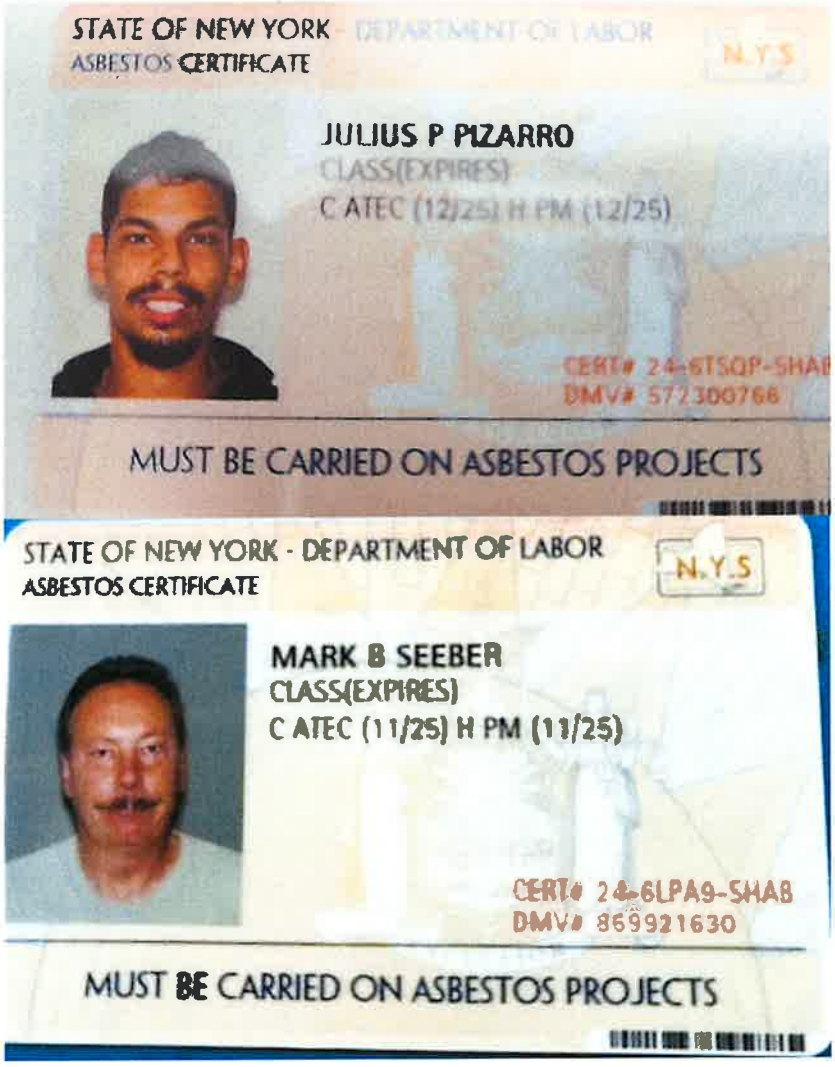
Serial No.: 70339

Property of the New York State Department of Health. Certificates are valid only at the address shown and must be conspicuously posted by the laboratory. Continued accreditation depends on the laboratory's successful ongoing participation in the Program. Consumers may verify a laboratory's accreditation status online at https://apps.health.ny.gov/pubdoh/applinks/wc/elappublicweb/, by phone (518) 485-5570 or by email to elap@health.ny.gov.

PARADIGM
ENVIRONMENTAL SERVICES

WWW.PARADIGMENV.COM

179 Lake Avenue, Rochester, NY 14608 PHONE: 585-647-2530 TOLL FREE: 800-724-1997 FAX: 585-647-3311



APPENDIX F

Waste Characterization Sampling

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report For

Roux Associates

For Lab Project ID

252773

Referencing

4694.0001P000/09

Prepared

Tuesday, June 24, 2025

Any noncompliant QC parameters or other notes impacting data interpretation are flagged or documented on the final report or are noted below.

Emily Farmen

Certifies that this report has been approved by the Technical Director or Designee

179 Lake Avenue • Rochester, NY 14608 • (585) 647-2530 • Fax (585) 647-3311 • ELAP ID# 10958

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 252773

Client: **Roux Associates**

Project Reference: 4694.0001P000/09

Sample Identifier:	WC-Concrete-02		
Lab Sample ID:	252773-01	**Date Sampled:**	6/23/2025 9:00
Matrix:	TCLP Extract	**Date Received**	6/23/2025

TCLP Metals (ICP)

Analyte	Result	Units	Regulatory Limit	Qualifier	Date Analyzed
Lead	< 0.500	mg/L	5		6/24/2025 11:11

The TCLP extraction temperature was outside of the method prescribed range.

Method Reference(s): EPA 6010C
EPA 1311 / 3005A
Preparation Date: 6/24/2025
Data File: 250624C

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 252773

Client: **Roux Associates**

Project Reference: 4694.0001P000/09

Sample Identifier:	WC-CMU-01		
Lab Sample ID:	252773-02	**Date Sampled:**	6/23/2025 9:30
Matrix:	TCLP Extract	**Date Received**	6/23/2025

TCLP Metals (ICP)

Analyte	Result	Units	Regulatory Limit	Qualifier	Date Analyzed
Lead	< 0.500	mg/L	5		6/24/2025 11:14

The TCLP extraction temperature was outside of the method prescribed range.

Method Reference(s): EPA 6010C
EPA 1311 / 3005A
Preparation Date: 6/24/2025
Data File: 250624C

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 252773

Client: **Roux Associates**

Project Reference: 4694.0001P000/09

Sample Identifier:	WC-Wood-03		
Lab Sample ID:	252773-03	**Date Sampled:**	6/23/2025 9:10
Matrix:	TCLP Extract	**Date Received**	6/23/2025

TCLP Metals (ICP)

Analyte	Result	Units	Regulatory Limit	Qualifier	Date Analyzed
Lead	**4.75**	mg/L	5		6/24/2025 11:34

The TCLP extraction temperature was outside of the method prescribed range. Lead result calculated via Method of Standard Additions.

Method Reference(s): EPA 6010C
EPA 1311 / 3005A

Preparation Date: 6/24/2025

Data File: 250624C

Analytical Report Appendix

The reported results relate only to the samples as they have been received by the laboratory.

Each page of this document is part of a multipage report. This document may not be reproduced except in its entirety, without the prior consent of Paradigm Environmental Services, Inc.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

Low level Volatiles blank reports for soil/solid matrix are based on a nominal 5 gram weight. Sample results and reporting limits are based on actual weight, which may be more or less than 5 grams.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of analyte-specific, frequently used data flags and their meaning:

"<" = Analyzed for but not detected at or above the quantitation limit.
"E" = Result has been estimated, calibration limit exceeded.
"H" = Denotes a parameter analyzed outside of holding time.
"Z" = See case narrative.
"D" = Sample, Laboratory Control Sample, or Matrix Spike Duplicate results above Relative Percent Difference limit.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.
"J" = Result estimated between the quantitation limit and half the quantitation limit.
"L" = Laboratory Control Sample recovery outside accepted QC limits.
"P" = Concentration differs by more than 40% between the primary and secondary analytical columns.
"NC" = Not calculable. Applicable to RPD if sample or duplicate result is non-detect or estimated (see primary report for data flags). Applicable to MS if sample is greater or equal to ten times the spike added. Applicable to sample surrogates or MS if sample dilution is 10x or higher.
"" = Indicates any recoveries outside associated acceptance windows. Surrogate outliers in samples are presumed matrix effects. LCS demonstrates method compliance unless otherwise noted.*
"(1)" = Indicates data from primary column used for QC calculation.
"A" = denotes a parameter for which ELAP does not offer approval as part of their laboratory certification program.
"F" = denotes a parameter for which Paradigm does not carry certification, the results for which should therefore only be used where ELAP certification is not required, such as personal exposure assessment.

GENERAL TERMS AND CONDITIONS
LABORATORY SERVICES

These Terms and Conditions embody the whole agreement of the parties in the absence of a signed and executed contract between the Laboratory (LAB) and Client. They shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties. The LAB specifically rejects all additional, inconsistent, or conflicting terms, whether printed or otherwise set forth in any purchase order or other communication from the Client to the LAB. The invalidity or unenforceability in whole or in part of any provision, term or condition hereof shall not affect in any way the validity or enforceability of the remainder of the Terms and Conditions. No waiver by LAB of any provision, term, or condition hereof or of any breach by or obligation of the Client hereunder shall constitute a waiver of such provision, term, or condition on any other occasion or a waiver of any other breach by or obligation of the Client. This agreement shall be administered and interpreted under the laws of the state which services are procured.

Warranty. Recognizing that the nature of many samples is unknown and that some may contain potentially hazardous components, LAB warrants only that it will perform testing services, obtain findings, and prepare reports in accordance with generally accepted analytical laboratory principles and practices at the time of performance of services. LAB makes no other warranty, express or implied.

Scope and Compensation. LAB agrees to perform the services described in the chain of custody to which these terms and conditions are attached. Unless the parties agree in writing to the contrary, the duties of LAB shall not be construed to exceed the services specifically described. LAB wi use LAB default method for all tests unless specified otherwise on the Work Order.
Payment terms are net 30 days from the date of invoice. All overdue payments are subject to an interest charge of one and one-half percent (1-1/2%) per month or a portion thereof. Client shall also be responsible for costs of collection, including payment of reasonable attorney fees if such expense is incurred. The prices, unless stated, do not include any sale, use or other taxes. Such taxes will be added to invoice prices when required.

Prices. Compensation for services performed will be based on the current Lab Analytical Fee Schedule or on quotations agreed to in writing by the parties. Turnaround time based charges are determined from the time of resolution of all work order questions. Testimony, court appearances or data compilation for legal action will be charged separately. Evaluation and reporting of initial screening runs may incur additional fees.

Limitations of Liability. In the event of any error, omission, or other professional negligence, the sole and exclusive responsibility of LAB shall be to re-perform the deficient work at its own expense and LAB shall have no other liability whatsoever. All claims shall be deemed waived unless made in writing and received by LAB within ninety (90) days following completion of services.
LAB shall have no liability, obligation, or responsibility of any kind for losses, costs, expenses, or other damages (including but not limited to any special, direct, incidental or consequential damages) with respect to LAB's services or results.
All results provided by LAB are strictly for the use of its clients and LAB is in no way responsible for the use of such results by clients or third parties. All reports should be considered in their entirety, and LAB is not responsible for the separation, detachment, or other use of any portion of these reports. Client may not assign the lab report without the written consent of the LAB.
Client covenants and agrees, at its/his/her sole expense, to indemnify, protect, defend, and save harmless the LAB from and against any and all damages, losses, liabilities, obligations, penalties, claims, litigation, demands, defenses, judgments, suits, actions, proceedings, costs, disbursements and/or expenses (including, without limitation attorneys' and experts' fees and disbursements) of any kind whatsoever which may at any time be imposed upon, incurred by or asserted or awarded against client relating to, resulting from or arising out of (a) the breach of this agreement by this client, (b) the negligence of the client in handling, delivering or disclosing any hazardous substance, (c) the violation of the Client of any applicable law, (d) non-compliance by the Client with any environmental permit or (e) a material misrepresentation in disclosing the materials to be tested.

Hazard Disclosure. Client represents and warrants that any sample delivered to LAB will be preceded or accompanied by complete written disclosure of the presence of any hazardous substances known or suspected by Client. Client further warrants that any sample containing any hazardous substance that is to be delivered to LAB will be packaged, labeled, transported, and delivered properly and in accordance with applicable laws.

Sample Handling. Prior to LAB's acceptance of any sample (or after any revocation of acceptance), the entire risk of loss or of damage to such sample remains with Client. Samples are accepted when receipt is acknowledged on chain of custody documentation. In no event will LAB have any responsibility for the action or inaction of any carrier shipping or delivering any sample to or from LAB premises.
Client authorizes LAB to proceed with the analysis of samples as received by the laboratory, recognizing that any samples not in compliance with all current DOH-ELAP-NELAP requirements for containers, preservation or holding time will be noted as such on the final report.
Disposal of hazardous waste samples is the responsibility of the Client. If the Client does not wish such samples returned, LAB may add storage and disposal fees to the final invoice. Maximum storage time for samples is 30 days after completion of analysis unless modified by applicable state or federal laws. Client will be required to give the LAB written instructions concerning disposal of these samples.
LAB reserves the absolute right, exercisable at any time, to refuse to receive delivery of, refuse to accept, or revoke acceptance of any sample, which, in the sole judgment of LAB (a) is of unsuitable volume, (b) may be or become unsuitable for or may pose a risk in handling, transport, or processing for any health, safety, environmental or other reason whether or not due to the presence in the sample of any hazardous substance, and whether or not such presence has been disclosed to LAB by Client or (c) if the condition or sample date make the sample unsuitable for analysis.

Legal Responsibility. LAB is solely responsible for performance of this contract, and no affiliated company, director, officer, employee, or agent shall have any legal responsibility hereunder, whether in contract or tort including negligence.

Assignment. LAB may assign its performance obligations under this contract to other parties, as it deems necessary. LAB shall disclose to Client any assignee (subcontractor) by ELAP ID # on the submitted final report.

Force Majeure. LAB shall have no responsibility or liability to the Client for any failure or delay in performance by LAB, which results in whole or in part from any cause or circumstance beyond the reasonable control of LAB. Such causes and circumstances shall include, but not limited to, acts of God, acts or orders of any government authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, difficulties or delays in transportation, mail or delivery services, inability to obtain sufficient services or supplies from LAB's usual suppliers, or any other cause beyond LAB's reasonable control.

Law. This contract shall be continued under the laws of the State of New York without regard to its conflicts of laws provision.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

1 of 3
Qn 6/23/25

CHAIN OF CUSTODY

PARADIGM ENVIRONMENTAL SERVICES

REPORT TO:		INVOICE TO:		LAB PROJECT ID
COMPANY:	ROUX	COMPANY:	SAME	252773
address:	200 SUMMIT DRIVE SUITE 505	ADDRESS:		Quotation #:
CITY:	BURLINGTON STATE: MA ZIP: 01803	CITY: STATE: ZIP:		Email:
PHONE:	781-569-4000 FAX:	PHONE: FAX:		SBARRIENTOS@ROUXINC.COM
ATTN:	SARA BARRIENTOS	ATTN:		

PROJECT REFERENCE

4694.000P000/04

Matrix Codes:
AQ - Aqueous Liquid; NQ - Non-Aqueous Liquid; WA - Water; WG - Groundwater; DW - Drinking Water; WW - Wastewater; SO - Soil; SL - Sludge; SD - Solid; PT - Paint; WP - Wipe; CK - Caulk; OL - Oil; AR - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	TCL + LEAD	131 (LOD 12pH)	6/20/25							REMARKS	PARADIGM LAB SAMPLE NUMBER
6/20/25	~~1615~~		V	WC-CONCRETE-02	SD	1	X									* Grinded VOC core, backed out to client 6/20/25 Qn 6/23/25	-01
6/20/25	1615		V	WC-CMU-01	SD	1	X										-02
6/20/25	1615		V	WC-WOOD-03	SD	1	X										-03

Turnaround Time		Report Supplements		
Availability contingent upon lab approval; additional fees may apply.				
Standard 5 day	☐	None Required	☐	None Required ☐
10 day	☐	Batch QC	☐	Basic EDD ☐
Rush 3 day	☐	Category A	☐	NYSDEC EDD ☐
Rush 2 day	☑	Category B	☐	
Rush 1 day	☐ SD 6/23/25			
Other	☐	Other	☐	Other EDD ☐
please indicate date needed: 6/24 per SB email		please indicate package needed:		please indicate EDD needed:

ALEX STERIA	6/20/25 1615	Total Cost:
Sampled By	Date/Time	
Relinquished By	6/20/25 1636	
	Date/Time	
Received By	6/20/25 1639	P.I.F.
	Date/Time	
Received @ Lab By	6/20/25 1656	
	Date/Time	

By signing this form, client agrees to Paradigm Terms and Conditions (reverse).

25 °C 6/20/25 16:43

See additional page for sample conditions.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

2 of 3

CHAIN OF CUSTODY

252773

PARADIGM

REPORT TO:		INVOICE TO:		
CLIENT:	Roux	CLIENT:		LAB PROJECT ID: 252773
ADDRESS:	200 Summit Drive Suite 500	ADDRESS:		
CITY:	Burlington STATE: MA ZIP: 01803	CITY: STATE: ZIP:		Quotation #:
PHONE:	781-369-4000	PHONE:		Email: SBARRIENTOS@ROUXINC.COM
ATTN:	Sara Barrientos	ATTN:		

PROJECT REFERENCE: 4694.0001P000/09

Matrix Codes:
AQ - Aqueous Liquid; NQ - Non-Aqueous Liquid; WA - Water; WG - Groundwater; DW - Drinking Water; WW - Wastewater; SO - Soil; SL - Sludge; SD - Solid; PT - Paint; WP - Wipe; CK - Caulk; OL - Oil; AR - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	TCLP LEAD 1311 6010	REMARKS	PARADIGM LAB SAMPLE NUMBER
6/23/25	900		✓	WC-Concrete-02 Extra Volume	SD	1	X	* Additional volume received 6/23/2025 On 6/23/25	-01
6/23/25	910		✓	WC-WOOD-03 Extra Volume	SD	1	X		~~-03~~ -03
6/23/25	930		✓	WC-CMU-01 Extra Volume	SD	1	X		~~-02~~ -02
						↑ per visual On 6/23/25		On 6/23/25	

Turnaround Time		Report Supplements			
Availability contingent upon lab approval; additional fees may apply.					
Standard 5 day	☐	None Required	☐	None Required	☐
10 day	☐	Batch QC	☐	Basic EDD	☐
Rush 3 day	☐	Category A	☐	NYSDEC EDD	☐
Rush 2 day	☐	Category B	☐		
Rush 1 day	☐				
Date Needed _____ please indicate date needed:		Other ☐ please indicate package needed:		Other EDD ☐ please indicate EDD needed:	

ALEX STERIA — Sampled By — ~~6/20/25~~ 6/23/25 1100 — Date/Time — Total Cost:

Relinquished By — Date/Time: 6/23/25 @ 1105

Received By — Date/Time: 6/23/25 11:45 — P.I.F.

Received @ Lab By — Date/Time: 16.5°C Iced in Field @ 1145 ~~6/20/25~~ 6/23/25

By signing this form, client agrees to Paradigm Terms and Conditions (reverse). On file

See additional page for sample conditions.

QmEx 6/23/25 2042 3 of 3

PARADIGM
ENVIRONMENTAL SERVICES

Chain of Custody Supplement

Client: Rouk

Lab Project ID: 252773

Completed by: [signature]

Date: 6/23/2025

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	*NELAC compliance with the sample condition requirements upon receipt* Yes	No	N/A
Container Type	☑	☐	☐
Comments			
Transferred to method-compliant container	☐	☐	☑
Headspace (<1 mL)	☐	☐	☑
Comments			
Preservation	☐	☐	☑
Comments			
Chlorine Absent (<0.10 ppm per test strip)	☐	☐	☑
Comments			
Holding Time	☑	☐	☐
Comments			
Temperature	☐	☐	☑
Comments	16.5°C		
Compliant Sample Quantity/Type	☑	☐	☐
Comments			

PARADIGM
ENVIRONMENTAL SERVICES, INC

Analytical Report For

Roux Associates

For Lab Project ID

253004

Referencing

4694.0001P000/09

Prepared

Thursday, July 3, 2025

Any noncompliant QC parameters or other notes impacting data interpretation are flagged or documented on the final report or are noted below.

Emily Farmer

Certifies that this report has been approved by the Technical Director or Designee

179 Lake Avenue • Rochester, NY 14608 • (585) 647-2530 • Fax (585) 647-3311 • ELAP ID# 10958

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 253004

Client: **Roux Associates**

Project Reference: 4694.0001P000/09

Sample Identifier:	WC-Concrete-02		
Lab Sample ID:	253004-01	**Date Sampled:**	6/20/2025 16:15
Matrix:	Solid	**Date Received**	7/1/2025

Part 375 Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	**0.635**	mg/Kg		7/2/2025 16:57
Barium	**1610**	mg/Kg		7/2/2025 16:57
Beryllium	< 0.250	mg/Kg		7/2/2025 16:57
Cadmium	**2.24**	mg/Kg		7/2/2025 16:57
Chromium	**37.2**	mg/Kg		7/2/2025 16:57
Copper	**18.7**	mg/Kg		7/2/2025 16:57
Lead	**374**	mg/Kg		7/2/2025 16:57
Manganese	**338**	mg/Kg		7/2/2025 16:57
Nickel	**6.56**	mg/Kg		7/2/2025 16:57
Selenium	< 1.00	mg/Kg		7/2/2025 16:57
Silver	**0.680**	mg/Kg		7/2/2025 16:57
Zinc	**7590**	mg/Kg		7/3/2025 15:06

Method Reference(s): EPA 6010C
EPA 3050B
Preparation Date: 7/1/2025
Data File: 250702A

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	**0.0460**	mg/Kg		7/2/2025 14:27

Method Reference(s): EPA 7471B
Preparation Date: 7/2/2025
Data File: Hg250702A

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt.

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 253004

Client: **Roux Associates**

Project Reference: 4694.0001P000/09

Sample Identifier:	WC-CMU-01		
Lab Sample ID:	253004-02	**Date Sampled:**	6/20/2025 16:15
Matrix:	Solid	**Date Received**	7/1/2025

Part 375 Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	**2.25**	mg/Kg		7/2/2025 17:07
Barium	**303**	mg/Kg		7/2/2025 17:07
Beryllium	**0.294**	mg/Kg		7/2/2025 17:07
Cadmium	**0.794**	mg/Kg		7/2/2025 17:07
Chromium	**45.3**	mg/Kg		7/2/2025 17:07
Copper	**12.8**	mg/Kg		7/2/2025 17:07
Lead	**234**	mg/Kg		7/2/2025 17:07
Manganese	**314**	mg/Kg		7/2/2025 17:07
Nickel	**7.52**	mg/Kg		7/2/2025 17:07
Selenium	**1.49**	mg/Kg		7/2/2025 17:07
Silver	< 0.490	mg/Kg		7/2/2025 17:07
Zinc	**1290**	mg/Kg		7/3/2025 15:09

The metals present emit light within the same wavelength range as Selenium, therefore Selenium cannot be eliminated as a constituent of the sample.

Method Reference(s): EPA 6010C
EPA 3050B
Preparation Date: 7/1/2025
Data File: 250702A

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	**0.514**	mg/Kg		7/2/2025 14:51

Method Reference(s): EPA 7471B
Preparation Date: 7/2/2025
Data File: Hg250702A

PARADIGM ENVIRONMENTAL SERVICES, INC.

Lab Project ID: 253004

Client: **Roux Associates**

Project Reference: 4694.0001P000/09

Sample Identifier:	WC-Wood-03		
Lab Sample ID:	253004-03	**Date Sampled:**	6/20/2025 16:15
Matrix:	Solid	**Date Received**	7/1/2025

Part 375 Metals (ICP)

Analyte	Result	Units	Qualifier	Date Analyzed
Arsenic	**19.0**	mg/Kg		7/2/2025 17:11
Barium	**924**	mg/Kg		7/2/2025 17:11
Beryllium	< 0.243	mg/Kg		7/2/2025 17:11
Cadmium	**3.64**	mg/Kg		7/2/2025 17:11
Chromium	**48.8**	mg/Kg		7/2/2025 17:11
Copper	**324**	mg/Kg		7/2/2025 17:11
Lead	**1270**	mg/Kg		7/2/2025 17:11
Manganese	**748**	mg/Kg		7/3/2025 15:13
Nickel	**103**	mg/Kg		7/2/2025 17:11
Selenium	**4.20**	mg/Kg		7/2/2025 17:11
Silver	**1.16**	mg/Kg		7/2/2025 17:11
Zinc	**1750**	mg/Kg		7/3/2025 15:13

The metals present emit light within the same wavelength range as Selenium, therefore Selenium cannot be eliminated as a constituent of the sample.

Method Reference(s): EPA 6010C
EPA 3050B
Preparation Date: 7/1/2025
Data File: 250702A

Mercury

Analyte	Result	Units	Qualifier	Date Analyzed
Mercury	**0.992**	mg/Kg		7/2/2025 14:53

Method Reference(s): EPA 7471B
Preparation Date: 7/2/2025
Data File: Hg250702A

Analytical Report Appendix

The reported results relate only to the samples as they have been received by the laboratory.

Each page of this document is part of a multipage report. This document may not be reproduced except in its entirety, without the prior consent of Paradigm Environmental Services, Inc.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

Low level Volatiles blank reports for soil/solid matrix are based on a nominal 5 gram weight. Sample results and reporting limits are based on actual weight, which may be more or less than 5 grams.

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of analyte-specific, frequently used data flags and their meaning:

"<" = Analyzed for but not detected at or above the quantitation limit.
"E" = Result has been estimated, calibration limit exceeded.
"H" = Denotes a parameter analyzed outside of holding time.
"Z" = See case narrative.
"D" = Sample, Laboratory Control Sample, or Matrix Spike Duplicate results above Relative Percent Difference limit.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.
"J" = Result estimated between the quantitation limit and half the quantitation limit.
"L" = Laboratory Control Sample recovery outside accepted QC limits.
"P" = Concentration differs by more than 40% between the primary and secondary analytical columns.
"NC" = Not calculable. Applicable to RPD if sample or duplicate result is non-detect or estimated (see primary report for data flags). Applicable to MS if sample is greater or equal to ten times the spike added. Applicable to sample surrogates or MS if sample dilution is 10x or higher.
"" = Indicates any recoveries outside associated acceptance windows. Surrogate outliers in samples are presumed matrix effects. LCS demonstrates method compliance unless otherwise noted.*
"(1)" = Indicates data from primary column used for QC calculation.
"A" = denotes a parameter for which ELAP does not offer approval as part of their laboratory certification program.
"F" = denotes a parameter for which Paradigm does not carry certification, the results for which should therefore only be used where ELAP certification is not required, such as personal exposure assessment.

GENERAL TERMS AND CONDITIONS
LABORATORY SERVICES

These Terms and Conditions embody the whole agreement of the parties in the absence of a signed and executed contract between the Laboratory (LAB) and Client. They shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties. The LAB specifically rejects all additional, inconsistent, or conflicting terms, whether printed or otherwise set forth in any purchase order or other communication from the Client to the LAB. The invalidity or unenforceability in whole or in part of any provision, term or condition hereof shall not affect in any way the validity or enforceability of the remainder of the Terms and Conditions. No waiver by LAB of any provision, term, or condition hereof or of any breach by or obligation of the Client hereunder shall constitute a waiver of such provision, term, or condition on any other occasion or a waiver of any other breach by or obligation of the Client. This agreement shall be administered and interpreted under the laws of the state which services are procured.

Warranty. Recognizing that the nature of many samples is unknown and that some may contain potentially hazardous components, LAB warrants only that it will perform testing services, obtain findings, and prepare reports in accordance with generally accepted analytical laboratory principles and practices at the time of performance of services. LAB makes no other warranty, express or implied.

Scope and Compensation. LAB agrees to perform the services described in the chain of custody to which these terms and conditions are attached. Unless the parties agree in writing to the contrary, the duties of LAB shall not be construed to exceed the services specifically described. LAB wi use LAB default method for all tests unless specified otherwise on the Work Order.
Payment terms are net 30 days from the date of invoice. All overdue payments are subject to an interest charge of one and one-half percent (1-1/2%) per month or a portion thereof. Client shall also be responsible for costs of collection, including payment of reasonable attorney fees if such expense is incurred. The prices, unless stated, do not include any sale, use or other taxes. Such taxes will be added to invoice prices when required.

Prices. Compensation for services performed will be based on the current Lab Analytical Fee Schedule or on quotations agreed to in writing by the parties. Turnaround time based charges are determined from the time of resolution of all work order questions. Testimony, court appearances or data compilation for legal action will be charged separately. Evaluation and reporting of initial screening runs may incur additional fees.

Limitations of Liability. In the event of any error, omission, or other professional negligence, the sole and exclusive responsibility of LAB shall be to re-perform the deficient work at its own expense and LAB shall have no other liability whatsoever. All claims shall be deemed waived unless made in writing and received by LAB within ninety (90) days following completion of services.
LAB shall have no liability, obligation, or responsibility of any kind for losses, costs, expenses, or other damages (including but not limited to any special, direct, incidental or consequential damages) with respect to LAB's services or results.
All results provided by LAB are strictly for the use of its clients and LAB is in no way responsible for the use of such results by clients or third parties. All reports should be considered in their entirety, and LAB is not responsible for the separation, detachment, or other use of any portion of these reports. Client may not assign the lab report without the written consent of the LAB.
Client covenants and agrees, at its/his/her sole expense, to indemnify, protect, defend, and save harmless the LAB from and against any and all damages, losses, liabilities, obligations, penalties, claims, litigation, demands, defenses, judgments, suits, actions, proceedings, costs, disbursements and/or expenses (including, without limitation attorneys' and experts' fees and disbursements) of any kind whatsoever which may at any time be imposed upon, incurred by or asserted or awarded against client relating to, resulting from or arising out of (a) the breach of this agreement by this client, (b) the negligence of the client in handling, delivering or disclosing any hazardous substance, (c) the violation of the Client of any applicable law, (d) non-compliance by the Client with any environmental permit or (e) a material misrepresentation in disclosing the materials to be tested.

Hazard Disclosure. Client represents and warrants that any sample delivered to LAB will be preceded or accompanied by complete written disclosure of the presence of any hazardous substances known or suspected by Client. Client further warrants that any sample containing any hazardous substance that is to be delivered to LAB will be packaged, labeled, transported, and delivered properly and in accordance with applicable laws.

Sample Handling. Prior to LAB's acceptance of any sample (or after any revocation of acceptance), the entire risk of loss or of damage to such sample remains with Client. Samples are accepted when receipt is acknowledged on chain of custody documentation. In no event will LAB have any responsibility for the action or inaction of any carrier shipping or delivering any sample to or from LAB premises.
Client authorizes LAB to proceed with the analysis of samples as received by the laboratory, recognizing that any samples not in compliance with all current DOH-ELAP-NELAP requirements for containers, preservation or holding time will be noted as such on th final report.
Disposal of hazardous waste samples is the responsibility of the Client. If the Client does not wish such samples returned, LAB may add storage and disposal fees to the final invoice. Maximum storage time for samples is 30 days after completion of analysis unless modified by applicable state or federal laws. Client will be required to give the LAB written instructions concerning disposal of these samples.
LAB reserves the absolute right, exercisable at any time, to refuse to receive delivery of, refuse to accept, or revoke acceptance of any sample, which, in the sole judgment of LAB (a) is of unsuitable volume, (b) may be or become unsuitable for or may pose a risk in handling, transport, or processing for any health, safety, environmental or other reason whether or not due to the presence in the sample of any hazardous substance, and whether or not such presence has been disclosed to LAB by Client or (c) if the condition or sample date make the sample unsuitable for analysis.

Legal Responsibility. LAB is solely responsible for performance of this contract, and no affiliated company, director, officer, employee, or agent shall have any legal responsibility hereunder, whether in contract or tort including negligence.

Assignment. LAB may assign its performance obligations under this contract to other parties, as it deems necessary. LAB shall disclose to Client any assignee (subcontractor) by ELAP ID # on the submitted final report.

Force Majeure. LAB shall have no responsibility or liability to the Client for any failure or delay in performance by LAB, which results in whole or in part from any cause or circumstance beyond the reasonable control of LAB. Such causes and circumstances shall include, but not limited to, acts of God, acts or orders of any government authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, difficulties or delays in transportation, mail or delivery services, inability to obtain sufficient services or supplies from LAB's usual suppliers, or any other cause beyond LAB's reasonable control.

Law. This contract shall be continued under the laws of the State of New York without regard to its conflicts of laws provision.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

CHAIN OF CUSTODY

Relog: 253004

1 of 4 Qm 6/23/25 Qm 7/1/25

PARADIGM ENVIRONMENTAL SERVICES

REPORT TO:		INVOICE TO:		LAB PROJECT ID
COMPANY:	ROUX	COMPANY:	SAME	252773
address:	200 SUMMIT DRIVE SUITE 500	ADDRESS:		Quotation #:
CITY:	BURLINGTON STATE: MA ZIP: 01803	CITY: STATE: ZIP:		Email: SBARRIENTOS@ROUXINC.COM
PHONE:	781-569-4000 FAX:	PHONE: FAX:		
ATTN:	SARA BARRIENTOS	ATTN:		

PROJECT REFERENCE: 4694.000 P000/09

Matrix Codes:
AQ - Aqueous Liquid; NQ - Non-Aqueous Liquid; WA - Water; WG - Groundwater; DW - Drinking Water; WW - Wastewater; SO - Soil; SL - Sludge; SD - Solid; PT - Paint; WP - Wipe; CK - Caulk; OL - Oil; AR - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	TCL VOC 8260D	131 1,1DD	1,2,4-TMB	6/20/25	REMARKS	PARADIGM LAB SAMPLE NUMBER
6/20/25	1615		V	WC-CONCRETE-02	SD	1	X				* Limited VOC list, flagged out to client 6/20/25 Qm 6/23/25 SW7.1.25	-01
6/20/25	1615		V	WC-CMU-01	SD	1	X				Relog for ~~total~~ Part 375 metals	-02
6/20/25	1615		V	WC-WOOD-03	SD	1	X				48 hour TAT per SB email SW 7.1.25	-03

Turnaround Time		Report Supplements		
Availability contingent upon lab approval; additional fees may apply.				
Standard 5 day	☐	None Required	☐	None Required ☐
10 day	☐	Batch QC	☐	Basic EDD ☐
Rush 3 day	☐	Category A	☐	NYSDEC EDD ☐
Rush 2 day	☐	Category B	☐	
Rush 1 day	☐ SD 6/23/25			
Other please indicate date needed: 6/24 per SB email	☐	Other please indicate package needed:	☐	Other EDD please indicate EDD needed: ☐

ALEXSTERIA Sampled By	6/20/25 1615 Date/Time	Total Cost:
Relinquished By	6/20/25 1636 Date/Time	
Received By	6/20/25 1639 Date/Time	P.I.F. ☐
Received @ Lab By	6/20/25 1656 Date/Time	
Relog:	7/1/25 ~~1536~~ 1550	

By signing this form, client agrees to Paradigm Terms and Conditions (reverse). QAEE 7/1/25

25 °C 6/20/25 16:43

See additional page for sample conditions.

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

2 of 3A On 7/1/25

CHAIN OF CUSTODY

252773

PARADIGM

REPORT TO:		INVOICE TO:		
CLIENT:	Roux	CLIENT:		LAB PROJECT ID: 252773
ADDRESS:	200 Summit Drive Suite 500	ADDRESS:		Quotation #:
CITY:	Burlington STATE: MA ZIP: 01803	CITY: STATE: ZIP:		Email: SBARRIENTOS@ROUXINC.COM
PHONE:	781-362-4000	PHONE:		
ATTN:	Sara Barrientos	ATTN:		

PROJECT REFERENCE

4694.0001P000/09

Matrix Codes:
AQ - Aqueous Liquid, **NQ** - Non-Aqueous Liquid, **WA** - Water, **WG** - Groundwater, **DW** - Drinking Water, **WW** - Wastewater, **SO** - Soil, **SL** - Sludge, **SD** - Solid, **PT** - Paint, **WP** - Wipe, **CK** - Caulk, **OL** - Oil, **AR** - Air

REQUESTED ANALYSIS

DATE COLLECTED	TIME COLLECTED	COMPOSITE	GRAB	SAMPLE IDENTIFIER	MATRIX CODES	NUMBER OF CONTAINERS	TCLP LEAD 1311 6010	REMARKS	PARADIGM LAB SAMPLE NUMBER
6/23/25	900		✓	WC-Concrete-02 Extra Volume	SD	1	X	* Additional Volume received 6/23/2025 On 6/23/25	-01
6/23/25	910		✓	WC-WOOD-03 Extra Volume	SD	1	X		~~-01~~ -03
6/23/25	930		✓	WC-CMU-01 Extra Volume	SD	1	X		~~-03~~ -02
						↑ per original On 6/23/25		On 6/23/25	

Turnaround Time		Report Supplements			
Availability contingent upon lab approval; additional fees may apply.					
Standard 5 day	☐	None Required	☐	None Required	☐
10 day	☐	Batch QC	☐	Basic EDD	☐
Rush 3 day	☐	Category A	☐	NYSDEC EDD	☐
Rush 2 day	☐	Category B	☐		
Rush 1 day	☐				
Date Needed _____ please indicate date needed:		Other ☐ please indicate package needed: _____		Other EDD ☐ please indicate EDD needed: _____	

ALEX STERIA — Sampled By — ~~6/20/25~~ 6/23/25 1100 — Date/Time

Total Cost:

Relinquished By — Date/Time

Received By — 6/23/25 @ 1105 — Date/Time

P.I.F.

Received @ Lab By — 6/23/25 11:45 — Date/Time

16.5°C Iced in Frid @ 1145 ~~6/20/25~~ 6/23/25

By signing this form, client agrees to Paradigm Terms and Conditions (reverse). On file

See additional page for sample conditions.

QmEx 6/23/15 2082 3084

QM 7/1/15

PARADIGM
ENVIRONMENTAL SERVICES

Chain of Custody Supplement

Client: Roux

Lab Project ID: 252773

Completed by: [signature]

Date: 6/23/2015

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	NELAC compliance with the sample condition requirements upon receipt: Yes	No	N/A
Container Type	☒	☐	☐
Comments			
Transferred to method-compliant container	☐	☐	☒
Headspace (<1 mL)	☐	☐	☒
Comments			
Preservation	☐	☐	☒
Comments			
Chlorine Absent (<0.10 ppm per test strip)	☐	☐	☒
Comments			
Holding Time	☒	☐	☐
Comments			
Temperature	☐	☐	☒
Comments	16.5°C		
Compliant Sample Quantity/Type	☒	☐	☐
Comments			

PARADIGM
ENVIRONMENTAL SERVICES

Chain of Custody Supplement

Relog

Client: ROUX

Lab Project ID: 25304

Completed by: [signature]

Date: 7/1/2025

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	NELAC compliance with the sample condition requirements upon receipt: Yes	No	N/A
Container Type	☑	☐	☐
Comments			
Transferred to method-compliant container	☐	☐	☑
Headspace (<1 mL)	☐	☐	☑
Comments			
Preservation	☐	☐	☑
Comments			
Chlorine Absent (<0.10 ppm per test strip)	☐	☐	☑
Comments			
Holding Time	☑	☐	☐
Comments			
Temperature	☐	☑ Hg	☑ Metals
Comments	Sul Hyp taken 6/20/2025		
Compliant Sample Quantity/Type	☑	☐	☐
Comments			

APPENDIX G

C7 Notification to Generators

C7 NOTIFICATION FOR GENERATORS

To: RCRA Compliance & Technical Support Section
Bureau of Hazardous Waste and Radiation Management
Division of Materials Management
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7256

Date: June 23, 2025

Please be advised that Exxon Mobil Corporation
(generator's company name)

647 Route1, #14, PMB 253 York, ME 03909
(generator's street address)

intends to use the

Scrap metal exemption of 6 NYCRR 371.1(g)(1)(iii)(b))
(description and citation of exemption or exclusion; e.g., scrap metal exemption of 6 NYCRR 371.1(g)(1)(iii)(b))

for

Metal materials, such as doors and railings that have lead-paint that will be removed prior to building demolition for recycling
(describe waste stream)

that will be shipped from the above address to Metalico Rochester Facility # 7082408
(receiving company e.g., scrap metal dealer, recycler or smelter)

1515 Scottsville Road Rochester NY 14623
(receiving company address)

Please contact the undersigned at (781) 569 4000 if you have any questions.
(phone number)

Sincerely,

Elizabeth Zinkevicz
(print name of generator company representative)

elizabeth.e.zinkevicz@exxonmobil.com
(Email address)

Elizabeth G. Zinkevicz
(signature of generator company representative)

Submission by email to info.sqg@dec.ny.gov is preferred.
If submitting by mail to the address above or by fax to 518-402-9024, please direct to:
Attn: RCRA Compliance & Technical Support Section

Please email info.sqg@dec.ny.gov or call (518) 402-8652 if you have any questions about how to complete this form.

NEW YORK STATE | Department of Environmental Conservation

APPENDIX H

Health and Safety Plan

SITE-SPECIFIC HEALTH AND SAFETY PLAN

5 Flint Street
Rochester, NY

July 15, 2025

Prepared for:

5 Flint Street LLC

Prepared by:

Roux Associates, Inc.
200 Summit Drive, Suite 500
Burlington, Massachusetts 01803

4694.0001BM000.109.RCV

Environmental Consulting
& Management
+1.800.322.ROUX
rouxinc.com

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Site-Specific Emergency Information

Emergency Phone Numbers

Most emergency services can be obtained by calling **911**. Where 911 service is not available, use the telephone numbers provided in the below table. The following is a master emergency phone list for use by the project management personnel. A more condensed version of the emergency numbers listed below will be posted throughout project work areas. Emergencies encountered on the site will be responded to by a combination of off-site emergency services and on-site personnel.

Emergency Contact Information			
Site Personnel			
Title	**Contact**		**Telephone**
Operations Manager (OM)	Nancy Nevins, P.G., LSP		781-569-4053 617-549-5351 (Cell)
Project Principal (PP)	Ian Read		781-569-4030 617-875-9394
Project Manager (PM)	Sara Barrientos		781-569-4033 781-513-6984 (Cell)
Site Supervisor (SS)	Alex Steria		315-751-2229
Site Health and Site Safety Officer (SHSO)	Nicholas Suraci		716-713-3937
Office Health and Safety Manager (OHSM)	Kevin Gray		781-569-4067 401-533-3856 (Cell)
Corporate Health and Safety Director (CHSD)	Brian Hobbs, CIH, CSP		631-630-2419 631-807-0193 (Cell)
WorkCare, Inc.	Occupational Health Care Management Provider		888-449-7787
Client Emergency Contact	Elizabeth Zinkevicz		207-363-8345
Outside Assistance			
Agency	**Contact**	**Telephone**	**Address/Location**
Ambulance/emergency medical services (EMS)	Rural Metro	585-777-7777	811 West Ave, Rochester, NY 14611
Police	Rochester Police Department	585-428-6720	185 Exchange Blvd, Rochester, NY 14614
Fire	Rochester Fire Department	585-428-6739	1261 South Ave, Rochester, NY 14620
Site Address	5 Flint Street, Rochester, NY		

Directions to Hospital

The nearest hospital to the Site is the Strong Memorial Hospital located at 601 Elmwood Avenue in Rochester, New York. The telephone number for the hospital is (585) 275-2100. Directions from the Site to the hospital are located below.

Head **southwest** on **Exchange St.** toward **Flint St.**;

Turn **right** at **Flint St.**;

Turn **left** at **Plymouth Ave. S/S Plymouth Ave./RT-383**;

Continue to follow RT-383;

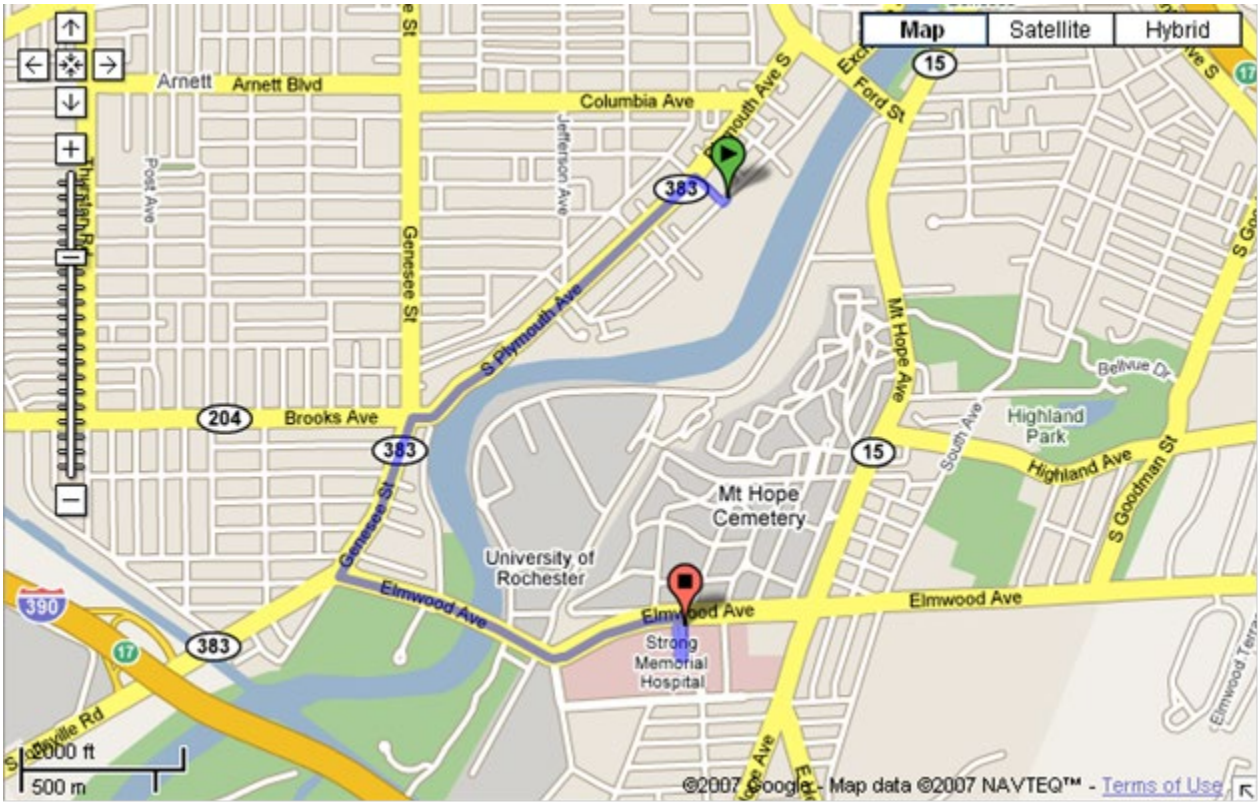
Turn **left** at **Genesee St./RT-383**;

Turn **left** at **Elmwood Ave.**;

Arrive at Strong Memorial Hospital.

The approximate driving time from the Site to the hospital is 7 minutes (2.4 miles).

A map depicting the above-described route is provided below.



Directions to Urgent Care Facility

The nearest urgent care facility to the Site is Work Fit Medical located at 1160 Chili Ave, Suite 200 in Rochester, New York. The telephone number for the facility is (585) 426-4990. Directions from the Site to the facility are located below.

Head **northwest** on **Flint St** toward **Exchange St**;

Turn **left** at the **2nd cross street** onto **S Plymouth Ave**;

Continue **straight** onto **Brooks Ave**;

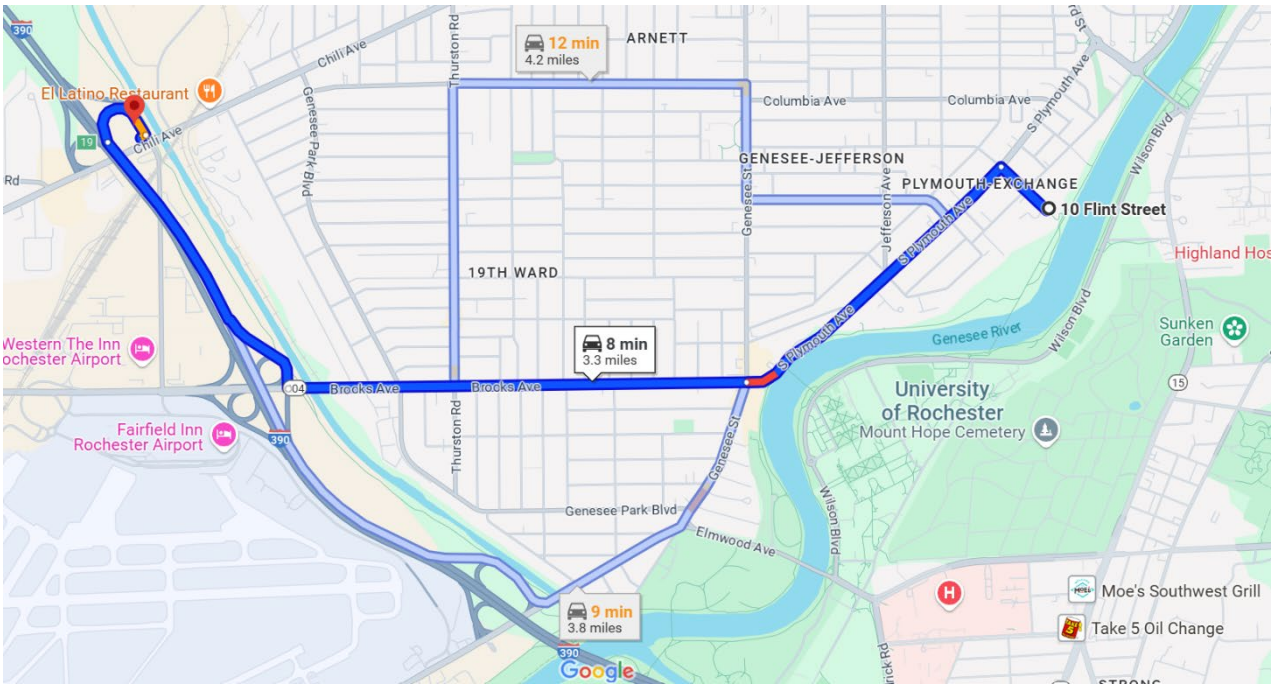
Turn **right** onto **Buell Rd**;

Turn **left** onto **NY-33A W**;

Work Fit Medical will be on the right.

The approximate driving time from the Site to the facility is 9 minutes (3.2 miles).

A map depicting the above-described route is provided below:



1. Introduction

This Site-specific Health and Safety Plan (HASP) has been prepared by Roux Associates, Inc. (Roux) for use during the remedial investigation and remedial implementation at the former Vacuum Oil Refinery, located at 5 Flint Street, Rochester New York (Site; **Figure 1**). This HASP was prepared in general accordance with the requirements of the Occupational Safety and Health Administration (OSHA) standards promulgated at 29 CFR 1910.120 and 29 CFR 1926.65, both commonly referred to as the Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard. In accordance with the HAZWOPER Standard, this Site-specific HASP was prepared to address the safety and health hazards associated with the remedial investigation, remedial implementation, and building demolition activities being performed at the Site by Roux and/or its subcontractors to provide requirements and procedures for the protection of Roux employees, subcontractor personnel, government oversight personnel, Site personnel, and the general public. It also addresses client- and Site-specific requirements for health and safety. Additionally, subcontractors may be required to submit their own HASP as it relates to their specific work activities and will be kept onsite during such work.

Implementation of this HASP is the joint responsibility of the Project Manager (PM), the Site Health and Safety Officer (SHSO), and all field staff, with assistance from the Project Principal (PP), Office Health and Safety Manager (OHSM), and Corporate Health and Safety Director (CHSD). The PM for this project is Sara Barrientos. The Site Supervisor (SS) is Alex Steria and Site Health and Safety Officer (SHSO) is Nicholas Suraci.

This HASP will be introduced to, reviewed, and signed off on by all Roux personnel through a formal training session prior to commencing work. A copy of the HASP will be kept at the Site at all times. The Roux SHSO or PM will be responsible for posting any changes, amendments, memos, etc. to the HASP. Any revisions to this HASP will be signed by appropriate personnel, which can include Roux's PP, CHSD, and SS. Any changes will be announced to all workers at the next safety meeting.

1.1 Roles and Responsibilities

Overall Roles and Responsibilities (R&Rs) of Roux personnel are provided in Roux's Policies and Procedures Manual. Only those R&Rs specific to HASP requirements are listed below.

Project Manager (PM)

The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Health and Safety Officer (SHSO), has the authority to oversee and monitor the performance of the SHSO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

- Preparing and coordinating the Site work plan;
- Providing Site supervisor(s) with work assignments and overseeing their performance; Coordinating safety and health efforts with the SSHO;
- Ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC); and
- Serving as primary Site liaison with public agencies and officials and Site contractors.

Site Health and Safety Officer (SHSO)

The SHSO has the full responsibility and authority to develop and implement this HASP and to verify compliance. The SHSO reports to the Project Manager. The SHSO is on Site or readily accessible to the Site during all work operations and has the authority to halt Site work if unsafe conditions are detected. The specific responsibilities of the SHSO include:

- Managing the safety and health functions on this Site;
- Serving as the Site's point of contact for safety and health matters;
- Ensuring Site monitoring, worker training, and effective selection and use of PPE;
- Assessing Site conditions for unsafe acts and conditions and providing corrective action;
- Assisting the preparation and review of this HASP;
- Maintaining effective safety and health records as described in this HASP; and
- Coordinating with the SS and others as necessary for safety and health efforts.

Site Supervisor (SS)

The Site Supervisor (SS) is responsible for field operations and reports to the Project Manager (PM). The SS ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities of the Site Supervisor include:

- Executing the work plan and schedule as detailed by the PM;
- Coordination with the SHSO on safety and health; and
- Ensuring Site work compliance with the requirements of this HASP.

Employees

All Roux employees are responsible for reading and following all provisions of the Corporate Health and Safety Manual, including this HASP. Employees report to the SS at the project Site. Each employee is also responsible for the following:

- Wearing all appropriate PPE as outlined within this HASP;
- Attending all safety meetings;
- Inspecting tools and equipment prior to use, and taking any defective tools or equipment out of service;
- Appropriately documenting field events as they occur within a logbook or equivalent;
- Properly operating machinery and/or equipment only if trained to do so;
- Stopping work operations if unsafe conditions exist;
- Identifying and mitigating hazards when observed;
- Reporting all incidents and near misses to the Roux SHSO and SS immediately; and
- Knowing where emergency equipment is located (e.g., first aid kit, fire extinguisher).

Subcontractors and Visitors

Subcontractors and visitors are responsible for complying with the same health and safety requirements. It is the responsibility of all to make sure subcontractors and visitors comply and uphold the HASP. Subcontractors and visitors have the following additional responsibilities:

- Designating a qualified safety representative for the project that can make the necessary changes in work practices, as necessary;
- Attending all safety meetings while participating in Roux Site work activities;
- Reporting all incidents and near misses to Roux SHSO and SS immediately;
- Conducting initial and periodic equipment inspections in accordance with manufacturer and regulatory guidelines; and
- Providing copies of all Safety Data Sheets (SDS) to Roux SHSO for materials brought to the Site.

2. Background

The following Site description and history summarizes information provided in the June 13, 2005 Historic and Current Site Conditions Report, prepared by AMEC on behalf of ExxonMobil, and submitted to the New York State Department of Environmental Conservation (NYSDEC).

Relevant background information is provided below, including a general description of the Site; a brief review of the Site's history with respect to hazardous material use, handling, and/or storage; and a review of known and potential releases of hazardous substances at the Site.

2.1 Site Description

The Site is located in the southern section of the City of Rochester, Monroe County, New York, just west of the Genesee River (**Figure 1**). The Site is located in an area currently used for commercial/industrial, residential and recreational uses. The Site encompasses various parcels of land, the majority of which were historically used for industrial activities including the facility operations.

Currently, the majority of the Site contains dense vegetative cover and is overgrown primarily with trees, bushes and grasses/weeds. According to AMEC, this area of vegetative cover is primarily early to mid-stage woods characterized by a mix of deciduous species that vary based on the areas of the Site such as wetland or "slighter higher moist woods." A bicycle/walking path with areas of maintained grass, constructed by the City of Rochester, traverses the southern and eastern perimeter of the Site along the Genesee River. A concrete bulkhead borders the Genesee River along the east/southeast Site boundary. According to historic information reviewed by Roux, the bulkhead has been in place since the facility was in operation. A large three-story building which was likely part of the facility operations is currently located on Site at the terminus of Flint Street. Lastly, a junkyard exists on a portion of the Site on Flint Street. This junkyard contains numerous junk vehicles, piles of tires and scrap parts.

2.2 Site History

The Vacuum Oil Company operated an oil refinery at portions of the Site from approximately 1866 to around the early 1890s. From the early 1890s until its closure in 1935, it operated as a blending facility. The facility consisted of several process and storage buildings and structures, tank farms, pipelines and rail lines. The processing and refining operations reportedly included processing crude oil transported to the Site in wooden barrels from the "Bradford Field" located in Pennsylvania in 1869. The crude oil was processed and used in the preparation of kerosene, naphtha and other finished lubricant products. Later, and subsequent to 1890, the facility began processing raw lubricant stocks which were finished, barreled/canned and shipped off Site. Significant products including lubricating oils, paraffin, neutral oils, spindle oils, naphtha, and marine engine oils were blended and distributed for sale. Barrels and tin cans were manufactured at the Site to provide containers for shipping and sale of the finished product. In 1916, the facility (sometimes referred to in the Historic and Current Site Conditions Report as "the Rochester Works") occupied 15 acres and maintained a large number of filters and other equipment for finishing lubricating oil stocks, a large compounding facility, and a barrel and can factory. The facility was demolished in the 1930s. Remnants of the facility exist at the Site including building foundations and slabs.

In addition to the above, two former railroad lines ran through the Site: 1) the Pennsylvania Railroad located approximately 100 feet northwest from the Genesee River and 2) the Erie Railroad located approximately 200 to 400 feet northwest from the Genesee River.

2.3 Known and Potential Releases of Hazardous Substances at the Site

According to the Historic and Current Site Conditions Report, AMEC conducted field surveys of the Site in November and December 2004. During these field surveys, AMEC identified existing Site structures and features including concrete retaining walls and structure remnants, retaining (former canal) walls, drums, manhole covers and piping (including historic sewer and lines), machinery parts and industrial debris, a piece of molten plastic, slag material mounds, rubble and tire piles, fire hydrants, former railroad structures and structures identified as resembling floor pits. According to information included in the Site Investigation Report – Former Vacuum Oil Company, Site #828089P, dated March 2001 and prepared by NYSDEC, in September 1992, NYSDEC removed approximately 400 to 500 tons of petroleum sludge located in the area of former sludge pits (formerly a "railyard area at the southeastern portion of the Vacuum Oil facility near what is currently the Genesee River bike trail"). The petroleum sludge was discovered during construction of the bike path (trail) and upon testing, the sludge was found to be non-hazardous.

Based on the findings related to historical use of the Site and previous environmental investigations, the following COCs have been identified as being present at the Site (naturally occurring metals are not considered COCs):

- **Soil:** metals (arsenic and mercury), semi-volatile organic compounds (SVOCs; primarily polycyclic aromatic hydrocarbons [PAHs]), and petroleum ((in the form of grossly contaminated soil).
- **Groundwater**: Metals (arsenic), SVOCs, VOCs (benzene, chloroethane, 1,1-dichloroethane, trichloroethene).

Investigation results and materials storage records indicate that benzene, toluene, ethylbenzene, xylenes (BTEX), total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), and other petroleum-related constituents are present at the Site including polyaromatic hydrocarbons (PAHs) and metals. The toxicological, physical, and chemical properties of these potential contaminants are presented in **Table 1**.

3. Scope of Work

Site activities planned at this time and covered by this HASP include activities associated with subsurface investigation and remediation activities, as well as building demolition of the three-story building on-Site. All subcontractors used for the completion of these activities will be vetted by Roux for compliance with respect to health and safety requirements and metrics as well as compliance with licensing and insurance requirements.

Proposed activities associated with the subsurface investigation and remediation include:

- Excavation of test pits;
- Advancement of soil borings for completion as monitoring wells and soil vapor points;
- Collection of soil (surface and subsurface);
- Groundwater and soil vapor sampling;
- Excavation of petroleum-impacted soil;
- Temporary soil stockpiling;
- Placement and compaction of backfill;
- Treatment of excavated soil;
- Loading of excavated soil into trucks for transport off-Site; and,
- Performing air monitoring in the work area throughout the subsurface investigation and remediation activities as detailed in the Community Air Monitoring Plan (CAMP), which is included as an appendix to the Interim Site Management Plan (ISMP) and Remedial Action Work Plan (RAWP).

Proposed activities associated with building demolition include:

- Interior cleanout of the building prior to mass demolition;
- Demolition and segregation of various building materials, including clean hard fill (e.g., concrete, brick, block) and metal for recycling and remaining materials (e.g., wood and plastic) for off-Site landfill disposal;
- Handling of building materials for off-Site disposal or recycling;
- Temporary stockpiling of segregated demolition debris;
- Loading of demolition debris into trucks for transport off-Site; and,
- Performing air monitoring in the work area throughout the duration of building demolition as detailed in the CAMP, which is included as an appendix to the ISMP and RAWP.

See section 8.5 and 8.5.1 on PPE requirements and applicable JLA on hazards associated with these proposed activities.

If there are any changes with the scope a revision of the HASP will be required to address any new hazards.

4. Site Control

This Site control program is designed to reduce the spread of hazardous substances from contaminated areas to clean areas, to identify and isolate contaminated areas of the Site, to facilitate emergency evacuation and medical care, to prevent unauthorized entry to the Site, and to deter vandalism and theft.

4.1 Site Map

A map of this Site, showing Site boundaries, designated work zones, and points of entry and exit is provided in **Figure 2**.

4.2 Site Access

Access to the work areas at the Site is restricted to reduce the potential for exposure to its safety and health hazards. During hours of Site operation, Site entry and exit is authorized only at the points identified in **Figure 2**. Entry and exit at these points is controlled by a perimeter fence and gate with an entrance on Flint Street. When the Site is not operating, access to the Site is controlled by the following: a perimeter fence and a locked gate entrance.

4.3 Buddy System

While working in the Exclusion Zone, Site workers use the buddy system. The buddy system means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of an emergency. The responsibilities of workers using the buddy system include:

- Remaining in close visual contact with partner;
- Providing partner with assistance as needed or requested;
- Observing partner for signs of heat stress, chemical overexposure or other difficulties;
- Periodically checking the integrity of partner's PPE; and
- Notifying the SS or other Site personnel if emergency assistance is needed.

4.4 Site Communications

The following communication equipment is used to support on-site communication: cell phones and visual hand signals.

As applicable, hand signals will be used according to the following:

Hand Signals

SIGNAL	MEANING
Hand gripping throat	Out of air, can't breathe
Grip partner's wrist	Leave area immediately
Hands on top of head	Need assistance

Hand Signals

SIGNAL	MEANING
Thumbs up	I'm all right, okay
Thumbs down	No, negative

A current list of emergency contact numbers is included in the Site-Specific Emergency Information at the beginning of this HASP.

4.5 Site Work Zones

This Site is divided into three (3) major zones, described below. These zones are characterized by the likely presence or absence of biological, chemical, or physical hazards and the activities performed within them. Zone boundaries are clearly marked at all times and the flow of personnel among the zones is controlled. The Site is monitored for changing conditions that may warrant adjustment of zone boundaries. Zone boundaries are adjusted as necessary to protect personnel and clean areas. Whenever boundaries are adjusted, zone markings are also changed, and workers are immediately notified of the change.

Exclusion Zone

The area where contamination exists is the Exclusion Zone (EZ). All areas where excavation and handling of contaminated materials take place are considered part of the EZ. This zone will be clearly delineated by chain link fencing, caution tape, cones or other effective barriers, as necessary. Safety tape may be used as a secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SHSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Personnel are not allowed in the EZ without:

- A buddy (co-worker);
- Required minimum level PPE;
- Medical authorization;
- Training certification; and
- Requirement to be in the zone.

Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) is established between the exclusion zone and the support zone. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of personnel and equipment. The CRZ will be used for general Site entry and egress in addition to access for heavy equipment and emergency support services. Personnel are not allowed in the CRZ without:

- A buddy (co-worker);
- Appropriate PPE;
- Medical authorization;
- Training certification; and
- Requirement to be in the zone.

Support Zone

The Support Zone (SZ) is an uncontaminated area that will be the field support area for the Site operations. The SZ will be available for field team parking, communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone. The support facility will be located up-wind of Site operations, if possible, and may be used as a potential evacuation point. No potentially contaminated personnel or materials are allowed in this zone except appropriately packaged/decontaminated and labeled samples and drummed wastes.

5. Job Hazard Evaluation

Roux's work at the Site is expected to entail a variety of physical, chemical, and biological hazards, all of which must be sufficiently managed to allow the work to be performed safely. Some of the hazards are Site-specific (i.e., they are associated with the nature, physical characteristics, and/or routine operation of the Site itself), while others are activity-specific (i.e., they are associated with [or arise from] the particular activity being performed). The various hazards can be grouped into the following categories:

- **Caught/Crushed** – the potential to become caught in, under, between, or by an object or parts of an object, such as equipment with parts that open and close or move up and down ("pinch points") or equipment that rotates, and the accompanying potential to have body parts cut, mangled, or crushed thereby.
- **Contact** – the potential to be struck by or against moving or stationary objects that can cause physical injury, such as heavy machinery, overhead piping, moving vehicles, falling objects, and equipment (including tools and hand-held equipment) or infrastructure with the ability to cut or impale.
- **Energy Sources** – the potential for bodily harm associated with energy sources, most notably electricity, but also including latent energy sources such as compressed air and equipment under tension (which when released could cause injurious contact or a fall).
- **Ergonomics** – the potential for musculoskeletal injury associated with lifting/carrying, pushing/pulling, bending, reaching, and other physical activity attributable to poor body position/mechanics, repetitive motion, and/or vibration.
- **Exposure** – the potential for injury/illness due to physical, chemical, or biological exposures in the work environment, including, but not limited to, temperature extremes, solar radiation, and noise (physical), chemical splashes and hazardous atmospheres (chemical), and animal/insect bites and poisonous plants (biological).
- **Falls** – the potential to slip or trip and thus fall or drop a load, resulting in bodily injury to oneself or others.

The foregoing is intended to provide Roux employees with a general awareness of the hazards involved with Site work. A more detailed review of the potential hazards associated with each specific activity planned for the Site (or on-going activity, as the case may be) is provided in the activity-specific Job Safety Analysis (JSA) forms in **Appendix A**. As can be seen in the JSA forms, the hazards are identified by category per the above, and specific measures designed to mitigate/manage those hazards are also identified. In preparing the JSA forms, all categories of hazards were considered, and all anticipated potential hazards were identified to the extent possible based on the experience of the personnel preparing and reviewing the JSA forms. However, there is always the possibility for an unanticipated hazard to arise, potentially as condition change over the course of the workday. Roux personnel must maintain a continual awareness of potential hazards in the work zone, regardless of whether the hazard is identified in the JSA form. Particular attention should be paid to hazards associated with exposure to hazardous substances (see **Table 1** for a listing of the hazardous substances most likely to be encountered in environmental media at the Site) and to Site personnel being located "in the line of fire" with respect to moving equipment, pinch points, and latent energy (e.g., being located or having body parts located within the swing radius of an excavator, between two sections of pipe being connected, below a piece of suspended equipment, or adjacent to a compressed air line).

5.1 Hazard Communication and Overall Site Information Program

The information in the JSAs and SDSs is made available to all employees and subcontractors who could be affected by it prior to the time they begin their work activities.

Modifications to JSAs are communicated during routine pre-work briefings and periodically updated as needed in the HASP. SDSs will be maintained by the SHSO/SS for new chemicals brought on-site as needed. Copies of SDSs can be found in **Appendix B**.

5.2 Noise

Noise is associated with the operation of heavy equipment, power tools, pumps, and generators. Noise is also a potential hazard when working near operating equipment such as excavators, drill rigs or pole drivers. High noise (i.e., < 85 dBA) operations may be evaluated by the SHSO utilizing a type 2 handheld sound level meter (SLM) operating on the "A"-weighted scale with slow response because this scale most closely resembles human response to noise and complies with OSHA 29 CFR 1910.95. Hearing protection is required in areas with noise exposure greater than 85 dBA. Double hearing protection (ear plugs and earmuffs) should be donned in areas where the noise exposure is more than 95 dBA. Noise exposure will be controlled by hearing protection as described above or by maintaining set-backs from high-noise equipment, as warranted. Personnel handling heavy equipment and using power tools that produce noise levels exceeding those described levels above are required by OSHA 29 CFR 1910.95 to wear the appropriate Noise Reduction Rating (NRR) level of hearing protection. Appropriate hearing protection will be evaluated by the SHSO as necessary in consultation with the OHSM and CHSD.

5.3 Slip, Trip, and Fall Hazards

Slip, trip, and fall hazards may include, but are not limited to, general slip and trip hazards associated with uneven ground, possible debris, wet grass, and equipment. Prior to work, walking paths will be assessed for solid footings, any ground penetrations that may cause a tripping hazard will be appropriately marked, and other areas will be noted and discussed with the field team.

Personnel shall be aware of their surroundings and footings at all time, and all accommodations should be made for proper housekeeping and organized equipment placement at the Site, where possible, to help prevent any slip, trip, and fall-related incidents. All tools and materials should be appropriately stored when not in use and placed in appropriate storage containers.

5.4 Biological Hazards

Biological hazards that may potentially be present at a Site, include poisonous plants, insects (ticks, spiders, bees), animals (snakes, dogs), etc. Information on biological hazards can be found within Roux's Biological Hazard Awareness Management Program located within Roux's Corporate Health and Safety Manual. There is also potential for transmission and/or exposure to SARS-CoV-2, the virus that causes COVID-19. Prior to beginning work, on-Site protocols shall be established by the project team, including subcontractors, in accordance with federal, state, county, city, and/or other guidance, as applicable.

6. Emergency Response Plan

This emergency response plan details actions to be taken in the event of Site emergencies. The PM and SHSO is responsible for the implementation of emergency response procedures onsite. The SHSO/PM provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures and notification of appropriate authorities. In the event of an emergency, Site personnel are evacuated and do not participate in emergency response activities, response is facilitated through external emergency services.

6.1 Emergency Response

The SHSO, after investigating the incident and relevant information, shall determine the level of response required for containment, rescue and medical care. Limited on-site emergency response activities could occur therefore the SHSO is responsible for notifying external emergency response agencies. The SHSO provides relevant information to the responding organizations, including, but not limited to, the hazards associated with the emergency incident, potential containment problems, and missing Site personnel.

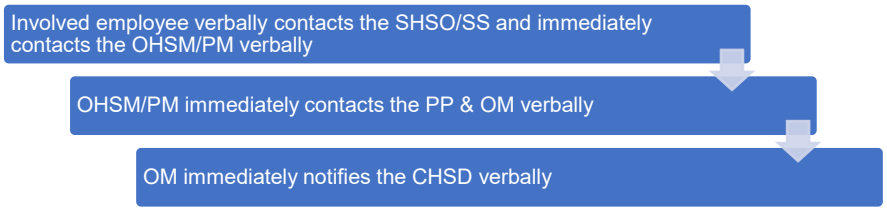
6.2 Emergency Alerting and Evacuation

If evacuation notice is given, Site workers leave the worksite, if possible, by way of the nearest exit. Appropriate primary and alternate evacuation routes and assembly areas have been identified and are shown on the Site Plan with Emergency Muster Area (**Figure 2**). The routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by SHSO/PM.

Personnel exiting the Site gather at a designated assembly point. To determine that everyone has successfully exited the Site, personnel will be accounted for at the assembly point. If any worker cannot be accounted for, notification is given to the SHSO, PM, and any arriving response authorities so that appropriate action can be initiated. Subcontractors on this Site have coordinated their emergency response plans to ensure that these plans are compatible and potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

6.3 Emergency Medical Treatment and First Aid

In the event of a work-related injury or illness, employees are required to follow the procedures outlined below. All work-place injury and illness situations require Roux's Project and Corporate Management Team to be notified when an injury/illness incident occurs, and communication with the contracted Occupational Health Care Management Provider, WorkCare, Inc., is initiated, as necessary. The Injury/Illness Notification Flowchart is provided below and within Roux's Incident Investigation and Reporting program included within Roux's Corporate Health and Safety Manual.



If on-Site personnel require any medical treatment, the following steps will be taken:

a. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence and communicate with the contracted Occupational Health Care Management Provider, WorkCare, immediately following the notifications provided above.

b. Based on discussions with the Project Team, Corporate Management and the WorkCare evaluation, if medical attention beyond onsite first aid is warranted, transport the injured / ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an ambulance or transport the victim to the hospital, and continue communications with Corporate Management Team. An Urgent Care/Hospital Route map with location to Work Fit Medical/Strong Memorial Hospital is included in the Site-Specific Emergency Information.

c. Decontaminate to the extent possible prior to administration of first aid or movement to medical or emergency facilities.

d. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).

e. The SHSO and PM will perform a Loss Investigation (LI), and the Project Team will complete the final Loss Report. If a Roux employee is involved in a vehicular incident, the employee must also complete the Acord Automobile Loss Notice.

7. Environmental Conditions and Response

7.1 Adverse Weather Conditions

In the event of adverse weather conditions, the SHSO or project principal will determine if work can continue without jeopardizing the health and safety of field workers. Some of the items related to adverse weather conditions to be considered prior to determining if work should continue include:

- Potential for heat stress and heat-related injuries;
- Potential for cold stress and cold-related injuries;
- Treacherous weather-related conditions. If wind speed is greater than 15 mph averaged over a 15-minute period or wind gusts over 25 mph, earthmoving operations will be ceased;
- Limited visibility; and
- Electrical storm potential.

Site activities will be limited to daylight hours and acceptable weather conditions. Inclement working conditions may include heavy rain, fog, high winds, and lightning. The SHSO and/or PM shall observe daily weather reports and evacuate, if necessary, in case of inclement weather conditions.

7.2 Electrical Storm Guidelines

In the event that lightning and/or thunder are observed while working onsite, all onsite activities shall stop and personnel shall seek proper shelter (e.g., substantial building, enclosed vehicle, etc.). Work shall not resume until the threat of lighting has subsided and no lightning or thunder has been observed for 30 minutes. If the possibility of lightning is forecast for the day, advise the onsite personnel on the risks and proper procedure at the pre-work safety briefing. Continuously monitor for changing weather conditions and allow enough time to properly stop work if lightning is forecast.

7.3 Environmental Stressors, Heat Stress, Heat Exhaustion, and Heat Stroke

It is the employer's responsibility to monitor weather forecasts and ambient air temperatures, both prior to the work shift and during the shift. The National Oceanic and Atmospheric Administration records average minimum/maximum temperatures of 26.2/72.4 degrees Fahrenheit during the year in Rochester, New York.

To prevent potential heat illness, the following strategies will be implemented:

- Adjusting personnel work/rest intervals;
- Monitoring for symptoms of heat illness;
- Providing shaded rest areas;
- Providing cool potable water so that each employee has access to at least one quart per hour for the entire shift, free of charge;
- Allowing for employees to acclimatize to the weather conditions and work demands;
- Observe workers during a heat wave (i.e., when the temperature is at least 80°F, and 10 degrees hotter than the average temperature of the five preceding days); and
- Implementing high heat procedures when the temperature reaches 95°F.

Roux's Heat Illness Prevention Plan is implemented when the when ambient temperatures exceed 80°F. Roux's Heat Illness Prevention Program can be found within **Appendix C**. Additional information regarding heat illnesses is provided below. This can include, but is not limited to, access to shade that is sufficient in size to fit all workers who are on break; a car with air conditioning is acceptable, too. Preventative cool-down breaks shall be allowed at any time, and anyone taking such a break will be monitored for heat illness symptoms and not required to return to work until all symptoms (if present) of heat illness have disappeared. If necessary, first aid will be offered, but if symptoms are severe, emergency response procedures will be implemented per Section 6.3. Anyone who has shown symptoms of severe heat illness will not be sent home without being offered first aid or medical treatment.

High heat procedures must be implemented when temperatures reach 95°F. These procedures include:

- Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary. An electronic device, such as a cell phone or text messaging device, may be used for this purpose only if the reception in the area is reliable.
- Observing employees for alertness and signs or symptoms of heat illness. The employer shall ensure effective employee observation/monitoring by implementing one or more of the following:
    - Supervisor or designee observation of 20 or fewer employees;
    - Mandatory buddy system; and
    - Regular communication with sole employee such as by radio or cellular phone, or other effective means of observation.
- Designating one or more employees on each worksite as authorized to call for emergency medical services and allowing other employees to call for emergency services when no designated employee is available.
- Encouraging employees throughout the work shift to drink plenty of water.
- A review of the high heat procedures during the daily tailgate meeting and remind employees of their right to take a cool-down rest when necessary.

7.3.1 Heat Stress

Heat stress is the body's response to excessive heat and can be a significant potential hazard. The risk of heat stress can be increased with heavy physical activity and/or the use of personal protective equipment in hot, humid weather environments. There are also personal risk factors that can contribute to the risk of suffering from heat stress, such as obesity, water intake, alcohol and caffeine consumption, pregnancy, age, medication, etc. Heat illness includes heat cramps, heat exhaustion, heat syncope, and heat stroke.

7.3.2 Heat Cramps

Heat cramps may be brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body resulting in painful muscle cramps, typically in the legs.

First aid treatment includes, but is not limited to, shade, rest, and fluid replacement. Typically, the individual should recover within one-half hour while being monitored constantly. If the individual has not improved substantially within 30 minutes and the body temperature has not decreased, the individual should be transported to a hospital for medical attention.

Per Roux's Heat Illness Prevention Plan, employees shall have access to potable drinking water that is fresh, pure, suitably cool, free of charge and in sufficient quantities. Access to shade shall be present when temperatures exceed 80 degrees Fahrenheit and shall be available when temperatures do not exceed 80 degrees Fahrenheit.

7.3.3 Heat Exhaustion

Heat exhaustion may occur in an individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual fails as blood collects near the skin to rid the body of excess heat through transference. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin with heavy perspiration;
- Skin appears pale;
- Fatigue and weakness;
- Dizziness; and
- Elevated body temperature.

First aid treatment includes, but is not limited to, cooling the victim, elevating the feet, and replacing fluids.

If the individual is not substantially improved within 30 minutes and the body temperature has not decreased, the individual should be transported to the hospital for medical attention.

7.3.4 Heat Stroke

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- Dry, hot, red skin;
- Body temperature approaching or above 105°F;
- Confusion, altered mental state, slurred speech;
- Seizures;
- Large (dilated) pupils; and
- Loss of consciousness – the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility. Heat stress is a significant hazard if any type of protective equipment (semi-permeable or impermeable) that prevents evaporative cooling when worn in hot weather environments.

7.4 Cold Stress

Cold stress is a danger at low temperatures and when the wind-chill factor is low. Prevention of cold-related illnesses is a function of whole-body protection. Adequate insulating clothing must be used when the air temperature is below 60°F. A work/rest regimen will be initiated when ambient temperatures and protective clothing cause a stressful situation. In addition, reduced work periods followed by rest in a warm area may be necessary in extreme conditions. The signs and symptoms of cold stress include the following:

- Severe shivering;
- Abnormal behavior;
- Slowing;
- Weakness;
- Stumbling or repeated falling;
- Inability to walk;
- Collapse; and/or
- Unconsciousness.

First aid requires removing the victim from the cold environment and seeking medical attention immediately. Also, prevent further body heat loss by covering the victim lightly with blankets. Do not cover the victim's face. If the victim is still conscious, administer hot drinks and encourage activity such as walking, wrapped in a blanket.

8. Safety Procedures

This section of the HASP presents the specific safety procedures to be implemented during Roux's activities at the Site in order to protect the health and safety of various on-site personnel. Minimum OSHA-mandated procedures are presented first, followed by client- and Site-specific procedures. Lastly, activity-specific procedures are discussed. These Site and activity-specific procedures supplement the general safety procedures included in Roux's Corporate Health and Safety Manual, which also must be followed in their entirety.

8.1 Training

At a minimum, Site personnel who will perform work in areas where there exists the potential for toxic exposure will be health and safety-trained prior to performing work onsite per OSHA 29 CFR 1910.120(e) and 29 CFR 1926.65(e). More specifically, all Roux, subcontractor, and other personnel engaged in sampling and remedial activities at the Site and who are exposed or potentially exposed to hazardous substances, health hazards, or safety hazards must have received at a minimum the 40 hour initial HAZWOPER training consistent with the requirements of 29CFR 1910.120(e)(3)(i) training and a minimum of 3 days' actual field experience under the direct supervision of a trained experienced supervisor, plus 8 hours of refresher training on an annual basis. Depending on tasks performed, less training may be permitted. Evidence of such training must be maintained at the Site at all times. Furthermore, all on-Site management and supervisory personnel directly responsible for or who supervise the employees engaged in Site remedial operations, must have received an additional 8 hours of specialized training at the time of job assignment on topics including, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques, plus 8 hours of refresher training on an annual basis. Additionally, all workers who will be required to don a respirator will be properly trained on their employer's Respiratory Protection Program, which also includes being medically cleared to wear a respirator and passed a fit test, at least initially prior to use, and then annually thereafter in accordance with 29 CFR 1910.134, Respiratory Protection.

Roux personnel training records are maintained in a corporate database with records available upon request from either the OHSM/SHSO/CHSD or Human Resources Department.

8.2 Site-Specific Safety Briefings for Visitors

A site-specific briefing is provided to all site visitors who enter this site beyond the site entry point. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

8.3 HASP Information and Site-Specific Briefings for Workers

Site personnel review this HASP and are provided a Site-specific tailgate briefing prior to the commencement of work to ensure employees are familiar with this HASP and the information and requirements it contains, as well as the relevant JSAs included in **Appendix A**. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during on-going Site characterization and analysis of changing conditions. Conditions for which we schedule additional briefings

include but are not limited to: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during Site work.

8.4 Medical Surveillance

The medical surveillance section of the Health and Safety Plan describes how worker health status is monitored at this site. Medical surveillance is used when there is the potential for worker exposure to hazardous substance at levels above OSHA Permissible Exposure Limits (PEL) or other published limits. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The provisions for medical surveillance at this site are based on the site characterization and job hazard analysis found in Section 4 of this HASP and are consistent with OSHA requirements in 29 CFR 1910.120(f) as applicable.

8.4.1 Site Medical Surveillance Program

Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and job hazard analysis documented in Section 4 and JSAs within **Appendix A** of this HASP and in compliance with the requirements of 29 CFR 1910.120(f)(2). Based on site information and use of direct reading instruments, limited use of respirators (less than 30 days per year), and the absence of an employee-staffed HAZMAT team, a limited medical surveillance program is required and implemented at this site. The medical surveillance program provides that:

1. Workers assigned to tasks requiring the use of respirators receive medical examinations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment, and
2. If a worker is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substance or health hazards, medical examinations are provided to that worker as soon as possible after the occurrence and as required by the attending physician.
3. These medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to workers free of cost, without loss of pay, and at a reasonable time and place. In addition, the need to implement a more comprehensive medical surveillance program will be re-evaluated after any apparent over-exposure.

8.4.2 Medical Recordkeeping Procedures

Medical recordkeeping procedures are consistent with the requirements of 29 CFR 1910.1020 and are described in the company's overall safety and health program. A copy of that program is available at our Islandia, New York office.

The following items are maintained in worker medical records:

- Respirator fit test and selection;
- Physician's medical opinion of fitness for duty (pre-placement, periodic, termination);
- Physician's medical opinion of fitness for respirator protection (pre-placement, periodic); and
- Exposure monitoring results.

8.4.3 Program Review

The medical program is reviewed to ensure its effectiveness. The Corporate Health and Safety Manager, in coordination with the Human Resources Director, is responsible for this review. At minimum, this review consists of:

- Review of accident and injury records and medical records to determine whether the causes of accidents and illness were promptly investigated and whether corrective measures were taken wherever possible;
- Evaluation of the appropriateness of required medical tests based on site exposures; and
- Review of emergency treatment procedures and emergency contacts list to ensure they were site-specific, effective, and current.

8.5 Personnel Protection

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices and PPE are used to protect employees. Appropriate personal protective equipment (PPE) shall be worn by Site personnel when there is a potential exposure to chemical, biological or physical hazards (e.g., falling objects, flying particles, sharp edges, electricity, and noise), as determined by the SHSO. The level of personal protection, type and kind of equipment selected will depend on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors will be made before work can be safely executed.

Roux maintains a comprehensive written PPE program that addresses proper PPE selection, use, maintenance, storage, fit and inspection. Roux's PPE program can be found within **Appendix D**. PPE to be used at the Site will meet the appropriate American National Standards Institute (ANSI) standards and the following OSHA (General/Construction Industry) standards for minimum PPE requirements.

The minimum level of PPE for entry onto the Site is Level D. The following equipment shall be worn:

- Work uniform (long pants, sleeved shirt);
- Hard hat;
- Steel or composite toe work boots (must comply with American Society for Testing and Materials [ASTM]) F 2412-05, Standard Test Methods for Foot Protection and ASTM F 2413-05, Standard Specification for Performance Requirements for Foot Protection);
- Safety Glasses (must comply with one of the following ANSI/ISEA Z87.1-2010, ANSI Z87.1-2003, ANSI Z87.1-2003);
- Boot Covers (as needed);
- Hearing protection (as needed);
- High visibility clothing (shirt/vest); and
- Hand protection (e.g., minimum cut resistance meeting ANSI 105-2000 Level 2).

Note that jewelry shall be removed or appropriately secured to prevent it from becoming caught in rotating equipment or unexpectedly snagged on a fixed object (e.g., wrist watches, bracelets, rings, chains and necklaces, open earrings). Do not wear loose clothing and all shoulder-length hair should be tied back.

Site specific PPE ensembles and materials are identified within task specific JSAs located within **Appendix A**, and any upgrades or downgrades of the level of protection (i.e., not specified in the JSA) must be approved by the PP and immediately communicated to all Roux personnel and subcontractors as applicable. PPE is used in accordance with manufacturer's recommendations.

8.5.1 Additional Personal Protection

As outlined above the minimum PPE for entry onto the Site is modified Level D. Outlined below are the requirements for Level C and B PPE.

EPA Level C Protection

Personal Protective Equipment:

- Full-face, air-purifying, cartridge-equipped respirator* (Mine Safety and Health Administration/ National Institute of Occupational Safety and Health [MSHA/ NIOSH] specifically approved for protection from organic vapors or particulates);
- Chemical-resistant clothing (coverall; hooded, two-piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls);
- Cotton coveralls;
- Gloves (outer), chemical-resistant, nitriles;
- Gloves (inner), cut resistant (with minimum blade cut-rating of ANSI 105-2000 Level 2);
- Boots (inner), chemical-resistant, steel (or composite) toe and including task-specific boot requirements as consistent with ASTM F2413-11;
- Boots (outer), chemical-resistant (disposable);
- Hard hat;
- Hearing protection (as needed); and
- Escape mask (as needed).

*Cartridges in use will be changed out based on their End of Service Life Indicator. If organic vapor (OV) cartridges are worn for benzene exposures above 1 ppm, the cartridge shall be removed from service at the end of the calculated service life or before the next shift, whichever is sooner. For other contaminants present a cartridge change out schedule will be provided based off 3M Select & Service Life Software or in consultation with the CHSD; worst case assumptions will be made to provide a conservative estimate on cartridge change out. If multiple contaminants are present at varying degrees, the work must cease operation, as cartridges in use may not cover all contaminants present. Screening will be carried out during work activities as specified in Section 8.6 Air Monitoring Plan. Organic vapors adsorbed on an organic vapor cartridge can migrate through the carbon bed without airflow. Desorption of the contaminant after partial use of the chemical cartridge can occur after a short period (hours) without use (e.g., overnight). This is most significant for the most volatile and poorly retained organic vapors (e.g., boiling point < 65 degrees Celsius [°C]). For organic vapors with a boiling point less than 65 degrees C, it is recommended that the organic vapor cartridge never be used longer than one shift, even if the estimated service life is greater than 8 hours, and the cartridge is used for only a short time during the shift.

Criteria for Selection-Level C:

Meeting any of these criteria warrants use of Level C protection.

- Airborne hazards are known to be present but are unlikely to exceed protection factors provided by air purifying respirators.

- Continuous total organic vapor readings in the breathing zone register between 50 ppm and to less than 100 ppm on a PID (such as a MiniRAE 3000 or other comparable instrument), and chemical specific (e.g., benzene/vinyl chloride/formaldehyde) readings utilizing colorimetric indicator tubes (e.g., Dräeger or Sensidyne) are undetectable.
- See the Combustible Gases table for decisions based on LEL within Section 8.5. Air Monitoring Plan.
- Measured air concentrations of known organic vapors will be reduced by the respirator to at or below one half of the PEL, and the individual and combined compound concentrations are within the service limit of the respirator cartridge.
- Atmospheric contaminant concentrations do not exceed Immediately Dangerous to Life and Health (IDLH) concentrations.
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.
- Job functions have been determined not to require self-contained breathing apparatus.

Notes:
1. Benzene and or other specific compounds may also be monitored initially and periodically in the breathing zone utilizing activated sampling devices approved for use based on lower occupational exposure limits.
2. Modifications of Level C will be used to increase or decrease the level of skin protection during activities that increase or preclude, respectively, the degree of contact with chemical hazards. Modifications for increased protection may include, but are not limited to, the use of chemical resistant coveralls (e.g., Tyveks) and cut and chemical resistant gloves. Any modifications to Level C will require approval of the SHSO, and PM in consultation with the CHSD.

EPA Level B Protection (Contact the OHSM and/or CHSD)

Personal Protection Equipment:

- Pressure-demand, self-contained breathing apparatus (MSHA/NIOSH approved);
- Chemical-resistant clothing (overall and long-sleeved jacket; coveralls; hooded, one or two-piece chemical-splash suit; disposable chemical-resistant coveralls);
- Cotton coveralls;
- Chemical-resistant gloves (outer) nitriles;
- Gloves (inner), cut-resistant (with minimum blade cut rating of ANSI Level 2);
- Boots (inner), chemical-resistant, steel (or composite) toe, and task-specific boot requirements as consistent with ASTM F2413-11;
- Boots (outer), chemical-resistant, (disposable);
- Hard hat;
- Hearing protection (as needed); and
- 2-way radio communications (intrinsically safe).

Criteria for Selection-Level B:

- Meeting any one of these criteria warrants use of Level B protection.
- PID instrument (such as a MiniRAE 3000 or other comparable instrument) readings in the breathing zone are greater than 50 ppm and less than 100 ppm and benzene is detectable utilizing colorimetric indicator tubes (e.g., Dräeger or Sensidyne).
- Airborne hazards are known to be present but are not identified or quantified.

- The type(s) and atmospheric concentration(s) of toxic substance(s) have been identified and require the highest level of respiratory protection, but a lower level of skin and eye protection. These would-be atmospheres:
    - With IDLH concentrations;
    - Exceeding limits of protection afforded by a full-face, air-purifying respirator; or
    - Containing substances requiring supplied-air PPE, but substances and/or concentrations do not represent a serious skin hazard.
    - The atmosphere contains less than 19.5% oxygen.
- Site operations make it highly unlikely that the small, unprotected area of the head or neck will be contacted by splashes of extremely hazardous substances.
- If work is performed in an enclosed space.

Note that jewelry shall be removed or appropriately secured to prevent it from becoming caught in rotating equipment or unexpectedly snagged on a fixed object. (e.g., wrist watches bracelets, rings, chains and necklaces, open earrings). Do not wear loose clothing and all shoulder length hair should be tied back.

Site-specific PPE ensembles and materials are identified within task specific JSAs located within **Appendix A**, and any upgrades or downgrades of the level of protection (i.e., not specified in the JSA) must be immediately communicated to all Roux personnel and subcontractors, as applicable. PPE is used in accordance with manufacturer's recommendations.

8.5.2 Hearing Conservation

Hearing protection is made available when noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 dBA. Hearing protection is required when the 8-hour time weighted average sound level $\geq$ 85 dBA, or when noise levels exceed 140 dBA at any point or exceeds 115 dBA for at least 15 minutes. Where noise exposure meets or exceeds this level, noise is listed as a physical hazard in the JSA for the tasks/operation, and hearing protection is included as one of the control measures (PPE).

8.6 Monitoring

An air monitoring program is important to the safety of on- and off-Site personnel, and the surrounding area. A preliminary survey, to establish background conditions in the immediate sampling area, may be made prior to the initiation of Site work including, but not limited to, monitoring wind direction (e.g., wind socks) and approximate temperature during all invasive Site activities. This survey will be conducted with the appropriate pre-calibrated air monitoring instrument(s), as warranted by the field activity. Once this survey has been complete, any changes in the type of PPE will be determined and relayed to those working on-Site.

A Site-specific Community Air Monitoring Plan (CAMP) is included as an appendix to the ISMP and RAWP.

Work zone air monitoring will be performed to verify that the proper level of PPE is used, and to determine if increased protection or work stoppage is required. The following equipment shall be used to monitor conditions:

- A Photoionization Detector (PID) with a lamp energy of 10.6 eV will be used to provide direct readings of organic vapor concentrations during intrusive activities to determine that personnel protection is adequate. Concentrations shall be recorded during intrusive activities with the potential to encounter contaminant vapors.

- Colorimetric detection tubes shall be used based on PID action levels to qualitatively identify possible contaminants as applicable.
- A pre-calibrated multi-gas meter with combustible Lower Explosive Limit (LEL), oxygen (O2), carbon monoxide (CO), and hydrogen sulfide (H2S) sensors shall be used to monitor the potential for oxygen-deficient atmospheres, explosive concentrations of organic vapors, and toxic gases during intrusive operations. The calibration for this device will be performed using a known gas composition calibration mixture.

Personal exposure monitoring utilizing activated charcoal tubes may be considered based on whether or not the area sample results are at or above half of the PEL. The decision to perform the monitoring will be made by, and under the control of, the CHSD.

Below are monitoring action levels for Site-specific chemicals of concern. In the event PID readings above the thresholds identified below are sustained for 5 minutes in the breathing zone, worker protection will require upgrading following notification to the OHSM and applicable parties.

8.6.1 Action Levels for Air Monitoring

PPE can remain at Level D if breathing zone VOC concentrations are less than 5 ppm and benzene is non-detect. Personnel are required to evacuate the Site when breathing zone VOC readings exceed 25 ppm.

The following tables include summaries of the air monitoring, work practices, and action levels for the expected contaminants. The action levels to initiate testing with colorimetric tubes for airborne volatiles is 1 ppm (PID reading) and is based on the Permissible Exposure Limit (PEL) for benzene (1 ppm). The colorimetric tubes are used to confirm the presence or absence of specific constituents, and they do not provide a measured concentration.

PPE can remain at Level D if breathing zone VOC concentrations are less than 5 ppm is non-detect. Personnel are required to evacuate the Site when breathing zone VOC readings exceed 25 ppm.

The following tables include summaries of the air monitoring, work practices, and action levels for the expected contaminants.

Air Monitoring Summary and Action Levels Organic Vapors	
PID Reading in Breathing Zone (ppm)	**Action**
<5 ppm	Continue Monitoring, ventilate space
≥ 5 ppm - ≤ 25 ppm	Ventilate space until PID reads < 5 ppm. If < 5 ppm cannot be achieved, upgrade to Level C[1].
≥ 25 ppm	Ventilate space and evacuate area. Consult with CHSD.

Background concentrations should be established at the beginning of each work day. It may be necessary to re-establish background concentrations and ambient conditions vary through the day.

1 Measured air concentrations of known organic vapors will be reduced by the respirator to one half of the PEL or lower, and the individual and combined compound concentrations shall be within the service limit of the respirator cartridge.

Air Monitoring Summary and Action Levels Oxygen	
O_2 Reading in Breathing Zone (%)[1]	**Action**
20.9% O_2	Oxygen level normal
< 19.5% O_2	Oxygen deficient Interrupt task/Evacuate area
>23.5% O_2	Oxygen enriched Interrupt task/Evacuate area

1. Action levels based on USEPA Standard Operating Safety Guides; Table 5-1

Air Monitoring Summary and Action Levels Carbon Monoxide	
CO Reading in Breathing Zone (ppm)[1]	**Action**
<12.5 ppm	Inspect exhaust system for leaks or other sources of CO. Monitor initially and every 15 minutes during use of CO-generating equipment.
12.5-25 ppm	Ventilate area. Monitor continuously and record measurements. Contact PM.
>25 ppm	Cease Field Operations. Ventilate area.

1. Based upon the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 25 ppm as an 8-hour time weighted average (TWA) and OSHA's Permissible Exposure Limit (PEL) of 50 ppm as an 8-hour TWA concentration.

Air Monitoring Summary and Action Levels Combustible Gases	
Lower Explosive Limit (LEL) Reading	**Action**
< 4% LEL	Site activities will continue with normal monitoring
4% – 20% LEL	Stop work until levels dissipate to <4% LEL
> 20% LEL	Potential explosion hazard. Halt all site activities, research source of release, aerate work area, suppress source.
Air Monitoring Summary and Action Levels Hydrogen Sulfide	
Hydrogen Sulfide (H_2S) Reading	**Action**
<10 ppm	Site activities will continue with normal monitoring
≥10 ppm	Stop work until levels dissipate to <10 ppm; use mechanical ventilation if possible. Consult with CHSD if unable to reduce concentrations below 10 ppm.

8.6.2 Air Monitoring Equipment and Calibration

A PID calibrated to an appropriate calibration mixture will be used to detect organic vapors in and around the work areas. Monitoring will be conducted in and around all work areas and at the workers breathing zone before activities commence to establish a background level, then at 15-minute intervals throughout the day. All equipment will be calibrated according to the manufacturer's recommendation. A calibration log will be maintained and will include the name of the person who performed the calibration, the date and time calibrated, and the instrument reading at the time of calibration. A manual bellows pump or equivalent with colorimetric tubes for specific compounds will be utilized to determine the course of action related to upgrading or downgrading the level of respiratory protection, as applicable.

If air monitoring data indicate safe levels of potentially harmful constituents at consistent intervals (5-minute intervals), then monitoring can be conducted less frequently (every 30 minutes). This determination will be made by the onsite SHSO. Monitoring data, including background readings and calibration records, will be documented. Work to be performed on-Site will conform to Roux's Standard Operating Procedures (SOPs). Conformance with these guidelines as well as the guidelines described in this HASP will aid in mitigating the physical and chemical hazards mentioned throughout this HASP.

8.7 Tailgate Safety Meetings

A designated Site worker will provide daily safety briefings (e.g., tailgate meetings) including, but not limited to, the following scenarios:

- When new operations are to be conducted;
- Whenever changes in work practices must be implemented; and
- When new conditions are identified and/or information becomes available.

Daily safety briefings shall be recorded on the Roux Daily Tailgate Health and Safety Meeting Log/Daily Site Safety Checklist, and all completed forms will become a part of the project file.

8.8 Spill Containment

Spill containment equipment and procedures should, at a minimum, meet the requirements of the facility's Spill Prevention, Control and Countermeasure Plan, if applicable. Otherwise, spill containment equipment and procedures must be considered depending on the task, including, but not limited to, chemical/product transfer points and handling.

8.8.1 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify the SHSO. The worker will, to his/her best ability, report the hazardous substance involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries without compromising their own safety.

8.8.2 Spill Evaluation and Response

The SHSO is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area will be isolated and demarcated to the extent possible. If necessary to protect nearby community members, notification of the appropriate authorities is made by the PM as appropriate. On-Site response is limited to small spills (e.g., <10 gallons); large spills require external emergency responders who will be contacted by the SHSO.

8.9 Decontamination

The decontamination section of the HASP describes how personnel and equipment are decontaminated when they leave the Exclusion Zone. This section also describes how residual waste from decontamination processes is disposed. The site decontamination procedures are designed to achieve an orderly, controlled removal or neutralization of contaminants that may accumulate on personnel or equipment. These procedures minimize worker contact with contaminants and protect against the transfer of contaminants to clean areas of the site and off-site. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and can permeate PPE surfaces. Decontamination is facilitated within the CRZ at this site, if applicable.

8.9.1 Decontamination Procedures for Personnel and PPE

The following are general decontamination procedures established and implemented at this site.

1. Decontamination is required for all workers exiting a contaminated area. Personnel may re-enter the SZ only after undergoing the decontamination procedures described below in the next section.
2. Protective clothing is decontaminated, cleaned, laundered, maintained and/or replaced as needed to ensure its effectiveness.
3. PPE used at this site that requires maintenance or parts replacement is decontaminated prior to repairs, or
4. PPE used at this site is decontaminated or prepared for disposal on the premises. Personnel who handle contaminated equipment have been trained in the proper means to do so to avoid hazardous exposure.
5. This site uses an off-site laundry for decontamination of PPE. The site has informed that facility of the hazards associated with contaminated PPE from this site.
6. The site requires and trains workers that if their permeable clothing is splashed or becomes wetted with a hazardous substance, they will immediately exit the work zone, perform applicable decontamination procedures, shower, and change into uncontaminated clothing.
7. Procedures for disposal of decontamination waste meet applicable local, State, and Federal regulations.

8.9.2 Decontamination Procedures for Equipment

All tools, equipment, and machinery from the EZ or CRZ are decontaminated in the CRZ prior to removal to the SZ. Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure and to avoid cross-contamination and chemical incompatibilities.

General Equipment Decontamination Procedures:

1. Decontamination is required for all equipment exiting a contaminated area. Equipment may re-enter the SZ only after undergoing the equipment decontamination procedures.

2. Vehicles that travel regularly between the contaminated and clean areas of the site are carefully decontaminated each time they exit the EZ, and the effectiveness of that decontamination is monitored to reduce the likelihood that contamination will be spread to other parts of the site.
3. Particular attention is given to decontaminating tires, scoops, and other parts of heavy equipment that are directly exposed to contaminants and contaminated soil.
4. Procedures for disposal of decontamination waste shall meet applicable local, State, and Federal regulations.

The following items may be used to decontaminate equipment:

- Fresh water rinse;
- Non-phosphorus detergent wash;
- Acetone rinse;
- Distilled water rinse; and
- A steam cleaner or pressure washer (heavy equipment only).

8.9.3 Monitoring the Effectiveness of Decontamination Procedures

Visual examination and sampling are used to evaluate the effectiveness of decontamination procedures. Visual examination is used to ensure that procedures are implemented as described and that they appear to control the spread of contaminants under changing site conditions. Visual examination is also used to inspect for signs of residual contamination or for contaminant permeation of PPE.

Personnel who work in contaminated areas of the site, either the Contamination Reduction Zone (CRZ) or the Exclusion Zone, are trained in the principles and practices of decontamination described in this section of the HASP and in related SOPs. If site procedures are changed as a result of inspection and monitoring, all affected employees are notified of these changes.

8.10 Confined Space Entry

The projected scope of work does not anticipate the need for Confined Space Entry at this time. As such, **ROUX PERSONNEL ARE NOT AUTHORIZED TO ENTER AN OSHA PERMIT REQUIRED CONFINED SPACE.** Any changes to the field activities that may necessitate confined space entry will be reported to the Project Principal and OHSM.

Confined space is defined as any space, depression, or enclosure that:

- Has limited opening for entry and egress;
- Is large enough for an employee to enter and perform assigned work; and
- Is not intended for continuous occupancy.

A permit required confined space is one that meets the definition of a confined space and has one or more of the following characteristics:

- May contain or produce life-threatening atmospheres due to oxygen deficiency the presence of toxic, flammable, or corrosive contaminants;
- Contains a material that has the potential for engulfment;

- Has an internal configuration that may cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; and
- Contains any other serious safety or health hazards.

Although not anticipated at this time, if subcontractors performing cleaning and mitigation and/or remedial measures activities are required to enter structures that are considered to be a permit required confined space, permitting of the confined space as well as hazard mitigation for entry will be completed by the subcontractor in accordance with 29 CFR 1910.146 or 1926.1201-1213 and/or applicable local/client requirements.

8.11 Client and Site-Specific

In addition to the OSHA-specific procedures discussed above, there may be client and site-specific safety procedures that must be adhered to during the performance of remedial activities at the Site.

8.12 Unusual or Significant Risks

Field activities that appear to have unusual or significant risks that cannot be adequately managed with existing risk tools such as LPS, HASPs, traffic safety plans, work permits, design and O&M practices, equipment HAZOPS or other safety tools must be referred to the CHSD to help with the assessment and management of the associated potential safety risks. Examples include the use of explosives for demolition, use of firearms to control wildlife, rappelling, demolition over water, diving, etc.

8.13 Activity-Specific Hazards

In addition to the general hazards discussed above, there are activity-specific hazards associated with each work activity planned for the Site. An activity-specific JSA has been completed for each of the activities planned for the Site. JSAs are provided in **Appendix A**. In the event that new work activities or tasks are planned, JSAs will be developed and implemented prior to performing the new activities. In the absence of a JSA, the personnel performing work must prepare a field JSA and receive clearance from a designated competent safety official prior to performing any task with significant risk. In emergency situations where time is critical SPSAs will be utilized to identify the task, associated hazards and mitigative actions to take. For lower risk activities (as deemed by the discretion of a Competent Person) where a JSA is determined to not be needed, the individual(s) conducting the activities must perform SPSAs prior to and during the work.

8.13.1 Electrical and Other Utility Assessment and Accommodations

Roux shall perform a site walk to identify any potential overhead electrical or utility lines. All applicable guidelines will be followed in the vicinity of overhead power and utility lines (see Section 8.13.3 below).

Roux has also reviewed all available Site maps showing buried utility lines to identify potential hazards, which revealed that no underground hazards are known to exist in the vicinity of the areas of the Site pertinent to this HASP.

8.13.2 Subsurface Work

Subsurface work activities will require adherence to Roux's Corporate Subsurface Utility Clearance Management program found within **Appendix E**.

8.13.2.1 Excavations and Trenching

Trenching and excavation work activities carried out by Roux and their subcontractors shall comply with applicable OSHA standards (i.e., 29 CFR 1926.650-652). Regional Notification Centers (i.e., Underground Services Alert) shall be notified at least two working days prior to the start of any digging or excavation work per state requirements (i.e., 811-One Call). Personnel responsible for excavation activities will be trained in their job responsibilities. Additionally, for trenches 4 feet or deeper, where employees will enter, the trench needs to have a stairway, ladder or other safe means of egress, and located so that employees don't have to travel farther than 25 feet horizontally. Where employees will enter trenches greater than 5 feet deep, the trench must have some type of protective system or sloped sidewalls appropriately to prevent cave-ins.

The SHSO or other responsible Roux personnel will be present on-Site during all Roux contracted excavation and backfill operations and will supplement health and safety monitoring conducted by Subcontractor air quality screening to ensure that appropriate levels of protection and safety procedures are utilized. The proximity of chemical, water, sewer, and electrical lines will be identified by Roux and/or their subcontractor before any subsurface activity or sampling is attempted. Prior to any excavation activities, trees, shrubbery, and other objects that can potentially pose as a hazard during excavation should be supported or removed from the excavation area. The following safe work practices will be implemented during this task.

- The proximity of chemical, water, sewer, and electrical lines will be identified by a facility representative prior to beginning any subsurface activity;
- At the start of every day, a competent person will inspect excavations to evaluate if the area is stable and safe to enter. Inspections will be conducted as needed throughout the excavation operations. If deemed necessary, a competent person may also conduct inspections after rainfall or any other event that can potentially affect the integrity of the excavation. Employees will not enter excavations where water has accumulated until protective measures have been implemented.
- Prior to entering excavations greater than 4 feet in depth, air monitoring for oxygen and hazardous atmospheres must be conducted to assure atmospheric conditions are within normal levels described in Section 8.6. Continuous air monitoring with a standard multi-gas detector (O^2, LEL%, CO, H^2S) shall be used during the course of work within an excavation; if action limits are reached workers shall safely exit the excavation. Upgrades to worker protection should be evaluated with the SHSO and PP in consultation with the CHSD. Emergency rescue equipment, such as breathing apparatuses and safety harnesses connected to an extraction device, will be readily available in the event of hazardous atmospheric conditions;
- While earthmoving, stay out of the excavator's delineated heavy equipment exclusion zone and away from the excavation sides where there is potential for cave in (within excavations that are 6 feet or more in depth, a delineated perimeter 6 feet away from the excavated edge is required);
- During loading and unloading operations, stand away from haul trucks and other vehicles to avoid contact with any falling loads; and
- Traffic cones, caution tape, or other barriers will be set up around the perimeter of the excavation when employees are working along the excavation edge and for any excavation that will be left open overnight or unattended for more than two days.

Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H:V)[1] for Excavations Less Than 20 Feet Deep[3]
Stable Rock	Vertical (90°)
Type A[2]	3/4 : 1 (53°)
Type B	1 : 1 (45°)
Type C	1 1/2 : 1 (34°)

29 CFR 1926 Subpart P Appendix B Sloping and Benching Table B-1

Notes:

[1] Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

[2] A short-term maximum allowable slope of 1/2H : 1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 meters) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 meters) in depth shall be 3/4H : 1V (53°).

[3] Sloping or benching for excavations greater than 20 feet deep shall be designed and stamped by a registered professional engineer.

Proper stockpiling (i.e., 2 feet minimum distance from the excavation edge), containment, transport, storage, and disposal practices will be utilized and is dependent upon the potential type and amount of waste generated during operations. The location of safety equipment and evacuation procedures will be established prior to initiation of operations according to this HASP.

8.13.3 Heavy Equipment

Use of heavy equipment at the Site will require adherence to Roux's Corporate Heavy Equipment Exclusion Zone Management Program found within **Appendix F**. Exclusion zone layouts specific to the building demolition activities will be provided to Roux by the subcontractor performing the work and must be reviewed and approved by Roux prior to mobilization for the work. Additionally, operation of the drill rig/other heavy equipment will maintain clearances from overhead power lines in accordance with 29 CFR 1926.1408 Table A Minimum Clearance Distances provided below.

Minimum Required Clearances for Energized Overhead Power Lines

Nominal System Voltage of Power Line (K V)	Minimum Required Clearance (feet)
0-50	10
51-100	12
101-200	15
201-300	20
301-500	25
501-750	35
751-1000	45

1 kilovolt (KV) = 1,000 volts

8.14 Traffic Control

If Site operations encroach upon public streets or highways and a hazard exists to Site personnel because of traffic conditions, a traffic control plan will be implemented in accordance with the United States Department of Transportation's (DOT's) "Manual on Uniform Traffic Control Devices."

8.15 Sanitation

Sanitation facilities will be provided in accordance with the sanitation standards (29 CFR 1910.141, 29 CFR 1926.51 and 29 CFR 1928.110). Sanitation facilities will be maintained and kept in good conditions at all times.

9. Field Team Review

Each person performing work at or visiting this site shall sign this section after site-specific training is completed and before being permitted to access the CRZ or Exclusion Zone.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provision contained therein.

Site/Project: 5 Flint Street, Rochester, New York

Name & Company	Signature	Date

10. Approvals

By their signature, the undersigned certify that this HASP is approved and will be utilized at the 5 Flint Street Site.

Nicholas Suraci – Site Health and Safety Officer	7/15/2025 Date
 Kevin Gray - Office Health and Safety Manager	7/15/2025 Date
 Sara Barrientos– Project Manager	7/15/2025 Date
 Ian Reed – Project Principal	7/15/2025 Date

TABLES

1. Toxicological Properties of Hazardous Substances Present at the Site

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
ORGANOCHLORINE PESTICIDES (OCP)									
DDT	50-29-3	TWA 1 mg/m3	TWA 0.5 mg/m3	TWA 1 mg/m3	500 mg/m3	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eyes, skin, central nervous system, kidneys, liver, peripheral nervous system	White, odorless and tasteless, very stable, water-insoluble, synthetic BP: 260°F Fl.Pt. = 162-171°F LEL: NA UEL: NA
Aldrin	309-00-2	TWA 0.1 mg/m3	TWA 0.25 mg/m3	TWA 0.25 mg/m3	25 mg/m3	Inhalation, ingestion, skin and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort); myoclonic jerks of limbs; clonic, tonic convulsions; coma; hematuria (blood in the urine), azotemia; [potential occupational carcinogen]	Developmemntal, Endocrine, Liver, Immune System, Nervous System,	Colorless to dark-brown crystalline solid with a mild chemical odor. BP: 293°F Fl.Pt. = 150°F LEL: NA UEL: NA
Lindane (gamma-BHC)	58-89-9	TWA 0.5 mg/m3	TWA 0.5 mg/m3	TWA 0.5 mg/m3	50 mg/m3	Inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat; headache; nausea; clonic convulsions; resp difficulty; cyanosis; aplastic anemia; muscle spasm; In Animals: liver, kidney damage	Eyes, skin, respiratory system, central nervous system, blood, liver, kidneys	White to yellow, crystalline powder with a slight, musty odor. BP: 614°F Fl.Pt. = 150°F LEL: NA UEL: NA
Dieldrin	860-57-1	TWA 0.1 mg/m3	TWA 0.25 mg/m3	TWA 0.25 mg/m3	25 mg/m3	Inhalation, ingestion, skin and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; ; In Animals: liver, kidney damage [potential occupational carcinogen]	Developmemntal, Endocrine, Liver, Immune System, Nervous System,	Colorless to light-tan crystals with a mild, chemical odor. BP: NA (Decomposes) Fl.Pt. = NA LEL: NA UEL: NA
VOLATILE ORGANIC COMPOUNDS (VOCs)									
1,1,1-Trichloroethane	71-55-6	TWA 350 ppm STEL 450 ppm	C 350 ppm (1900 mg/m^3) [15-minute]	TWA 350 ppm (1900 mg/m^3)	700 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eyes, skin, central nervous system, cardiovascular system, liver	Colorless liquid with a mild, chloroform-like odor. BP: 165°F Fl.Pt. = NA LEL: 7.5% UEL: 12.5% Combustible Liquid, but burns with difficulty
1,1,2,2-Tetrachloroethane	79-34-5	TWA 1 ppm [skin]	Ca TWA 1 ppm (7 mg/m^3) [skin]	TWA 5 ppm (35 mg/m^3) [skin]	Ca [100 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nausea, vomiting, abdominal pain; tremor fingers; jaundice, hepatitis, liver tenderness; dermatitis; leukocytosis (increased blood leukocytes); kidney damage; [potential occupational carcinogen]	Skin, liver, kidneys, central nervous system, gastrointestinal tract	Colorless to pale-yellow liquid with a pungent, chloroform-like odor BP: 296°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	TWA 1000 ppm STEL 1250 ppm	TWA 1000 ppm (7600 mg/m3) ST 1250 ppm (9500 mg/m3)	TWA 1000 ppm (7600 mg/m3)	2000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation skin, throat, drowsiness, dermatitis; central nervous system depression; In Animals: cardiac arrhythmias, narcosis	Skin, heart, central nervous system, cardiovascular system	Colorless to water-white liquid with an odor like carbon tetrachloride at high concentrations. [Note: A gas above 118°F.] BP: 118°F Fl.Pt. = NA LEL: NA UEL: NA
1,1,2-Trichloroethane	79-00-5	TWA 10 ppm [skin]	Ca TWA 10 ppm (45 mg/m3) [skin]	TWA 10 ppm (45 mg/m3) [skin]	Ca [100 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; central nervous system depression; liver, kidney damage; dermatitis; [potential occupational carcinogen]	Eyes, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, chloroform-like odor BP: 237°F Fl.Pt. = NA LEL: 6% UEL: 15.5% Combustible Liquid, forms dense soot
1,1-Dichloroethane	75-34-3	TWA 100 ppm	TWA 100 ppm (400 mg/m^3)	TWA 100 ppm (400 mg/m^3)	3,000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation skin; central nervous system depression; liver, kidney, lung damage	Skin, liver, kidneys, lungs, central nervous system	Colorless, oily liquid with a chloroform-like odor. BP: 135°F Fl.Pt. = 2°F LEL: 5.4% UEL: 11.4% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.
1,1-Dichloroethene	75-35-4	TWA 5 ppm	Ca	None	Ca	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, throat; dizziness, headache, nausea, dyspnea (breathing difficulty); liver, kidney disturbance; pneumonitis; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid or gas (above 89°F) with a mild, sweet, chloroform-like odor BP: 89°F Fl.Pt. = -2°F LEL: 6.5% UEL: 15.5% Class IA Flammable Liquid: Fl.P. below 73°F and BP below 100°F

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
1,2,3-Trichlorobenzene	87-61-6	Cameo Chemicals Source https://cameochemicals.noaa.gov/chemical/10051	NA	NA	NA	Inhalation, skin absorption, ingestion, skin and/or eye contact	Inhalation may cause irritation of respiratory tract. Irritating to the eyes. May redden skin on contact. Ingestion may cause liver damage.	Skin, eyes, respiratory tract, liver	A white solid with a sharp chlorobenzene odor. Insoluble in water and denser than water. Hence sinks in water Fl.Pt. = 234.9°F
1,2,4-Trichlorobenzene	120-82-1	C 5 ppm	C 5 ppm (40 mg/m3)	None	N.D.	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin, mucous membrane; In Animals: liver, kidney damage; possible teratogenic effects	Eyes, skin, respiratory system, liver, reproductive system	Colorless liquid or crystalline solid (below 63°F) with an aromatic odor BP: 416°F Fl.Pt. = 222°F LEL (302°F): 2.5% UEL (302°F): 6.6% Class IIIB Combustible Liquid: Fl.P. at or above 200°F. Combustible Solid
1,2-Dibromo-3-chloropropane	96-12-8	NA	Ca	TWA 0.001 ppm	Ca	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; drowsiness; nausea, vomiting; pulmonary edema; liver, kidney injury; sterility; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys, spleen, reproductive system, digestive system	Dense yellow or amber liquid with a pungent odor at high concentrations. [pesticide] [Note: A solid below 43°F.] BP: 384°F Fl.Pt. = (oc) 170°F LEL: NA UEL: NA Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
1,2-Dibromoethane	106-93-4	None listed Skin	Ca TWA 0.045 ppm C 0.13 ppm [15-minute]	TWA 20 ppm C 30 ppm 50 ppm [5-minute maximum peak]	Ca [100 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; dermatitis with vesiculation; liver, heart, spleen, kidney damage; reproductive effects; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, reproductive system	Colorless liquid or solid (below 50°F) with a sweet odor. [fumigant] BP: 268°F Fl.Pt. = 50°F LEL: NA UEL: NA Noncombustible Liquid
1,2-Dichlorobenzene	95-50-1	TWA 25 ppm STEL 50 ppm	C 50 ppm (300 mg/m3)	C 50 ppm (300 mg/m3)	200 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; liver, kidney damage; skin blisters	Eyes, skin, respiratory system, liver, kidneys	Colorless to pale-yellow liquid with a pleasant, aromatic odor. [herbicide] BP: 357°F Fl.Pt. = 1°F LEL: 2.2% UEL: 9.2% Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
1,2-Dichloroethane	107-06-2	TWA 10 ppm	Ca TWA 1 ppm (4 mg/m3) ST 2 ppm (8 mg/m3)	TWA 50 ppm C 100 ppm 200 ppm [5-minute maximum peak in any 3 hours]	Ca [50 ppm]	Inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]	Eyes, skin, kidneys, liver, central nervous system, cardiovascular system	Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.] BP: 182°F Fl.Pt. = 56°F LEL: 6.2% UEL: 16% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.
1,2-Dichloropropane	78-87-5	TWA 10 ppm Dermal Sensitizer (DSEN)	Ca	TWA 75 ppm (350 mg/m3)	Ca [400 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; drowsiness, dizziness; liver, kidney damage; In Animals: central nervous system depression; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless liquid with a chloroform-like odor. [pesticide] BP: 206°F Fl.Pt. = 60°F LEL: 3.4% UEL: 14.5% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
1,3-Dichlorobenzene	541-73-1	https://cameochemicals.noaa.gov/chemical/8514				Inhalation, skin absorption, ingestion, skin and/or eye contact	INHALATION: Causes headache, drousiness, unsteadiness. Irritating to mucous membranes. EYES: Severe irritation. SKIN: Severe irritation. INGESTION: Irritation of gastric mucosa, nausea, vomiting, diarrhea, abdominal cramps and cyanosis.		Colorless liquid. Sinks in water. BP: 343°F Fl.Pt. = 146°F LEL: 2.02% UEL: 9.2%
1,4-Dichlorobenzene	106-46-7	TWA 10 ppm	Ca	TWA 75 ppm (450 mg/m3)	Ca [150 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Eye irritation, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; In Animals: liver, kidney injury; [potential occupational carcinogen]	Liver, respiratory system, eyes, kidneys, skin	Colorless or white crystalline solid with a mothball-like odor. [insecticide] BP: 345°F Fl.Pt. = 150°F LEL: 2.5% UEL: NA Combustible Solid, but may take some effort to ignite.
1,4-Dioxane	123-91-1	TWA 20 ppm [skin]	Ca C 1 ppm (3.6 mg/m3) [30-minute]	TWA 100 ppm (360 mg/m3) [skin]	Ca [500 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat; drowsiness, headache; nausea, vomiting; liver damage; kidney failure; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys	Colorless liquid or solid (below 53°F) with a mild, ether-like odor. BP: 214°F Fl.Pt. = 55°F LEL: 2.0% UEL: 22% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F
2-Butanone	78-93-3	TWA 200 ppm STEL 300 ppm	TWA 200 ppm (590 mg/m3) ST 300 ppm (885 mg/m3)	TWA 200 ppm (590 mg/m3)	3000 ppm	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a moderately sharp, fragrant, mint- or acetone-like odor BP: 175°F Fl.Pt. = 16°F LEL (200°F): 1.4% UEL (200°F): 11.4% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
2-Hexanone	591-78-6	TWA 5 ppm STEL 10 ppm [skin]	TWA 1 ppm (4 mg/m3)	TWA 100 ppm (410 mg/m3)	1600 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; peripheral neuropathy: lassitude (weakness, exhaustion), paresthesia; dermatitis; headache, drowsiness	Eyes, skin, respiratory system, central nervous system, peripheral nervous system	Colorless liquid with an acetone-like odor BP: 262°F Fl.Pt. = 77°F LEL: NA UEL: 8.0% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
4-Methyl-2-pentanone	108-10-1	TWA 20 ppm STEL 75 ppm	TWA 50 ppm (205 mg/m3) ST 75 ppm (300 mg/m3)	TWA 100 ppm (410 mg/m3)	500 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; headache, narcosis, coma; dermatitis; In Animals: liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a pleasant odor BP: 242°F Fl.Pt. = 64°F LEL (200°F): 1.2% UEL (200°F): 8.0% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F
Acetone	67-64-1	TWA 250 ppm STEL 500 ppm	TWA 250 ppm (590 mg/m^3)	TWA 1000 ppm (2400 mg/m^3)	2500 ppm [10% LEL]	Inhalation, ingestion, skin and/or eye contact	irritation eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a fragrant, mint-like odor BP: 133°F Fl.Pt. = 0°F LEL: 12.8% UEL: 2.5% Class IB Flammable liquid: Fl.P. below 73°F and BP at or above 100°F.
Benzene	71-43-2	TWA 0.5 ppm STEL 2.5 ppm	Ca TWA 0.1 ppm ST 1 ppm	TWA 1 ppm ST 5 ppm	Ca [500 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]	Eyes, skin, respiratory system, blood, central nervous system, bone marrow	Colorless to light yellow liquid with an aromatic odor [Note: Solid below 42 °F] BP: 176°F Fl.Pt. = 12°F LEL: 1.2% UEL: 7.8% Class IB Flammable liquid. Fl.P. below 73°F and BP at or above 100°F.
Bromochloromethane	74-97-5	TWA 200 ppm	TWA 200 ppm (1050 mg/m3)	TWA 200 ppm (1050 mg/m3)	2000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, throat; confusion, dizziness, central nervous system depression; pulmonary edema	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless to pale-yellow liquid with a chloroform-like odor. [Note: May be used as a fire extinguishing agent.] BP: 155°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
Bromodichloromethane	75-27-4	https://cameochemicals.noaa.gov/chemical/16064				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and respiratory tract. It may also cause narcosis. Other symptoms may include nausea, dizziness and headache.	Liver and kidney damage. Central nervous system effects may also occur.	Clear colorless liquid BP: 189°F Fl.Pt. = NA LEL: NA UEL: NA
Bromoform	75-25-2	TWA 0.5 ppm	TWA 0.5 ppm (5 mg/m3) [skin]	TWA 0.5 ppm (5 mg/m3) [skin]	850 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; central nervous system depression; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless to yellow liquid with a chloroform-like odor. [Note: A solid below 47°F.] BP: 301°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
Bromomethane	74-83-9	TWA 1 ppm [skin]	Ca	C 20 ppm (80 mg/m3) [skin]	Ca [250 ppm]	Inhalation, skin absorption (liquid), skin and/or eye contact (liquid)	Irritation eyes, skin, respiratory system; muscle weak, incoordination, visual disturbance, dizziness; nausea, vomiting, headache; malaise (vague feeling of discomfort); hand tremor; convulsions; dyspnea (breathing difficulty); skin vesiculation; liquid: frostbite; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system	Colorless gas with a chloroform-like odor at high concentrations. [Note: A liquid below 38°F. Shipped as a liquefied compressed gas.] BP: 38°F Fl.Pt. = NA (Gas) LEL: 10% UEL: 16.0% Flammable Gas, but only in presence of a high energy ignition source.
Carbon disulfide	75-15-0	TWA 1 ppm [skin]	TWA 1 ppm (3 mg/m3) ST 10 ppm (30 mg/m3) [skin]	TWA 20 ppm C 30 ppm 100 ppm (30-minute maximum peak)	500 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Dizziness, headache, poor sleep, lassitude (weakness, exhaustion), anxiety, anorexia, weight loss; psychosis; polyneuropathy; Parkinson-like syndrome; ocular changes; coronary heart disease; gastritis; kidney, liver injury; eye, skin burns; dermatitis; reproductive effects	Central nervous system, peripheral nervous system, cardiovascular system, eyes, kidneys, liver, skin, reproductive system	Colorless to faint-yellow liquid with a sweet ether-like odor. [Note: Reagent grades are foul smelling.] BP: 116°F Fl.Pt. = -22°F LEL: 1.3% UEL: 50.0% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Carbon tetrachloride	56-23-5	TWA 5 ppm STEL 10 ppm [skin]	Ca ST 2 ppm (12.6 mg/m3) [60-minute]	TWA 10 ppm C 25 ppm 200 ppm (5-minute maximum peak in any 4 hours)	Ca [200 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	Central nervous system, eyes, lungs, liver, kidneys, skin	Colorless liquid with a characteristic ether-like odor BP: 170°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid
Chlorobenzene	108-90-7	TWA 10 ppm	NA	TWA 75 ppm (350 mg/m3)	1000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; drowsiness, incoordination; central nervous system depression; In Animals: liver, lung, kidney injury	Eyes, skin, respiratory system, central nervous system, liver	Colorless liquid with an almond-like odor BP: 270°F Fl.Pt. = 82°F LEL: 1.3% UEL: 9.6% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Chloroethane	75-00-3	TWA 100 ppm [skin]	Handle with caution in the workplace	TWA 1000 ppm (2600 mg/m3)	3800 ppm [10%LEL]	Inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact	Incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage	Liver, kidneys, respiratory system, cardiovascular system, central nervous system	Colorless gas or liquid (below 54°F) with a pungent, ether-like odor. [Note: Shipped as a liquefied compressed gas.] BP: 54°F Fl.Pt. = NA (gas), -58°F (liquid) LEL: 3.8% UEL: 15.4% Flammable Gas
Chloroform	67-66-3	TWA 10 ppm	Ca ST 2 ppm (9.78 mg/m3) [60-minute]	C 50 ppm (240 mg/m3)	Ca [500 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Liver, kidneys, heart, eyes, skin, central nervous system	Colorless liquid with a pleasant odor BP: 143°F Fl.Pt. = -82°F LEL: NA UEL: NA Noncombustible Liquid
Chloromethane	74-87-3	TWA 50 ppm STEL 100 ppm	Ca	TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3 hours)	Ca [2000 ppm]	Inhalation, skin and/or eye contact (liquid)	Dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive, teratogenic effects; [potential occupational carcinogen]	Central nervous system, liver, kidneys, reproductive system	Colorless gas with a faint, sweet odor which is not noticeable at dangerous concentrations. [Note: Shipped as a liquefied compressed gas.] BP: -12°F Fl.Pt. = NA (Gas) LEL: 8.1% UEL: 17.4% Flammable Gas
cis-1,2-Dichloroethene	156-59-2	TWA 200 ppm (All isomers)	TWA 200 ppm (790 mg/m3)	TWA 200 ppm (790 mg/m3)	1000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor. BP: 118-140°F Fl.Pt. = 36-39°F LEL: 5.6% UEL: 12.8% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F
cis-1,3-Dichloropropene	10061-01-5	https://cameochemicals.noaa.gov/chemical/20168				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include local irritation of the eyes skin and respiratory tract; dermatitis, gasping, coughing, substernal pain, extreme respiratory distress, lacrimation, central nervous system depression, skin irritation, acute gastrointestinal distress with pulmonary congestion and edema. It also may cause injury to the liver, kidneys and heart.	Skin, eyes, mucous membranes, liver, kidney, heart	Colorless to amber liquid with a sweetish odor. BP: 219.7°F Fl.Pt. = NA LEL: NA UEL: NA
Cyclohexane	110-82-7	TWA 100 ppm	TWA 300 ppm (1050 mg/m3)	TWA 300 ppm (1050 mg/m3)	1300 ppm [10%LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system; drowsiness; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sweet, chloroform-like odor. [Note: A solid below 44°F.] BP: 177°F Fl.Pt. = 0°F LEL: 1.3% UEL: 8.0% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Dibromochloromethane	124-48-1	https://cameochemicals.noaa.gov/chemical/16183				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include irritation of the skin, eyes, mucous membranes and upper respiratory tract. It may also cause fatigue. Other symptoms may include central nervous system effects, lung and cornea irritation and liver and kidney damage. Prolonged exposure can cause nausea, dizziness, headache and narcosis.	Skin, eyes, mucous membranes, upper respiratory tract	Clear colorless to yellow-orange liquid BP: 246-248°F Fl.Pt. = Greater than 200°F LEL: NA UEL: NA
Dichlorodifluoromethane	75-71-8	TWA 1000 ppm	TWA 1000 ppm (4950 mg/m3)	TWA 1000 ppm (4950 mg/m3)	15,000 ppm	Inhalation, skin and/or eye contact (liquid)	Dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite	Cardiovascular system, peripheral nervous system	Colorless gas with an ether-like odor at extremely high concentrations. [Note: Shipped as a liquefied compressed gas.] BP: -22°F Fl.Pt. = NA LEL: NA UEL: NA Nonflammable Gas
Ethyl benzene	100-41-4	TWA 20 ppm	TWA 100 ppm (435 mg/m^3) ST 125 ppm (545 mg/m^3)	TWA 100 ppm (435 mg/m^3)	800 ppm [10%LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with an aromatic odor. BP: 277°F Fl.Pt. = 55°F LEL: 0.8% UEL: 6.7% Class IB Flammable Liquid below 73°F and BP at or above 100°F
Isopropyl benzene	98-82-8	TWA 5 ppm	TWA 50 ppm (245 mg/m3) [skin]	TWA 50 ppm (245 mg/m3) [skin]	900 ppm [10%LEL]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a sharp, penetrating, aromatic odor BP: 306°F Fl.Pt. = 96°F LEL: 0.9% UEL: 6.5% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
Methyl Acetate	79-20-9	TWA 200 ppm STEL 250 ppm	TWA 200 ppm (610 mg/m3) ST 250 ppm (760 mg/m3)	TWA 200 ppm (610 mg/m3)	3100 ppm [10%LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; headache, drowsiness; optic nerve atrophy; chest tightness; In Animals: narcosis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a fragrant, fruity odor BP: 135°F Fl.Pt. = 14°F LEL: 3.1% UEL: 16% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Methylcyclohexane	108-87-2	TWA 400 ppm	TWA 400 ppm (1600 mg/m3)	TWA 500 ppm (2000 mg/m3)	1200 ppm [LEL]	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, drowsiness; In Animals: narcosis	Eyes, skin, respiratory system, central nervous system	Colorless liquid with a faint, benzene-like odor BP: 214°F Fl.Pt. = 25°F LEL: 1.2% UEL: 6.7% Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Methylene chloride	75-09-2	TWA 50 ppm [skin] STEL 100 ppm	Ca	[1910.1052] TWA 25 ppm ST 125 ppm	Ca [2300 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]	Eyes, skin, cardiovascular system, central nervous system	Colorless liquid with a chloroform-like odor. [Note: A gas above 104°F.] BP: 104°F Fl.Pt. = NA LEL: 13% UEL: 23% Combustible Liquid
Methyl-t-butyl ether	1634-04-4	TWA 50 ppm	NA	NA	NA	Inhalation, skin absorption, ingestion, skin and/or eye contact	May cause dizziness or suffocation. Contact may irritate or burn eyes or skin. May be harmful if swallowed.	Eyes, skin	A colorless liquid with a distinctive anesthetic-like odor. BP: 131°F Fl.Pt. = -14°F LEL: NA UEL: NA
o-Xylene	95-47-6	TWA 20 ppm (All isomers)	TWA 100 ppm (435 mg/m3) ST 150 ppm (655 mg/m3)	TWA 100 ppm (435 mg/m3)	900 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys	Colorless liquid with an aromatic odor BP: 292°F Fl.Pt. = 90°F LEL: 0.9% UEL: 6.7% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
Styrene	100-42-5	TWA 10 ppm STEL 20 ppm OTO (ototoxicant)	TWA 50 ppm (215 mg/m3) ST 100 ppm (425 mg/m3)	TWA 100 ppm C 200 ppm 600 ppm (5-minute maximum peak in any 3 hours)	700 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; possible liver injury; reproductive effects	Eyes, skin, respiratory system, central nervous system, liver, reproductive system	Colorless to yellow, oily liquid with a sweet, floral odor BP: 293°F Fl.Pt. = 88°F LEL: 0.9% UEL: 6.8% Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F
Tetrachloroethene	127-18-4	TWA 25 ppm STEL 100 ppm	Ca Minimize workplace exposure concentrations	TWA 100 ppm C 200 ppm (for 5 minutes in any 3-hour period), with a maximum peak of 300 ppm	Ca [150 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless liquid with a mild, chloroform-like odor BP: 250°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Liquid, but decomposes in a fire to hydrogen chloride and phosgene
Sodium Hydroxide	1310-73-2	Ceiling 2 mg/m^3	C 2 mg/m^3	TWA 2 mg/m^3	10 mg/m^3	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; pneumonitis; eye, skin burns; temporary loss of hair	Eyes, skin, respiratory system	Colorless to white, odorless solid (flakes, beads, granular form). BP: 2534°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid, but when in contact with water may generate sufficient heat to ignite combustible materials.
Sulfuric Acid	7664-93-9	TWA 0.2 mg/m^3 (as thoracic particulate mass)	TWA 1 mg/m^3	TWA 1 mg/m^3	15 mg/m^3	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatis; dental erosion; eye, skin burns; dermatitis	Eyes, skin, respiratory system, teeth	Colorless to dark-brown, oily, odorless liquid.[Note: Pure compound is a solid below 51°F. Often used in an aqueous solution.] BP = 554°F Fl.Pt. = NA LEL = NA UEL = NA Noncombustible Liquid, but capable of igniting finely divided combustible materials.
trans-1,2-Dichloroethene	156-60-5	200 ppm (All isomers)	TWA 200 ppm (790 mg/m3)	TWA 200 ppm (790 mg/m3)	1000 ppm	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor. BP: 118-140°F Fl.P: 36-39°F LEL: 5.6% UEL: 12.8% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.
trans-1,3-Dichloropropene	10061-02-6	https://cameochemicals.noaa.gov/chemical/18110				Inhalation, ingestion, skin and/or eye contact	Symptoms of exposure to this compound may include local irritation of the eyes skin and respiratory tract, dermatitis, gasping, coughing, substernal pain, extreme respiratory distress, lacrimation, central nervous system depression, acute gastrointestinal distress with pulmonary congestion and edema. It may also cause injury to the liver, kidneys and heart	Skin, eyes, mucous membranes, liver, kidney, heart	A clear colorless liquid with chloroform odor BP: 234°F Fl.P: NA LEL: NA UEL: NA

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Toluene	108-88-3	TWA 20 ppm (ototoxicant)	TWA 100 ppm (375 mg/m^3) ST 150 ppm (560 mg/m^3)	TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak)	500 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, pungent, benzene-like odor. BP: 232°F Fl.P: 40°F LEL: 1.1% UEL: 7.1% Class IB Flammable Liquid Fl.P. below 73°F and BP at or above 100°F.
Trichloroethene (TCE)	79-01-6	TWA 10 ppm STEL 25 ppm	Ca	TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)	Ca [1000 ppm]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system	Colorless liquid (unless dyed blue) with a chloroform-like odor. BP: 189°F Fl.Pt. = NA LEL(77°F): 8.0% UEL(77°F): 10.5% Combustible Liquid, but burns with difficulty.
Trichlorofluoromethane	75-69-4	STEL C 1000 ppm	C 1000 ppm (5600 mg/m3)	TWA 1000 ppm (5600 mg/m3)	2000 ppm	Inhalation, ingestion, skin and/or eye contact	Incoordination, tremor; dermatitis; cardiac arrhythmias, cardiac arrest; asphyxia; liquid: frostbite	Skin, respiratory system, cardiovascular system	Colorless to water-white, nearly odorless liquid or gas (above 75°F) BP: 75°F Fl.P: NA LEL: NA UEL: NA Noncombustible Liquid Nonflammable Gas
Vinyl Chloride (chloroethylene)	75-01-4	TWA 1 ppm	Ca	TWA 1 ppm C 5 ppm [15-minute]	Ca (ND)	Inhalation, skin and/or eye contact (liquid)	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]	Liver, central nervous system, blood, respiratory system, lymphatic system	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations.[Note: Shipped as a liquefied compressed gas.] BP: 7°F Fl.Pt. = NA (Gas) LEL: 3.6% UEL: 33.0% Flammable Gas
Xylene (m, o & p isomers)	108-38-3, 95-47-6, 106-42-3	TWA 20 ppm	NA	NA	NA	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys	Colorless liquid with an aromatic odor BP: 282°F, 292°F, 281°F Fl. Pt. 82°F, 90°F, 81°F LEL: 1.1%, 0.9%, 1.1% UEL: 7.0%, 6.7%, 7.0% Class IC Flammable Liquid at or above 73°F and below 100°F.
Zinc Oxide (dust)	7440-66-6	TWA 2 mg/m3 (repsirable) STEL 10 mg/m^3 (respirable)	TWA 5 mg/m^3 C 15 mg/m^3	TWA 15 mg/m^3 (total dust) TWA 5 mg/m^3 (resp dust) TWA 5 mg/m^3 (fume)	500 mg/m^3	Inhalation	Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Respiratory system	White, odorless solid. BP: NA Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)									
2-Chloronaphthalene	91-58-7	https://cameochemicals.noaa.gov/chemical/16185				Inhalation, ingestion, skin and/or eye contact	Chloracne, cysts, headache, fatigue, vertigo, anorexia and jaundice		Monoclinic plates or off-white crystalline powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
2-Methylnaphthalene	91-57-6	TWA 0.5 ppm TLV-SL 3 mg/100 cm2 [skin]	https://cameochemicals.noaa.gov/chemical/20668			Inhalation, ingestion, skin and/or eye contact	Headaches, nausea, vomiting, diarrhea, anemia, jaundice, euphoria, dermatitis, visual disturbances, convulsions and comatose	Skin, eyes, mucous membranes and upper respiratory tract	White crystalline solid Combustible solid BP: 466-468 ° F Fl.Pt. = 208 ° F LEL: NA UEL: NA
Acenaphthene	83-32-9	https://cameochemicals.noaa.gov/chemical/10358				Inhalation, ingestion, skin and/or eye contact	Irritation of the skin, eyes, mucous membranes and upper respiratory tract, vomiting	Skin, eyes, mucous membranes and upper respiratory tract	White needles BP: 534 ° F Fl.Pt. = NA LEL: 0.6% UEL: NA
Acenaphthylene	208-96-8	https://cameochemicals.noaa.gov/chemical/16157				Inhalation, ingestion, skin and/or eye contact			Colorless crystalline solid BP: 509 to 527 ° F at 760 mm Hg Fl.Pt. = NA LEL: NA UEL: NA
Anthracene (as coal tar pitch volatiles)	120-12-7	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Benzo[a]anthracene	56-55-3	https://cameochemicals.noaa.gov/chemical/16171				Inhalation, injestion, skin and/or eye contact			Colorless leaflets or plates or coarse gold powder with a greenish-yellow fluorescence. May reasonably be expected to be a carcinogen. BP: 815° F at 760 mm Hg Fl.Pt. = NA LEL: NA UEL: NA

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Benzo[a]pyrene (as coal tar pitch volatiles)	50-32-8	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Benzo[b]fluoranthene	205-99-2	None listed	https://cameochemicals.noaa.gov/chemical/16172			Inhalation, injestion, skin and/or eye contact			Needles or yellow fluffy powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Benzo[g,h,i]perylene	191-24-2	https://cameochemicals.noaa.gov/chemical/16174				Inhalation, injestion, skin and/or eye contact	Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution.	Lungs, skin, eyes	Colorless to white crystalline solid. Water insoluble. BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Benzo[k]fluoranthene	207-08-9	https://cameochemicals.noaa.gov/chemical/16173				Inhalation, injestion, skin and/or eye contact	When heated to decomposition this compound emits acrid smoke and irritating fumes.		Pale yellow needles or yellow crystalline solid BP: 896° F Fl.Pt. = NA LEL: NA UEL: NA
Chrysene (as coal tar pitch volatiles)	218-01-9	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
Dibenzo(a,h)anthracene	53-70-3	https://cameochemicals.noaa.gov/chemical/16192				Inhalation, injestion, skin and/or eye contact	Symptoms of exposure to this compound may include irritation. This compound is harmful if swallowed or inhaled. It may cause irritation. When heated to decomposition it emits acrid smoke, irritating fumes and toxic fumes of carbon monoxide and carbon dioxide.	Lungs	White crystals or pale yellow solid. Sublimes BP: 975° F Fl.Pt. = NA LEL: NA UEL: NA
Fluoranthene	206-44-0	https://cameochemicals.noaa.gov/chemical/16213				Inhalation, injestion, skin and/or eye contact	When heated to decomposition this compound emits acrid smoke and fumes.		Light yellow fine crystals BP: 482° F Fl.Pt. = NA LEL: NA UEL: NA
Fluorene	86-73-7	https://cameochemicals.noaa.gov/chemical/16214				Inhalation, injestion, skin and/or eye contact			White leaflets. Sublimes easily under a vacuum. Fluorescent when impure. BP: 563° F Fl.Pt. = NA LEL: NA UEL: NA
Indeno[1,2,3-cd]pyrene	193-39-5	https://cameochemicals.noaa.gov/chemical/16218				Inhalation, injestion, skin and/or eye contact			Yellow crystals BP: 997° F Fl.Pt. = NA LEL: NA UEL: NA
Naphthalene	91-20-3	TWA 10 ppm [skin]	TWA 10 ppm (50 mg/m3) ST 15 ppm (75 mg/m3)	TWA 10 ppm (50 mg/m3)	250 ppm	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage	Eyes, skin, blood, liver, kidneys, central nervous system	Colorless to brown solid with an odor of mothballs. [Note: Shipped as a molten solid.] BP: 424°F Fl.P: 174°F LEL: 0.9% UEL: 5.9% Combustible Solid, but will take some effort to ignite
Phenanthrene	85-01-8	https://cameochemicals.noaa.gov/chemical/16236				Inhalation, injestion, skin and/or eye contact	Symptoms following exposure to this compound may include skin sensitization, dermatitis, bronchitis, cough, dyspnea, respiratory neoplasm, kidney neoplasm, skin irritation, and respiratory irritation.	Skin, respiratory tract	Colorless monoclinic crystals with a faint aromatic odor. Solutions exhibit a blue fluorescence. BP: 642° F Fl.Pt. = 340° F LEL: NA UEL: NA
Pyrene (see coal tar pitch volatiles)	129-00-0	TWA 0.2 mg/m3 (as Benzene solubles)	Ca TWA 0.1 mg/m3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m3 (benzene-soluble fraction) [1910.1002]	Ca [80 mg/m3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue BP: NA Fl.Pt. = NA LEL: NA UEL: NA Combustible Solids
METALS									
Aluminum	7429-90-5	TWA 1 mg/m3	TWA 10 mg/m^3 (total) TWA 5 mg/m^3 (resp)	TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp)	N.D.	Inhalation, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Silvery-white, malleable, ductile, odorless metal BP: 4221°F Fl.Pt. = NA LEL: NA UEL: NA Combustible Solid, finely divided dust is easily ignited; may cause explosions.

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Antimony	7440-36-0	TWA 0.5 mg/m3 (as Sb)	TWA 0.5 mg/m3 [*Note: The REL also applies to other antimony compounds (as Sb).]	TWA 0.5 mg/m3 [*Note: The PEL also applies to other antimony compounds (as Sb).]	50 mg/m3 (as Sb)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly	Eyes, skin, respiratory system, cardiovascular system	Silver-white, lustrous, hard, brittle solid; scale-like crystals; or a dark-gray, lustrous powder BP: 2975°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form, but a moderate explosion hazard in the form of dust when exposed to flame.
Arsenic	7440-38-2	TWA 0.01 mg/m3	Ca C 0.002 mg/m3 [15-minute]	[1910.1018] TWA 0.010 mg/m3	Ca [5 mg/m3 (as As)]	Inhalation, skin absorption, skin and/or eye contact, ingestion	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]	Liver, kidneys, skin, lungs, lymphatic system	Metal: Silver-gray or tin-white, brittle, odorless solid BP: Sublimes Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Solid in bulk form, but a slight explosion hazard in the form of dust when exposed to flame
Barium	7440-39-3	TWA 0.5 mg/m3	0.5 mg Ba/m3 TWA	0.5 mg Ba/m3 TWA	50 mg Ba/m3	Inhalation, ingestion, skin and/or eye contact	Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. Contact may cause burns to skin, eyes, and mucous membranes. May be toxic by ingestion, inhalation and skin absorption. Used to make other chemicals.	Lungs, skin, eyes, and mucous membrane	A silver to white metallic solid BP: 1337°F Fl.Pt. = NA LEL: NA UEL: NA
Beryllium	7440-41-7	TWA 0.00005 mg/m^3	Ca C 0.0005 mg/m^3	TWA 0.002 mg/m^3 C 0.005 mg/m^3 0.025 mg/m3 [30-minute maximum peak]	Ca [4 mg/m^3 (as Be)]	Inhalation, skin and/or eye contact	Berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation eyes; dermatitis; [potential occupational carcinogen]	Eyes, skin, respiratory system	Hard, brittle, gray-white solid BP: 4532°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form, but a slight explosion hazard in the form of a powder or dust.
Cadmium	7440-43-9	TWA 0.01 mg/m^3 total dust TWA 0.002 mg/m^3 (as Cd) respirable fraction	Ca	TWA 0.005 mg/m^3	Ca [9 mg/m3 (as Cd)]	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Respiratory system, kidneys, prostate, blood	Silver-white/blue tinged lustrous, odorless solid. BP: 1409°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - will burn in powder form
Calcium	7440-70-2	https://cameochemicals.noaa.gov/chemical/309				Inhalation, ingestion, skin and/or eye contact	Contact with eyes or skin produces caustic burns.	Eyes, skin	A silvery, soft metal that turns grayish white on exposure to air. BP: 2714°F Fl.Pt. = NA LEL: NA UEL: NA
Chromium	7440-47-3	TWA 0.5 mg/m^3 (metal) TWA 0.003 mg/m^3 (water-soluble Cr III compounds) TWA 0.0002 mg/m^3 (water-soluble Cr VI compounds) STEL 0.0005 mg/m3 (water-soluble Cr VI compounds)	TWA 0.5 mg/m^3	TWA 1 mg/m^3	250 mg/m^3 (as Cr)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; lung fibrosis (histologic)	Eyes, skin, respiratory system	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid. BP: 4788°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - will burn in dust form if heated in a flame
Cobalt	7440-48-4	TWA 0.02 mg/m3 [DSEN] [RSEN]	TWA 0.05 mg/m3	TWA 0.1 mg/m3	20 mg/m3 (as Co)	Inhalation, ingestion, skin and/or eye contact	Cough, dyspnea (breathing difficulty), wheezing, decreased pulmonary function; weight loss; dermatitis; diffuse nodular fibrosis; resp hypersensitivity, asthma	Skin, respiratory system	Odorless, silver-gray to black solid BP: 5612°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form, but finely divided dust will burn at high temperatures.
Copper	7440-50-8	TWA 0.2 mg/m^3 (fume) TWA 1 mg/m3 (dusts and mists)	TWA 1 mg/m^3	TWA 1 mg/m^3	100 mg/m^3 (as Cu)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, nose, pharynx; nasal septum perforation; metallic taste; dermatitis; In Animals: lung, liver, kidney damage; anemia	Eyes, skin, respiratory system, liver, kidneys (increased risk with Wilson's disease)	Reddish, lustrous, malleable, odorless solid. BP: 4703°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible - powdered form may ignite
Iron (as iron oxide)	7439-89-6	TWA 5 mg/m3 (respirable particulate mass)	TWA 1 mg/m^3	NA	NA	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; abdominal pain, diarrhea, vomiting; possible liver damage	Eyes, skin, respiratory system, liver, gastrointestinal tract	Appearance and odor vary depending upon the specific soluble iron salt. BP: NA Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solids
Lead	7439-92-1	TWA 0.05 mg/m3	TWA (8-hour) 0.050 mg/m3	[1910.1025] TWA 0.050 mg/m3	100 mg/m3 (as Pb)	Inhalation, ingestion, skin and/or eye contact	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid BP: 3164°F Fl.Pt. = NA LEL: NA UEL: NA Noncombustible Solid in bulk form

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Magnesium	7439-95-4	https://cameochemicals.noaa.gov/chemical/6949				Eye and/or skin contact	Dust irritates eyes in same way as any foreign material. Penetration of skin by fragments of metal is likely to produce local irritation, blisters, and ulcers which may become infected.	Eyes	A light silvery metal BP: 1202°F Fl.Pt. = NA LEL: NA UEL: NA
Manganese	7439-96-5	TWA 0.02 mg/m3 [R] TWA 0.1 mg/m3 [I]	TWA 1 mg/m3 ST 3 mg/m3	C 5 mg/m3	500 mg/m3 (as Mn)	inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of discomfort); lassitude (weakness, exhaustion); kidney damage	respiratory system, central nervous system, blood, kidneys	A lustrous, brittle, silvery solid BP: 3564°F Fl.Pt. = NA LEL: NA UEL: NA Metal: Combustible Solid
Mercury	7439-97-6	TWA 0.1 mg/m3, as Hg Aryl compounds TWA 0.025 mg/m3 as Hg, inorganic forms including metallic mercury	Hg Vapor: TWA 0.05 mg/m3 [skin] Other: C 0.1 mg/m3 [skin]	TWA 0.1 mg/m3	10 mg/m3 (as Hg)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eyes, skin, respiratory system, central nervous system, kidneys	Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.] BP: 674°F Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Liquid
Nickel	7440-02-0	TWA 1.5 mg/m^3 [elemental] TWA 0.1 mg/m^3 [soluble inorganic compound] TWA 0.2 mg/m^3 [insoluble inorganic compound] TWA 0.1 mg/m^3 [Nickel subsulfide]	Ca TWA 0.015 mg/m^3	TWA 1 mg/m^3	Ca [10 mg/m3 (as Ni)]	Inhalation, ingestion, skin and/or eye contact	Sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Nasal cavities, lungs, skin	Lustrous, silvery, odorless solid. BP: 5139°F Fl.Pt. = NA LEL: NA UEL: NA Combustible Solid; nickel sponge catalyst may ignite spontaneously in air.
Potassium	9/7/7440	https://cameochemicals.noaa.gov/chemical/4289				Eye and/or skin contact	Will burn skin and eyes	Skin, eyes	Potassium is a soft silvery metal though normally grayish white due to oxidation BP: 1425°F Fl.Pt. = NA LEL: NA UEL: NA
Selenium	7782-49-2	TWA 0.2 mg/m3	TWA 0.2 mg/m3	TWA 0.2 mg/m3	1 mg/m3 (as Se)	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, liver, kidneys, blood, spleen	Amorphous or crystalline, red to gray solid. [Note: Occurs as an impurity in most sulfide ores.] BP: 1265°F Fl.Pt. = NA LEL: NA UEL: NA Combustible Solid

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site.

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Silver	7440-22-4	TWA 0.1 mg/m3 [Metal, dust, and fume] TWA 0.01 mg/m3 [Soluble compounds, as Ag]	TWA 0.01 mg/m3	TWA 0.01 mg/m3	10 mg/m3 (as Ag)	Inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Nasal septum, skin, eyes	Metal: White, lustrous solid BP: 3632°F Fl.Pt. = NA LEL: NA UEL: NA Metal: Noncombustible Solid, but flammable in form of dust or powder
Sodium	7440-23-5	https://cameochemicals.noaa.gov/chemical/7794				Skin contact	Severe burns caused by burning metal or by caustic soda formed by reaction with moisture on skin	Skin	A silvery soft metal that becomes grayish white upon exposure to air BP: 1621°F Fl.Pt. = NA LEL: NA UEL: NA
Thallium	7440-28-0	0.02 mg/m3 inhallable particulate matter	TWA 0.1 mg/m3 [skin]	TWA 0.1 mg/m3 [skin]	15 mg/m3 (as Tl)	Inhalation, skin absorption, ingestion, skin and/or eye contact	Nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eyes, respiratory system, central nervous system, liver, kidneys, gastrointestinal tract, body hair	Appearance and odor vary depending upon the specific soluble thallium compound BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Vanadium	7440-62-2	https://cameochemicals.noaa.gov/chemical/16147				Inhalation, skin absorption, ingestion, skin and/or eye contact	Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution	Skin	Silvery-whitish powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
Zinc	7440-66-6	https://cameochemicals.noaa.gov/chemical/4814				Inhalation, skin absorption, ingestion, skin and/or eye contact	Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death. May produce corrosive solutions on contact with water. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control may cause pollution	Lungs	A grayish powder BP: NA Fl.Pt. = NA LEL: NA UEL: NA
PCBs									
PCBs (total)	11097-69-1, 53469-21-9	TWA 0.5 mg/m3 [skin] TWA 1 mg/m3 [skin]	Ca TWA 0.001 mg/m3 Ca TWA 0.001 mg/m3	TWA 0.5 mg/m3 [skin] TWA 1 mg/m3 [skin]	Ca [5 mg/m3] Ca [5 mg/m3]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, chloracne; liver damage; reproductive effects; [potential occupational carcinogen]	Skin, eyes, liver, reproductive system	Colorless to pale-yellow, viscous liquid or solid (below 50°F) with a mild, hydrocarbon odor BP: 689-734°F, 617-691°F Fl.Pt. = NA, NA LEL: NA UEL: NA Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans, and chlorinated dibenzo-p-dioxins.
Petroleum Hydrocarbons									
Gasoline	86290-81-5	TWA 300 ppm STEL 500 ppm	Ca	None	Ca [N.D.]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid); possible liver, kidney damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Clear liquid with a characteristic odor BP: 102°F Fl.Pt. = -45°F LEL: 1.4% UEL: 7.6%

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Abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists.
BP – boiling point at 1 atmosphere, °F
C – Ceiling, is a concentration that should not be exceeded during and part of the working exposure.
Ca – Carcinogenic.
CAS# - Chemical Abstracts Service registry number which is unique for each chemical.
DSEN - Dermal Sensitization
Ft Pt. – Flash point
IDLH - Immediately Dangerous to Life and Health concentrations represent the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
LEL – Lower explosive (flammable) limit in air, % by volume (at room temperature)
mg/m^3 – Milligrams of substance per cubic meter of air
NIOSH - National Institute for Occupational Safety and Health.
OSHA – Occupational Safety and Health Administration
OTO - Ototoxicant
PEL - OSHA Permissible Exposure Limit (usually) a time weighted average concentration that must not be exceeded during any 8 hour work shift of a 40 hr work week.
ppm – parts per million
REL – NIOSH Recommended Limit indicated a time weighted average concentration that must not be exceeded during any 10 hour work shift of a 40 hr work week
RSEN - Respiratory Sensitization
SG - Specific Gravity
STEL – ACGIH Short-term exposure limit (ST)
TLV - ACGIH Threshold Limit Values (usually 8 hour time weighted average concentrations).
TWA – 8-hour, time-weighted average
UEL – Upper explosive (flammable) limit in air, % by volume (at room temperature)
VP - Vapor Pressure

FIGURES

1. Site Location Map
2. Site Plan with Emergency Muster Area



QUADRANGLE LOCATION



N

1,000 0 1,000'

Title:

SITE LOCATION MAP

5 FLINT STREET
ROCHESTER NEW YORK

Prepared for:

5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 05/10/24
Prepared by: SB	Scale: AS SHOWN
Project Mgr: IR	Project:0172.0180M015
File: 0172.0180M017.104.001 - Site Location Map.mxd	

FIGURE 1

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LEGEND

- SOIL GAS (2001)
- SURFACE SOIL (2001)
- SOIL BORING/MONITORING WELL
- SOIL BORING
- TEST PIT
- SOIL BORING/FORMER MONITORING WELL
- EXISTING BUILDING
- BCP SITE C828162B - 5 FLINT STREET

SOURCES

- AERIAL IMAGERY FROM CITY OF ROCHESTER'S OPEN DATA PORTAL

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22 2024.
NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND OTHER NEARBY PROPERTIES.

NOTES

- ALL FEATURES SHOWN ARE APPROXIMATE.

- THE PROPERTY BOUNDARY SHOWN FOR 5 FLINT STREET IS AS SURVEYED BY WENDEL FEBRUARY 22, 2024. NOTE THAT THERE HAVE BEEN PROPERTY BOUNDARY INCONSISTENCIES SHOWN ON PRIOR FIGURES FOR 5 FLINT STREET AND ADJACENT PROPERTY BOUNDARIES.

- MW-1 AND MW-2 INSTALLED BY NYSDEC ARE DISPLAYED AS DEC MW-1 AND DEC MW-2, RESPECTIVELY, TO AVOID CONFUSION WITH MONITORING WELLS MW-1 AND MW-2 INSTALLED BY RAVI.

100 0 100 FEET

Title:

SITE PLAN

BCP SITE NO. C828162B
5 FLINT STREET, ROCHESTER, NEW YORK

Prepared For:
5 FLINT STREET LLC

ROUX

Compiled by: SB	Date: 10JUN25	FIGURE
Prepared by: SB	Scale: AS SHOWN	2
Project Mgr: IR	Project: 4694.0001B000	
File: 4694.0001B000.100.002 - Site Plan.mxd		

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APPENDICES

A. Job Safety Analysis (JSA) Forms
B. SDSs for Chemicals Used
C. Heat Illness Prevention Program
D. Personal Protective Equipment (PPE) Management Program
E. Subsurface Utility Clearance Management Program
F. Heavy Equipment Exclusion Zone Policy

APPENDIX A

Job Safety Analysis (JSA) Forms

JOB SAFETY ANALYSIS (JSA) MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**01/19**
REVISION NUMBER	:	**2**

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APPENDICES

Appendix A – Job Safety Analysis Process Flow Chart

Appendix B – Standard Job Safety Analysis Form

Appendix C – Job Safety Analysis Quality Review

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") has established this Job Safety Analysis (JSA) Program to provide practices and procedures to evaluate potential hazards associated with work tasks and develop preventive measures to eliminate and/or reduce the risk of injury/illness to personnel, property damage and/or environmental releases. A hazard is defined as a condition or activity that, if left uncontrolled, can result in an undesired consequence. This program utilizes a proactive and versatile tool, the JSA, which identifies hazards associated with a specific work task and applies mitigative actions to eliminate and/or reduce the hazards to an acceptable risk level. Moreover, the practices and procedures, herein, employ a stewardship approach to ensure that JSA updates are communicated throughout the company and represent best management practices.

2. SCOPE AND APPLICABILITY

The JSA Program applies to all Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") employees and their subcontractors. At a minimum, tasks for which a JSA is required include:

- Field work and processes;
- Non-routine activities;
- Activities that present higher potential for injury or illness;
- Where there has been a history of prior incidents; and/or
- New or modified activities, equipment usage or procedures.

The program is intended, in part, to meet Occupational Safety and Health Administration OSHA's Voluntary Protection Programs Policies and Procedures and their Job Hazard Analysis manual (Publication 3071, Revised 2002).

3. PROCEDURE

For many tasks, a generic or site-specific JSA may already exist. Generic JSAs can be found in the JSA Library (Clarity→Health and Safety→JSA Library). Site-specific JSAs can be found in the project files. However, prior to use of a generic JSA the following must be verified by the project Manager (PM):

1. The JSA includes all the site-specific (if applicable) job steps for the task;
2. The JSA cannot be combined with job steps from other JSA tasks to be considered as one working document; and
3. There are no equipment/tools changes since the last revision/review.

If the above conditions are met the generic JSA may be used. If the above conditions cannot be satisfied, then a new or revised JSA must be developed for the work task. The development process of a JSA is outlined below and is included as a flow chart as **Appendix A**.

3.1 JSA Process

Development Team

JSAs are developed by an individual or team of people who have conducted the task, are familiar with the JSA process, and have experience in general safety practices. Typically, one of these personnel includes a member of the project management team (e.g., PM, Site H&S Manager (SHSM) and/or the Project Principal). Based on the complexity of the operation, additional team members may be utilized in the development process.

JSA Form

To assist in the development process, a standard JSA form is provided as **Appendix B** of this program. Generic JSAs (available in the JSA Library) may be used as a starting point for similar tasks. In addition to documenting the job steps, potential hazards and mitigative actions (discussed below), the form documents the individuals who developed it, the reviewers and the date of the JSA. JSAs are to be limited to one or two pages. For complex operations where more than two pages may be needed, the job should be broken down into multiple tasks, each task having its own JSA. The steps are described below:

Step 1 – List Job Steps

The first step in developing a JSA is to identify each job step in order of occurrence. Job steps should be concise and clearly describe the individual safety critical tasks for the collective operation. *For example, a monitoring well gauging and sampling task may include the following job steps: 1) access well with hand tools, 2) gauge well using interface* probe*, 3) purge well with bailer, etc. Whereas, an example of a job step that is too generalized is "gauge and sample well."*

Step 2 – Identify Potential Hazards

Next, for each job step, determine potential hazards that may exist or occur while performing the associated job step. In helping determine safety critical job steps, the following questions should be assessed:

- "What could go wrong?"
- "What's the Worst that Can Happen?"
- "What are the consequences?"

Potential hazards should be identified by the following categories:

- Contact – struck by or against an object.
- Caught – caught on, in or between objects.
- Falls – slips, trips or falls to the ground or a lower level.
- Exertion – repetitive motion, excessive strain/stress, ergonomics, lifting/bending.
- Exposure – inhalation/ingestion/injection, cold/heat stress, noise/vibration.
- Energy Sources – electric lines or mechanical energy, including stored energy.

For each hazard category, the potential hazard should be further described. Refer to the JSA Quality Review Guidance Document provided as **Appendix C** for examples of potential hazards. *For instance, with the example described in Step 1 above, a potential hazard associated with the monitoring well gauging and sampling task – specifically, the job step to "access well with hand tools" – may include CAUGHT – pinch points when handling well cover.*

Step 3 – Determine Mitigative Actions

After the potential hazard(s) have been identified, evaluate if the job step can be performed in a manner where the hazard is eliminated, reduced or controlled. Common methods to eliminate, reduce or control potential hazards which follow the hierarchy of controls may include, but are not limited to, one or a combination of the following:

- Eliminating or substituting a job step with a less hazardous operation.
- Combining job steps or changing the sequence.
- Instituting engineering controls.
- Obtaining other tools or redesigning equipment.
- Performing ambient monitoring or screening.
- Obtaining additional safety equipment including personal protective equipment (PPE).
- Adding warning devices.

Mitigative actions should be specific and avoid using generalizations such as, "be careful" or "use caution." There must be at least one mitigative action for each potential hazard. PPE should never be the only mitigative action. It is the last line of defense. *Taking the example illustrated in Steps 1 & 2 above, mitigative actions for the potential hazard "CAUGHT – pinch points when handling well cover" may include 1) wear leather gloves, 2) use pry bar when accessing well cover, 3) keep hands/fingers clear between cover and collar, … etc.*

3.2 Review Process

Once a site-specific JSA has been developed, it is then submitted to the PM for review and approval prior to the start of a task. If the PM was involved in the development of the JSA then it will be provided to the OHSM for review and approval. When a quality review of JSAs are conducted by a member of management (e.g., Project Principals, CHSM) the review ensures that, at a minimum, the below "five rules" have been met:

1) JSA never more than 2 pages.

2) JSA authors listed should be people / titles who perform that type of work. Management should be reviewers / approvers.
3) Critical actions are always specific, observable actions – never "proper" or "appropriate" or "careful."
4) PPE is considered a last line of defense and should be included in the critical actions. However, it cannot be the only critical action listed to mitigate a hazard; you must always identify other actions in addition to the applicable PPE (e.g., keep fingers clear of pinch points while closing cover; and wear cut resistant gloves).

In addition, at least annually, the PM and JSA Steward(s) are responsible for reviewing and updating (if necessary) the site-specific and generic JSAs, respectively, for which they are responsible. The review is carried out utilizing the JSA Quality Review Checklist which is provided in **Appendix C**. The JSA Stewards are assigned by the OM/CHSM for specific generic JSAs and are identified within the JSA Steward list posted within the JSA Library. These Stewards are appointed based on their knowledge and experience with specific work tasks. The JSA Library is updated routinely (min quarterly) by the CHSM to ensure that it contains only the most current version of each generic JSA.

3.3 JSA Library

JSA Stewards submit updated generic JSAs to the CHSM for filing in the JSA Library. As part of the annual review process, JSA Stewards must audit the JSA Library to ensure that it contains only the most current version of the JSA for which they are responsible. Approved site-specific JSAs are filed in the project files.

3.4 JSA Updates

JSAs can be updated based on a variety of factors or reasons, such as the examples provided below:

- Identification of inadequate procedures during a safety tailgate meeting.
- A Safe Performance Self-Assessment (SPSA) determining that the task should have a JSA or that procedures within the existing JSA are not adequate to address identified hazards.
- Change in site or environmental conditions.
- New or modified equipment or procedures.
- Observations or incident investigations that identify tasks requiring new or updated JSAs.

Changes to a generic JSA requires submittal and review by the JSA Steward appointed for that task to determine if the genetic JSA change is necessary. If changes are warranted, the JSA Steward forwards the updated generic JSA to the CHSM for review and uploading into the JSA Library.

Changes to Site-specific revisions need only approval from the PM.

3.5 Emergency Situations

In the absence of an existing JSA during an emergency situations, personnel should discuss with both the PM and SHSM the job steps, potential hazards and associated mitigative actions for tasks anticipated to be performed. As conditions, may change during the task(s), the personnel must reassess the job step(s) and potential hazards, and discuss any additional changes with the PM and SHSM prior to resuming the

activity. For unplanned activities, it is critical that personnel do not proceed with performing task(s) without prior health and safety consideration and planning.

3.6 Subcontractors

Roux subcontractors are required to submit their JSAs for review in advance of the work. This allows time for Roux's PM to provide comments and suggestions to the subcontractors JSA's. Roux subcontractors should understand that no work may occur unless the JSAs for the work being performed have been reviewed by Roux. JSAs provided by subcontractors are maintained in the project files. For common tasks and to maintain consistency, the project management team may provide a similar or generic approved JSA to a subcontractor for use as a starting point for development of the subcontractors JSA.

Subcontractor JSAs are reviewed in the field daily prior to performing work. Roux oversight personnel and the project management team will assist subcontractors with updating JSAs as described in Section 3.4.

4. TRAINING

Every employee who may perform field work will be trained in this program and the proper use of the JSA. The training includes:

- A review of this Program.
- Development of a JSA.

This training is repeated as necessary to ensure that employees receive reinforcement of the value of the JSA Program as well as feedback on the health of the JSA Program. Office workers may receive training if an anticipated task will be performed that requires development of and training in a JSA.

5. RECORDS

The following records are maintained by the CHSM:

- A library of generic JSAs.
- Copies of all site field audits performed that assist with the evaluation of the effectiveness of the JSA program will be uploaded Quarterly and are located and stored at Clarity→Health & Safety→[Office Specific]→Field Audit Checklist (FAC). Key findings from these field audits will be communicated by the CHSM to OHSM for further communication to the office staff (typically during monthly lunch and learns).

The following record is to be maintained by each PM:

- Each site-specific JSA developed for their project. All JSAs are expected to be included in Appendix A in the project HASP.

The following record is to be maintained by each JSA Steward:

- The latest version of each generic JSA for which they have been assigned and stored in the JSA Library.

6. PROGRAM EVALUATION

The CHSM will evaluate the program's effectiveness during field audit(s). The CHSM should, at a minimum assess the overall effectiveness of the JSA Program quarterly. Records shall be maintained within the JSA Library. The assessment will include the adequacy of applicable JSAs and consistency in their use. Program adjustments will be made as necessary to reflect the evaluation results.

Appendix A – Job Safety Analysis Process Flowchart

Selection of Job for Analysis

- For all major jobs in the workplace
- Priority where jobs have had more frequent or severe losses (from loss experience)
- Priority of higher risk activities
- Where a procedure is not available or inadequate to do the work safely from SPSA process
- Roux Peer Observation (RPO) or Accident Report Form (ARF) tool identifies lack of operational procedure or work standard
- New equipment or procedure

Selection of Development Team Members

- Persons conducting the JSA must be familiar with the process and understand basic hazard analysis techniques
- Include employees who perform the operation
- Target a minimum of two team members
- For higher risk work CHSM should be included

Conduct the Job Safety Analysis (JSA)

- Visit the workplace to observe the actual performance of the job
- Break down the job into distinct steps/tasks (Column 1)
- Identify Hazards for each step separately by asking questions similar to SPSA process. Be specific listing the Hazard and the Consequence (Column 2)
- Review Hazards, then consider options:
  - Engineer to eliminate the hazard
  - Provide guards, safety devices, etc.
  - Provide training
  - Provide PPE and ensure good ergonomics
  - Maintain good housekeeping
- Develop critical actions to control hazards (Column 3)
- Organize the information into one or two pages

Review and Approve

- By Project Manager
- OHSM to review if PM is a part of design team for JSA

Referencing and Customizing JSA's

- Refer to JSA Generic Library located, Clarity→Health and Safety→JSA Library
- Each field location uses these generic JSAs and customizes them to meet site specific needs

Continuous Improvement

- Reviewed and updated at least once a year and
  - Following any significant Lessons Learned or incident
  - Introduction of new equipment or equipment modifications
  - Changes to job procedure- from RPO or SPSA
- Use JSA Quality review checklist (Appendix C)

Appendix B - Job Safety Analysis Form

JOB SAFETY ANALYSIS	Cntrl. No.	DATE:	☒ NEW ☐ REVISED	PAGE 8 of 2
JSA TYPE CATEGORY **GENERIC**		WORK TYPE	WORK ACTIVITY (Description)	
DEVELOPMENT TEAM		**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**

	REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT			
☐ LIFE VEST ☐ HARD HAT ☐ LIFELINE / BODY HARNESS ☐ SAFETY GLASSES		☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☐ SAFETY SHOES	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☐ PPE CLOTHING:	☐ GLOVES: ☐ OTHER

	REQUIRED AND / OR RECOMMENDED EQUIPMENT
	Required Equipment:
	Commitment to LPS – All personnel onsite will actively participate in SPSA performance by verbalizing SPSAs throughout the day.
	EXCLUSION ZONE: A _ foot exclusion zone will be maintained around (indicate equipment).

Assess **[1]JOB STEPS**		**Analyze** **[2]POTENTIAL HAZARDS**	**Act** **[3]CRITICAL ACTIONS**
1. [INSERT JOB STEP]		**1a. CONTACT:** [INSERT HAZARD]	1a.
		1b. CAUGHT: [INSERT HAZARD]	1b.
		1c. FALL: [INSERT HAZARD]	1c.
		1d. EXPOSURE: [INSERT HAZARD]	1d.

		1e. EXERTION: [INSERT HAZARD]	1e.
		1f. ENERGY SOURCE: [INSERT HAZARD]	1f.
2. [INSERT JOB STEP]		**2a. CONTACT:** [INSERT HAZARD]	2a.
		2b. CAUGHT: [INSERT HAZARD]	2b.
		2c. FALL: [INSERT HAZARD]	2c.
		2d. EXPOSURE: [INSERT HAZARD]	2d.
		2e. EXERTION: [INSERT HAZARD]	2e.
		2f. ENERGY SOURCE: [INSERT HAZARD]	2f.

Appendix C - Job Safety Analysis Quality Review

GUIDANCE DOCUMENT

JOB SAFETY ANALYSIS (JSA) QUALITY REVIEW

A Job Safety Analysis (JSA) is both a technique and a tool used to carefully study and record each step of a job or task, identify existing or potential hazards associated with each step and determine the best actions to follow in order to avoid those hazards. The JSA provides a standard for conducting work and Roux Peer Observations (RPOs) and also serves as an excellent safety training and daily site safety meeting reference tool. A JSA is applicable for routine and higher risk activities.

The following guidance provides items a Quality Reviewer should ask about or look for when reviewing and commenting on a JSA. Quality Review feedback should be specific and may be in writing or verbal. Written feedback ensures clear communication and better tracking. Verbal feedback allows discussion and can be conducted at group safety meetings, by telephone, etc. for sharing of learnings as well. Safety stewardship focuses on quality use of the tools and other activities that personnel can control. This guidance applies to all Quality Reviewers from the front-line supervisor to senior management. Feedback on the quality of a JSA should include several items that are done well in addition to areas to improve.

Administrative and Header Information

- Are all sections completed?
- Does header include appropriate information such as name of company who developed JSA, location and work activity JSA applies to, names/titles of development team and quality reviewer(s), and date?
- Does development team include job experts (field personnel who perform the task) along with personnel familiar with hazard analysis techniques, specifically the worker actually completing the task?
- Does PPE section include minimum required specific PPE for task and is it consistent with PPE requirements listed in Column 3?
- Was the JSA reviewed by Roux personnel?
- Is the JSA limited to two pages?
- Is the JSA written in terms that field personnel can follow rather than as a "reference document" written by office staff?

Column 1 Job Steps

- Does the JSA cover one main task and not multiple tasks that should be divided into separate JSAs? Designate job task steps not overall work flow process to complete job.
- Are the job steps clearly defined and in a logical sequence that aligns with how the work is performed in the field?
- Do the job steps only include those with associated SH&E hazards?

Column 2 Potential Hazards

- Are hazards listed to correspond with each job step in Column 1?

- Do the hazards listed consider all potential hazards (e.g. environmental conditions, injurious contact, overexertion, slips/trips/falls, exposure to hazardous materials, traffic, property/environmental impacts, etc.)?
- Are the hazards specifically stated (e.g. instead of stating hazard as "chemical exposure", state "exposure to sulfuric acid from leaking battery")?
- Are there "extra" hazards that do not apply indicating that the JSA may have been developed for another site and not revised to address site-specific hazards?

Column 3 Critical Actions to Mitigate Hazards

- Do the critical actions align horizontally with the job steps and hazards from Columns 1 and 2?
- Are the actions clear and specific? (e.g. "wear a reflective vest and place traffic cones around work area" rather than "watch out for traffic").
- Are the actions quantifiable when possible? (e.g. "use two people to lift objects over 40 pounds" rather than "get help with heavy objects").
- Are the actions observable and objective so that an RPO Observer who is unfamiliar with task can determine if it is being done correctly? (e.g. "maintain three points of contact when climbing ladder" rather than "use safe climbing techniques").
- Do the actions avoid ambiguous phrases such as "use caution", "be careful", "stay alert", "and watch out"?
- Do the actions avoid subjective phrases such as "use proper", "as needed", "as required", "as necessary" that leave it open to individual worker's interpretation of what is required to perform work safely?
- Do not list minimum required PPE without including in the mitigation for this task, think why the PPE is required.
- PPE cannot be the only line of defense, PPE always the last line of defense, so think through what other actions could mitigate hazards.

JSA QUALITY REVIEW CHECKLIST

Reviewer Name / Company / Title:		Desktop Review?		Field Review?		Date:	
Administrative and Header Information		**Yes**	**No**	**Comments**			
Is the JSA limited to two pages?							
Are all sections completed?							
Does development team include job experts and personnel familiar with JSA development process?							
Was the JSA reviewed by a supervisor/manager?							
Does PPE section include PPE required for entire task with additional PPE listed in Column 3?							
Is the JSA written in terms that field personnel can follow?							
Column 1 - Job Steps		**Yes**	**No**	**Comments**			
Does JSA cover one main job task and not overall work flow process or multiple tasks that should be in standalone JSAs?							
Are job steps clearly defined and in sequence that aligns with how the work is performed?							
Column 2 - Potential Hazards		**Yes**	**No**	**Comments**			
Do hazards listed clearly correspond with each job step in Column 1?							
Are the hazards specifically stated (e.g. exposure from (what?), cut from (what?), slip from (what?)?)							
Do the hazards listed include all potential hazards?							
Does JSA avoid "extra" hazards that do not apply (may indicate generic JSA use without site revision)?							
Column 3 - Actions to Mitigate Hazards		**Yes**	**No**	**Comments**			
Do the critical actions clearly match each listed hazard and job step from Columns 1 and 2?							
Are the actions clear and specific?							
Are the actions quantifiable when possible (e.g. include number, limit, amount or distance)?							
Are the actions observable and objective (e.g. explain "how to")?							
Do the actions avoid ambiguous phrases (e.g. "be careful", "watch out")?							
Do the actions avoid subjective phrases (e.g. "proper", "appropriate")?							
Additional Comments:							

Quality Review Feedback provided to (name/company):			
Quality Review Feedback Action Item(s)	**Responsible Person**	**Target Completion Date**	**Actual Completion Date**

JOB SAFETY ANALYSIS	Ctrl. No. CVD-19	DATE: 04/16/2020	☒ NEW ☐ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Fieldwork**	**Working in Areas Affected by Coronavirus**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Kristina DeLuca	Health and Safety Specialist	Brian Hobbs	CHSM

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT – In field ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES – In field	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES – Steel/composite toe in fie	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING – High visibility vest in field	☒ GLOVES – Leather/cut-resistant in field and nitrile as needed ☐ OTHER

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Cloth face covering, nitrile gloves, hand soap, water source, hand sanitizer, disinfectant spray and disinfectant wipes.

Commitment to Safety – All personnel onsite will actively participate in SPSA performance by verbalizing SPSAs throughout the day.

SOCIAL DISTANCING: Maintain 6' of distance between yourself and all other people at all times. If you do not believe the scope of work can be conducted while maintaining this distance, contact your Project Manager immediately.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Project Preplanning	N/A	• Review and follow COVID-19 CDC, Roux, Client and local orders/protocols. • Ensure all workers are fit for duty - anyone feeling sick should remain at home even if symptoms do not align with COVID-19. If a worker has been in contact with someone potentially positive or positive for COVID-19, contact your Office Manager. • Determine PPE needs and ensure adequate supply of disinfectant wipes/spray, soap and water or hand sanitizer at Site. Due to high demands and limited supply, plan ahead. • Use the minimum number of employees necessary to safely complete the work.
2. Mobilization	**Exposure:** Becoming infected or infecting co-workers	**Personal/Rental/Roux Owned Vehicle** • Do not carpool. • Use the same vehicle every day and do not share with co-workers. • Verify workers/other people are not approaching vehicle prior to exiting the vehicle. Maintain 6' of distance from others. • DO not valet your car or allow others to use your car. If necessary, don nitrile gloves and safety glasses and clean/disinfect all high touch surfaces (steering wheel, knobs, door handles, turn signals, radio, etc.) by wiping thoroughly with approved disinfectants (follow manufacturer's instructions). This cleaning and disinfection shall occur before and after each use of the vehicle. Aseptically remove gloves and dispose of them along with rags/wipes, appropriately. Wash hands or use hand sanitizer immediately after each episode of cleaning. **Public Transportation** • Public transit should not be used unless absolutely necessary. Consider renting a car rather than taking public transit. If public transit is required, wear appropriate PPE and apply social distancing (6 ft). Use proper donning and doffing procedures for nitrile gloves. Wash hands or use hand sanitizer immediately after. **Hotel Stay (Refer to COVID-19 H&S Guidance for more info)** • If a hotel stay is deemed necessary for the given field work, ensure that you disinfect your room upon initial arrival and returning each day. Disinfect all surfaces of your room with an appropriate disinfectant using nitrile gloves. Use proper donning and doffing procedures for nitrile gloves. • Place the "Do Not Disturb" placard on the room while away and limit housekeeping services to the extent feasible during your stay to minimize the reintroduction and spread of the virus from others. Minimize, or avoid entirely, time spent in hotel common areas (i.e., the lobby, dining areas, gyms, etc.). Wash hands or use hand sanitizer often.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards, energy source; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

3. Tailgate Meeting	**Exposure:** Becoming infected or infecting co-workers	• Must occur outside or remotely (i.e. video or conference call). • Maintain at least a 6+ ft distance between you and others. • Discuss primary infection prevention measures listed below. • Do not require employees or subcontractors to sign in, the Site Supervisor shall record names on the attendance form. • If the Site has more than 10 workers, separate tailgate meetings should be performed. • Discuss COVID-19 symptoms with coworkers and subcontractors to ensure fitness for duty. Anyone exhibiting signs or symptoms should be instructed to leave the Site, contact your Project Manager.
4. Site Activities	**Exposure:** Becoming infected or infecting co-workers	• Coordinate field activities at the beginning of the day (i.e. Tailgate meeting) to minimize time spent in crowded spaces or overlap while completing job tasks. • Don cloth face coverings as appropriate. • Apply social distancing (6+ ft) when interacting with others. If anyone comes within 6 ft of you while conducting work and your work prevents you from moving away, politely ask them to move back. If others are unable to move from your space, stop work and leave area. • Do not shake hands or touch others. • Do not share equipment or other items with co-workers and subcontractors unless wearing appropriate PPE (e.g. nitrile gloves). Assume equipment and other surfaces are potentially contaminated and remove gloves aseptically (See Appendix A of Roux Interim H&S Guidance for proper glove removal). • If anyone is coughing or sneezing in your vicinity, stop work and leave the area. • Do not work in areas with limited ventilation with others. • Cover your mouth and nose with tissue or paper towel or with your elbow when coughing or sneezing and wash hands or use hand sanitizer immediately after. If sick contact SHSO/PM and leave Site immediately. • Disinfect work surfaces/areas with approved disinfectant you're responsible for (ex: desk, office doorknob, computer, etc.) at least once at the beginning of your shift and at least once at the end of your shift with either sanitizing wipes or disinfectant spray. • Phones should be operated hands free to extent feasible. Sanitize your phone on a regular basis. Disinfection should also take place whenever suspected contaminated material comes in contact with any work surfaces/areas. Wash hands or use hand sanitizer immediately after. • Avoid public spaces and going out to eat by bringing your own lunch to the Site. If performing work in high density urban areas, it is recommended all food must be consumed at or in your vehicle. Wash hands or use hand sanitizer before eating and immediately after.

Primary Infection Prevention Measures

- Wash your hands often with soap and water for at least 20 seconds.
  - If soap and water are not available, use an alcohol-based sanitizer that contains at least 60% ethanol or 70% isopropanol. Key times to wash hands include after blowing your nose, coughing or sneezing, after using the restroom, and before eating or preparing food.
- Do not touch your eyes, face, nose and mouth with unwashed hands.
- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Throw potentially contaminated items (e.g. used tissues) in the trash.
- Avoid close contact/secondary contact with people and potentially contaminated surfaces.
  - Apply appropriate social distance (6+ feet).
  - Stop handshaking/touching others and use caution when accessing public spaces.
- Clean and disinfect frequently touched surfaces daily. Commonly touched items can include but are not limited to tables, doorknobs, light switches, countertops, handles, desks, phones, keyboard, toilets, sinks and field equipment. If surfaces are dirty, they should be cleaned with soap and water prior to disinfection. If surface cannot be cleaned/disinfected, then wash hands or use sanitizer as soon as possible.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Ctrl. No. GEN-006	DATE 05/22/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Drilling**	**Direct Push Soil Borings / Well Installation**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD HEARING PROTECTION: (as needed) SAFETY SHOES: Composite-toe or steel-toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing, long-sleeved shirt	☒ GLOVES: Nitrile and cut-resistant ☒ OTHER: Insect Repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Geoprobe or Truck-Mounted Direct Push Drill Rig, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Macrocore liners, Liner Opening Tool, 20 lb. Type ABC Fire Extinguisher, 42" Cones & traffic control paddles, "Work Area" Signs, Water.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

"SHOW ME YOUR HANDS"
The driller and helper should show that their hands are clear of controls and moving parts.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization of drilling rig (ensure the Subsurface Clearance Protocol and Drill Rig Checklist are completed)	**1a. CONTACT:** Equipment/property damage.	1a. The drill rig's tower/derrick will be lowered and secured before mobilization. 1a. A spotter should be utilized while moving the drill rig. If personnel move into the path of the drill rig, the drill rig will be stopped until the path is again clear. Use a spotter for all required backing operations. 1a. Set up the work area and position equipment to eliminate or reduce the need for backing support trucks and trailers. 1a. When backing up the truck rig with an attached trailer, use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver visibility.
Secure Work Zone		1a. Inspect the driving path for uneven terrain. Level or avoid if needed. 1a. Ensure the work area is secure and inform others of work activity. Establish a HEEZ using traffic cones, barrels & snow fencing or telescoping poles. Use flag persons to maintain clear traffic and minimize motorist confusion during set-up. HEEZ is to include the tip/swing radius of the equipment.
	1b. FALL: Slip/trip/fall hazards.	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions before mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 1b. Use established pathways and walk on stable, secure ground.
	1c. CONTACT: Crushing from a rollover.	1c Geoprobe should cross all hills/obstructions head-on with the mast down to reduce the risk of rollover.
2. Raising the tower/derrick of the drill rig	**2a. CONTACT:** Overhead hazards.	2a. Before raising the tower/derrick, the area above the drilling rig will be inspected for wires, tree limbs, piping, or other structures that could come in contact with the rig's tower and/or drilling rods or tools. 2a. Maintain a minimum safe distance of 10' from overhead lines, material, or structures.
	2b. CONTACT: Pinch Points/Amputation Points when raising the rig, and the instability of the rig	2b. Inspect the equipment before use and avoid pinch/amputation points. 2b. Lower outriggers to ensure stability before raising the rig tower/derrick. 2b. If the rig needs to be mounted, use three points of contact.
3. Advancement of drilling equipment and sound installation	**3a. CONTACT:** Flying debris	3a. Be aware of and avoid potential line-of-fire hazards and wear required PPE such as eye, ear, and hand protection.
	3b. EXPOSURE: Noise and dust.	3b. Wet borehole area with sprayer to minimize dust. 3b. Stand upwind and keep your body away from the rig. 3b. If conditions warrant, a disposable dust mask (e.g., N95/P100) should be worn. 3b. Wear hearing protection when the drill rig is in operation.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

3. Advancement of drilling equipment and well installation (Continued)	**3c. FALL:** Slip/trip/fall hazards.	3c. Contain drill cuttings and drilling water to prevent fall hazards from developing in the work area. 3c. See 1b.
	3d. CAUGHT: Limb/extremity pinching; abrasion/crushing.	3d. Ensure all Emergency Safety Stop buttons function properly. 3d. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools. 3d. Inspect the equipment prior to use for potential pinch/amputation points. Keep hands away from pinch/amputation points, and the use of tools is preferable compared to fingers and hands. 3d. Inspect the drill head for worn surface or missing teeth; replace it if damaged or blunt. 3d. Ensure all jewelry is removed, loose clothing is secured, and PPE is correctly fitted and secured close to the body. 3d. All non-essential personnel should stay away from the immediate work area; position the body out of the line-of-fire of equipment. 3d. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3d. Spinning rods/casing have an **exclusion zone of 24 inches** while in operation.
	3e. CONTACT: Equipment imbalance during the advancement of drill equipment.	3e. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and/or tip. 3e. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. 3e. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (**minimum exclusion zone**).
	3f. EXPOSURE: Inhalation of contamination/vapors.	3f. Monitor ambient air for dangerous conditions using a calibrated photoionization detector (PID) to monitor the breathing zone of the work area. 3f. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings, and inform the Roux PM of the condition. The Roux PM will then recommend additional precautions in accordance with the site-specific health and safety plan. 3f. Use a multi-gas meter to monitor ambient air for dangerous conditions (i.e., unsafe levels of carbon monoxide when drilling indoors or the presence of explosive vapors).
	3g. EXERTION: Potential for muscle strain/injury while lifting and installing well casings, lifting sand bags, and/or lifting rods.	3g. Keep your back straight and bend at the knees. 3g. Utilize team lifting or mechanical means for objects over 40 lbs. 3g. Use a mechanical lifting device for odd-shaped objects.
4. Remove the sample liner.	**4a. EXERTION:** Potential for muscle strain/injury while removing the liner from the probe rod.	4a Utilize team lifting or mechanical means for objects over 40 lbs. 4a. Use the hydraulic liner extruder if available.
	4b. CONTACT: Pinch points and cuts	4b. Place the liner on the sturdy surface when opening. 4b. Don cut-resistant gloves and use an appropriate liner cutter when opening liners. 4b. Always cut away from the body.
	4c. EXPOSURE: Inhalation and/or dermal contact with contaminants.	4c. Wear chemical-resistant disposable gloves when handling liners. 4c. See 3f.
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors).	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from a side angle, not straight on, to avoid backsplash. 5a. See 3b and 3f.
	5b. EXPOSURE: The chemicals in the cleaning solution.	5b. See 4a. Review the SDS to ensure appropriate precautions are taken and understood.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.

[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.

[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Ctrl. No. GEN-007	DATE 05/22/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**General Site Activity**	**Driving**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☐ HARD HAT: when outside vehicle ☐ LIFELINE / BODY HARNESS ☐ SAFETY GLASSES: when outside vehicle	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☐ SAFETY TOE BOOTS: when outside vehicle	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☐ PPE CLOTHING: high visibility vest when outside vehicle	☐ GLOVES: Leather/ cut-resistant level 2 ☐ OTHER _____

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Motor Vehicle (i.e., car, truck, SUV)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving the Site	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc. *Common factors that may lead to a CONTACT incident, but not limited to: • distracted driving (cell phone, GPS, radio, billboards, "rubbernecking") • lack of situational awareness • unfamiliarity with traffic patterns/road layout • weather conditions (wet/icy roads, hydroplaning, black ice) • weariness • high speeds • obstructed vision (solar glare, debris on windshield, blind spots, large vehicle at the front) • changes in travel pathway (construction, snow banks, non-operational signals, potholes, detours, special events) • improper vehicle maintenance (non-operational signal light, worn tires, cracked windshield, ineffective wipers) • loose or unsecure objects	1a. PLAN AHEAD – review/make yourself familiar with maps and driving directions before beginning the drive to the Site. Do not attempt to drive and review maps/directions at the same time. Pull over and stop your vehicle before looking at maps/directions. 1a. If a Roux vehicle or a Roux-rented vehicle, complete a vehicle inspection form. If a personal vehicle, complete a basic 360 vehicle inspection before driving. Verify Inspection and Registration are current, tires and wipers are in good condition, all lights are functional, all glass/mirrors are undamaged, the horn is functional, roof/hood/trunk are free from accumulated snow, and visibility is not impaired due to snow/ice/frost/fog on windows. 1a. Do not hang items in the car that can obstruct your view or become projectiles in a collision. 1a. Do not get distracted using touch screen radios or GPS units built into newer models. Keep your eyes on the road and stay alert. 1a. Follow posted speed limits and obey traffic signals and roadway signs. 1a. Always wear your seat belt and shoulder harness when driving. 1a. When driving around large vehicles and trucks, maintain extra space as these vehicles may not be able to see a smaller car too close. 1a. Follow the "Rules of the Road," including: using your turn signals, coming to a complete stop, and allowing vehicles the right of way (yield) when required by traffic laws. 1a. Apply the Smith Five Keys® of safe driving • Aim High in Steering® - Expand eye lead time to a minimum of 15 seconds • Get the Big Picture® - Maintain a proper 4-second minimum following distance at all times - Scan mirrors every 5-8 seconds to achieve a circle of awareness - Position your vehicle so you can see relevant/non-relevant objects • Keep Your Eyes Moving® - Try to maintain about 180 degrees of visibility - Avoid blank and fixed stares. Avoid focusing on one object for more than 2 seconds • Leave Yourself an Out® - Avoid traveling in traffic clusters - Surround yourself with space - Anticipate the actions of others

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving Site (cont'd)	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	• Make Sure They See You® - Maintain eye contact with oncoming vehicles/pedestrians - Use warning devices (e.g., hand signals, high-lights, horns, etc.) - Proper timing is essential 1a. Do not perform reconnaissance or inspections while driving. Your vehicle should be parked in a safe location when viewing or surveying the Site and vicinity 1a. Avoid sudden turns and stops. Do not drive recklessly – be in control of the vehicle at all times. 1a. In inclement weather, first determine if work can be POSTPONED. Otherwise, plan according to weather conditions, including checking the forecast along the entirety of the travel route (especially for long distances). Reduce speed as road conditions warrant. Travelling with winter car equipment in the winter is strongly recommended (i.e., shovel, scraper, brush, blanket, extra clothing, flashlight, bag of sand). If your vehicle has 4-wheel drive, review the operator's manual and understand the operating procedure prior to engaging 4-wheel drive. If at any point on your drive, the weather becomes too severe to proceed safely, pull over if safe to do so or seek nearest cover (e.g., overpass) 1a. If feeling drowsy or sleepy, do not drive. Pull over in a safe place to rest if you experience any signs of drowsiness. Make sure to get adequate sleep the night before an early drive. 1a. Never operate a vehicle under the influence of alcohol, illegal substances, or medications affecting your performance. 1a. Keep your eyes on the road. Do not call, text, or talk on cellular phones. Pull over to a safe location if you must answer or make a call. 1a. When parking, pull through when possible. If backing is required, visually inspect the area to ensure it is free from obstructions prior to backing in and relying solely on mirrors; use spotters when available.
2. Entering/Exiting Vehicle.	**2a. CAUGHT:** Personal injury (broken fingers/hand) while entering or exiting vehicles **2b. FALL:** Personal injury (twisted ankle, deep contusion, concussion, broken wrist/arm, etc.) from a slip/fall on an uneven, unstable, or slippery surface while exiting/entering the vehicle **2c. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	2a. Open and close doors slowly. Never put hands or feet in between the door and the vehicle to avoid pinch points. 2b. When exiting the vehicle, make sure your feet are on firm footing and weight is evenly distributed before exiting/standing. In inclement weather, use your hands to support yourself by holding the car door and/or steering wheel when exiting the vehicle. 2c. Check both directions for traffic before opening the door. Do not exit the vehicle if traffic does not permit you to exit safely 2c. Check the anticipated path of the door prior to opening. Do not open the door into any obstructions (e.g., bollards, high curbs)

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-010	DATE 05/28/2025	☐ NEW ☒ X REVISED	PAGE 1 of 2
JSA TYPE CATEGORY **Generic**	WORK TYPE **Surveying**	WORK ACTIVITY (Description) **Elevation Surveying**		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut-resistant or leather
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☒ OTHER:
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel-toe boots		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Surveying equipment (i.e., leveling rod/measuring ruler, tripod and auto level).

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Check in with Site manager/ property owner.	**1a. CONTACT/EXPOSURE/FALL:** Lack of communication could result in H&S incident.	1a. Inform Site personnel of work scope, timeline and location(s). 1a. Inquire about other activities taking place at the Site. 1a. If applicable, obtain General Work permit for the day.
2. Locate surveying position for instrument and rod and set-up work area	**2a. FALL:** Slip/trip hazards	2a. Inspect area for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.) and obstructions prior to setting up at the survey location. Keep eyes engaged with walking surface while in movement. Remember "Walking is Working." 2a. Conduct housekeeping and maintain clear paths to walk in and remove debris as required.
	2b. CONTACT: Traffic (surveying locations could potentially be in parking areas and sidewalks)	2b. Be aware of oncoming traffic. Utilize a flagman / spotter for locations in streets or high-traffic areas. 2b. Place Traffic cones around the work area and delineate work zone with caution tape, snow fencing or safety bars, if necessary. 2b. Wear appropriate PPE including high visibility clothing and reflective safety vest when exposed to traffic and vehicles. 2b. Face traffic, maintain eye contact with oncoming vehicles and establish a safe exit route.
	2c. OVEREXERTION: Hazard due to carrying, lifting, and bending while transporting equipment	2c. Use proper body positioning and lifting techniques; keep back straight, lift with legs, keep load close to body, and never reach with a load. 2c. Avoid carrying too much equipment at one time and team-lift equipment that is heavier than 50 lb.
	2d. CAUGHT/CONTACT: Pinch Points / sharp edges associated with setting up the tripod	2d. Wear cut resistant gloves when handling the tripod and keep fingers away from pinch points located near moving parts of the tripod. Do not carry tripod by the pointed ends.
	2e. OVEREXERTION: Hazard due to bending awkwardly to look through the autolevel	2e. When practical, set the height of the auto level optic so as to minimize bending at the waist.
3. Open / close manhole cover to well that is being surveyed (if necessary).	**3a. OVEREXERTION:** Muscle strain	3a. See 2c. Bend knees when reaching to open well. Use manhole lifting hook or pry bar to avoid bending.
	3b. CAUGHT: Pinch points associated with removing / replacing manholes and working with hand tools	3b. Wear leather gloves or cut resistant gloves when working with well cover and hand tools. 3b. Use proper tools (ratchet and crowbar, pry bar or magnet for well cover) and inspect before use. 3b. Do not put fingers under well cover.
	3c. EXPOSURE: To potentially hazardous vapors To biological hazards	3c. No open flames/heat sources. 3c. To minimize exposure to vapors, allow well to vent after opening it and before survey activities begin. 3c. Work on the upwind side of manhole/well. 3.c Use caution while opening lids to inspect work area for bees and insects inside of covers. 3c. Use insect/tick repellent, as necessary.
	3d. CONTACT: With traffic	3d. See 2b.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Perform survey.	**4a. FALL:** Slip/trip hazards	4a. See 2a.
	4b. CONTACT: Traffic (surveying locations could be potentially located in parking areas and sidewalks)	4b. See 2b. 4b. Personnel using the scope will be devoting most of their attention to the surveying activity and shall be aware of vehicular and pedestrian traffic. Personnel holding the measuring stick should be extra vigilant of survey personnel and communicate any potential hazards to the instrument person via handheld radio or similar means. Ensure reflective safety vest is worn.
	4c. ENERGY SOURCES: Electrical shock from survey rod striking overhead electric lines or lights	4c. Prior to raising and extending the survey rod, personnel should thoroughly inspect the area above the measuring point. If overhead electrical lines are encountered within 10 feet of the measuring rod tip ; stop work and consult with the Office Health and Safety Officer.
5. Break down work area.	**5a. CONTACT:** Traffic (surveying locations can potentially be in parking areas and sidewalks)	5a. See 2b.
	5b. EXERTION: Hazard due to carrying, lifting, and bending while transporting equipment	5b. See 2c.
	5c. CONTACT: Personal injury or equipment damage by striking surroundings with an extended rod or unsecured tripod leg	5c. Ensure rod is entirely collapsed prior to mobilization / demobilization between survey points. 5c. Ensure tripod legs are fully collapsed and secured with strap prior to mobilization / demobilization between set-ups.

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JOB SAFETY ANALYSIS Ctrl. No. GEN-013	DATE 05/28/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Gauging and Sampling**	**Gauging and Sampling**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☒ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES: Composite-toed or steel-toed boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: , Nitrile and cut-resistant level II ☒ OTHER: Knee pads, Insect Repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Traffic Safety Cones, Caution Tape, Interface Probe with Ground Clamp, and/or Water Level Meter, 20-lb. type ABC Fire Extinguisher, Buckets. Tools as needed: Socket Wrench, Screw Driver, Crow Bar, Mallet, and Wire Brush.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization to monitoring well(s).	**1a. FALL:** Personal injury from slip/trip/fall due to uneven terrain and/or obstructions.	1a. Inspect the pathway and plan for the most suitable designated pathway prior to mobilization. 1a. Use established pathways, walk and/or drive on stable, secure ground, and avoid steep hills or uneven terrain. 1a. If working near open water with an unguarded edge, wear a personal flotation device (PFD).
	1b. CONTACT: With traffic/third parties.	1b. Identify potential traffic sources and delineate the work area with traffic safety cones. Position the vehicle to protect against oncoming traffic. Use caution tape to provide a more visible delineation of the work area if necessary. 1b. Wear appropriate PPE, including high visibility clothing and reflective vest, when exposed to traffic 1b. Face traffic, maintain eye contact with oncoming vehicles, and establish a safe exit route.
	1c. EXERTION: Muscle strain from lifting equipment	1c. Use proper lifting techniques when handling/moving equipment; bend knees and keep back straight. 1c. Use mechanical assistance or team lifting techniques when equipment is 40 lbs. or heavier. 1c. Make multiple trips to carry equipment.
	1d. EXPOSURE: To biological hazards.	1d. Inspect work area for bees and insects. 1d. Use insect/tick repellent, as necessary. 1d. Treat clothing with permethrin prior to mobilization. 1d. Don Tyvek/mosquito nets, as applicable.
2. Open/close well.	**2a. EXERTION:** Muscle strain.	2a. Use proper lifting techniques; keep back straight, lift with legs, and bend knees when reaching to open/close the well.
	2b. CAUGHT: Pinch/crush points associated with removing/replacing manholes and working with hand tools.	2b. Wear cut-resistant level II gloves when working with well cover and hand tools. 2b. Use proper tools (ratchet and pry bar or magnet for well cover) and inspect before use. 2b. Do not put fingers under the well cover.
	2c. CAUGHT: Pinch points associated with placing the J-plug back onto the PVC pipe.	2c. See 2b. 2c. Keep fingers out of line-of-fire when securing cap.
	2d. EXPOSURE: To potential hazardous vapors.	2d. No open flames/heat sources. 2d. To minimize exposure to vapors, allow the well to vent after opening it and before sampling activities begin. 2d. Stand upwind if possible, to avoid inhaling vapors. 2d. Monitor atmosphere with multi-gas meter/PID.
3. Gauge well.	**3a. CONTACT:** With contamination (e.g., contaminated groundwater).	3a. Wear chemical-resistant disposable gloves (over cut-resistant gloves) and safety glasses when gauging well. 3a. Insert and remove the probe slowly to avoid splashing. 3a. Use an absorbent pad to clean probe.
	3b. CONTACT: With traffic.	3b. See 1b.
	3c. Exposure: To static electricity, fire, or explosion.	3c. Ground interface probe to a designated grounding point/rod, well casing, or electrically conductive surface to dissipate static electricity.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
4. Purge and sample well	**4a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors) and/or sample preservatives.	4a. Open and fill sample jars slowly to avoid splashing and contact with preservatives. 4a. Wear cut-resistant gloves and chemical-resistant disposable gloves when sampling. 4a. Fill sample containers over the purge container to avoid spilling water onto the ground. 4a. Use an absorbent pad to clean spills. 4a. When using a bailer to purge a well, pull the bailer slowly from the well to avoid splash hazards. 4a. When sampling or purging the water using a bailer, pour water slowly to reduce the potential for splash hazards with groundwater. 4a. When using a tubing valve, always remove the valve slowly after sample collection to release any pressure and avoid pressurized splash hazards. 4a. When collecting a groundwater sample, always point the sampling apparatus (tubing, bailer, etc.) away from the face and body.
	4b. CONTACT: Personal injury from cuts, abrasions, or punctures by glassware or sharp objects.	4b. To avoid spills or breakage, place sampleware on an even surface. 4b. Do not over-tighten caps on glass sampleware. 4b. Wear chemical-resistant nitrile disposable gloves over cut-resistant (i.e., Kevlar) gloves when sampling and handling glassware (i.e., VOA vials) or when using approved cutting tools.
	4c. EXERTION: Muscle strain while carrying equipment.	4c. Use proper lifting techniques when handling/moving equipment, bend knees, and keep back straight. 4c. Use mechanical assistance or team lifting techniques when equipment is 40 lbs. or heavier. 4c. Make multiple trips to carry equipment.
	4d. CONTACT: With traffic.	4d. See 1b.
	4e. CONTACT: Pinch points with groundwater pump components (i.e., wheel, line, clamps).	4e. Wear cut-resistant gloves when working with groundwater pumps. 4e. Never place hands on or near pinch points such as the wheel, clamps, or other moving parts during pump operations. 4e. Use the correct mechanisms, such as a pump reel, to lower the pump into the well. 4e. Never attempt to manually stop any moving part of equipment, including hose reels and/or tubing.
	4f. EXERTION: Muscle strain from repetitive motion of bailing and sampling a well.	4f. See 4c. 4f. Include a stretch break when repetitive motions are part of the task.
5. Management of purge water.	**5a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	5a. Do not overfill the container, and pour liquids slowly so that they do not splash. 5a. Properly dispose of used materials/PPE in an appropriate container in the designated storage area.
	5b. EXERTION: Muscle strain from lifting/carrying, and moving containers.	5b. Use proper lifting techniques when lifting/carrying or moving container(s) (see 4c.). 5b. Do not overfill container(s).
6. Decontaminate equipment.	**6a. EXPOSURE/CONTACT:** To contamination (e.g., SPH, contaminated groundwater, vapors).	6a. Work on the upwind side, where possible, of the decon area. 6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Use an absorbent pad to clean spills.
	6b. CAUGHT: Pinch points associated with handling hand tools	6b. See 2b. 6b. Inspect hand tools for sharp edges before decontaminating.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-014	DATE: 05/28/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):
Generic	**Drilling**	**Hollow Stem Auger Soil Borings / Well Installation**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☒ GOGGLES: Spoggles required if winds exceed 15 mph. ☐ FACE SHIELD HEARING PROTECTION: (as needed). ☐ SAFETY SHOES: Steel or Composite Toe.	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent long-sleeve shirt or long-sleeve shirt and reflective safety vest.	☒ GLOVES: Cut-Resistant, and Nitrile. ☒ OTHER: Insect Repellant, Sunscreen (as needed).

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Truck-Mounted Drilling Rig or Track Rig, Saw, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Interface Probe, 20 lb. Type ABC Fire Extinguisher, Traffic Cones/barrels, Caution Tape & Flags, "Work Area" Signs.

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EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

"SHOW ME YOUR HANDS"
Driller and helper should show that hands are clear from controls and moving parts

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization/demobilization and establish a work area.	**1a. See Mobilization/ Demobilization JSA GEN-015.**	1a. See Mobilization / Demobilization JSA GEN-015.
2. Raising the tower/derrick of the drilling rig.	**2a. CONTACT:** Overhead hazards.	2a. Prior to raising the tower/derrick, the area above the drilling rig will be inspected for overhead hazards (wires, tree limbs, piping, or other structures) that may be contacted by the rig's tower or drilling rods. 2a. The tower/derrick must not be raised beneath overhead power lines unless approved by the Roux PM. 2a. Maintain a minimum of 10' from all overhead structures. 2a. Do not move the rig while the tower/derrick is raised.
	2b. CONTACT: Amputation/crush points when raising the rig and the instability of the rig.	2b. Inspect the equipment prior to use and avoid any potential amputation points. 2b. Lower outriggers to ensure stability prior to raising the rig tower derrick. Keep feet and body out of the line of fire when lowering outriggers. 2b. Inspect the set-up location for uneven terrain. Level or avoid the area if needed. 2b. If the rig needs to be mounted, be sure to use three points of contact.
3. Advancement of augers for soil boring installation.	**3a. CONTACT:** Equipment imbalance during advancement of drill equipment.	3a. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and/or tip. 3a. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. **3a. Drillers will maintain the "Purple Zone" policy surrounding augers to ensure no personnel come into contact with augers while in use. Workers can spray paint a 3' semi-circle surrounding the augers to visually show that no personnel should enter the "Purple Zone" while drilling activities are being conducted.** 3a. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (minimum exclusion zone of 20 feet).
	3b. CONTACT: Flying/spraying debris.	3b. Wear all required PPE (especially hand, eye, and ear protection). 3b. Maintain minimum EZ distance (i.e., swing/tip radius of rig) when rig is in operation to avoid potential line of fire hazards from flying materials or debris.
	3c. CAUGHT: Limb/extremity amputation, abrasion, and crushing.	3c. Inspect the equipment prior to use for potential pinch points. 3c. Test all emergency shutdown devices prior to drilling. 3c. Inspect the drill head for worn surface or missing teeth; replace it if damaged or blunt. 3c. Inspect augers; do not use if the auger flight is damaged or bent.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Advancement of augers for soil boring installation (Continued).	**3c. CAUGHT:** Limb/extremity amputation, abrasion, and crushing.	3c. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3c. All non-essential personnel should stay away from the immediate work area; position the body out of the line-of-fire of equipment, particularly when installing auger flights and steel override casings. 3c. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3c. Spinning augers should have an exclusion zone of 20 feet when in operation.
	3d. FALL: Slip/trip/fall hazards.	3d. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 3d. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 3d. Use established pathways and walk on stable, secure ground. 3d. Use three points of contact when mounting or dismounting the rig. 3d. Remove soil cuttings to avoid a tripping hazard from developing near augers.
	3e. EXPOSURE: Inhalation of contamination/vapors.	3e. Air monitoring using a calibrated photoionization detector (PID) and multi-gas meter to monitor the breathing zone of the work area. 3e. The Action Level for breathing zone air is five (5) parts per million (sustained) as detected by the PID. 3e. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings, and inform the Roux PM of the condition. The Roux PM will then recommend additional appropriate precautions in accordance with the site-specific health and safety plan.
	3f. EXPOSURE: Noise and dust.	3f. Wet borehole area with sprayer to minimize dust. Stand upwind and keep your body positioned away from the rig. 3f. Wear hearing protection while the drill rig is operating or the noise levels exceed 85 dBA.
	3g. EXERTION: Installing well casings and lifting augers.	3g. Keep back straight and bend at the knees. 3g. Utilize team lifting for objects heavier than 40 lbs. 3g. Use a mechanical lifting device for odd-shaped objects.
4. Installation of well materials.	**4a. CONTACT:** Installing well materials while also pulling up augers.	4a. Potential contact with augers during the installation of well materials. 4a. Keep distance from augers and do not place any materials while augers are in motion.
	4b. CAUGHT: Possible pinch or crush hazard assembling PVC and sending down the borehole.	4b. Keep all body parts out of potential pinch points while placing PVC together and sending down borehole.
	4c. FALL: Slip/trip/fall hazards with hand tools and materials.	4c. See 3d.
	4d. EXPOSURE: Potential contamination, harmful vapors, dust, and/or noise.	4d. See 3e and 3f. 4d. Stand upwind to avoid exposure to dust generated from packing materials.
	4e. EXERTION: Lifting heavy bags of materials to backfill the borehole.	4e. See 3g.
5. Cleaning the auger flights	**5a. CONTACT:** Cuts/scrapes or puncture wounds from contacting the auger.	5a. Follow the "Show Me Your Hands" Procedure and make sure the auger is out of gear before contacting the auger with the tool or hand. 5a. Pull the cleaning tool across your body with the handle away from your body; do not push toward the auger. 5a. Do not clean more than ¾ turn around the auger at a time. 5a. Wear cut-resistant and nitrile gloves. 5a. Always use two hands to operate the cleaning tool. 5a. Inspect the tool before use and remove from service if the handle or metal is cracked/fatigued. 5a. Stand out of the line of fire.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift." Avoid general statements such as, "be careful."

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
6. Decontaminate equipment.	**6a. EXPOSURE / CONTACT:** To contamination (e.g., contaminated groundwater, vapors).	6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Contain decontamination water so that it does not spill. 6a. Use an absorbent pad to clean spills, if necessary.
	6b. EXPOSURE: To chemicals in cleaning solution (including ammonia).	6b. See 3e. Wear all appropriate PPE and stand upwind of any exposed cleaning solutions.

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JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Recon**	**Mobilization/Demobilization**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION (as needed) ☒ SAFETY SHOES: Steel Toe or composite toe	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest of high-visibility clothing; long-sleeved shirt; long pants	☒ GLOVES: Cut-resistant Level II, nitrile ☐ OTHER

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Varies

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilize/demobilize and establish a work area	**1a. FALL:** Slip/trips/falls from obstructions, uneven terrain, weather conditions, heavy loads, and/or poor housekeeping.	1a. Use 3 points-of-contact/ensure secure footing when entering and exiting the vehicle. 1a. Inspect walking path for uneven terrain, steep hills, obstructions, and/or weather-related hazards (i.e., ice, snow, and puddles) prior to mobilizing equipment. Use established pathways. Walk on stable/secure ground. 1a. Do not climb over stored materials/equipment; walk around. Practice good housekeeping; organize and store equipment neatly in one area at its lowest potential energy. 1a. Wear boots with adequate treads. 1a. Delineate unsafe areas with traffic safety cones, caution tape, and/or flagging.
	1b. CONTACT: Personal injury and/or property damage caused by being struck by Site traffic or equipment used in Site activities.	1b. Observe and maintain the posted speed limits. 1b. When first arriving onsite, park vehicles in designated parking spaces and/or out of the way locations. Use parking brake on all vehicles and tire chocks on work trucks and trailers. 1b. Check in with Site Manager/Supervisor to ensure coordination with other Site activities and to discuss any special hazards. Ensure that short-service employees (SSE) are identified. 1b. Identify potential traffic sources. 1b. Wear PPE, including high visibility clothing or reflective vest, when around vehicles or operating equipment 1b. Use a spotter while moving work vehicles; plan to avoid backing whenever possible. 1b. Maintain a minimum exclusion zone when vehicles are in motion (i.e., greater than the swing/tip radius of the equipment). When backing up the truck rig with an attached trailer, use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver-to-spotter visibility. 1b. Delineate work area with traffic cones, flags, caution tape, and/or other barriers. 1b. Position “Work Area” signs at Site entrances, if possible, or at either side of the work area. 1b. Position the largest vehicle to protect against oncoming traffic. 1b. Face traffic, maintain eye contact with oncoming vehicles, use a spotter, and establish a safe exit route.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
		1b. Observe potential overhead and ground surface features that may interfere with moving equipment. Clear the path of physical hazards prior to initiating mobilization.
	1c. CAUGHT: Personal injury from pinch points and being in the line of fire of the vehicle and/or equipment.	1c. Make sure the driver has engaged the parking brake and placed wheel chocks in a position to prevent movement. Be sure that the vehicle is parked in front/down gradient (positioned to block oncoming traffic) of the work area. 1c. Wear cut-resistant gloves (Kevlar or similar) when handling objects/tools or equipment, 1c. Keep body parts away from line-of-fire of equipment. 1c. Always carry tools by the handles and/or designated carrier. Ensure sharp-edged tools are sheathed/secure. 1c. Remove any loose jewelry. Avoid wearing loose clothing and/or ensure loose clothing is secure. 1c. Secure all items on the equipment, tighten up any items or features that have the potential to shift or break during mobilization.
	1d. OVEREXERTION: Muscle strains while lifting/carrying equipment.	1d. Use body positioning and lifting techniques that avoid muscle strain; keep back straight, lift with legs, turn with whole body, keep load close to body, and never reach with a load. 1d. Ensure that loads are balanced. Use assistance (mechanical or additional person) to carry equipment that is either unwieldy or over 50 lbs.
	1e. EXPOSURE: Personal injury from exposure to biological and environmental hazards.	1e. Inspect the area to avoid contact with biological hazards (i.e., poisonous plants, stinging insects, ticks, etc.). 1e. Wear long-sleeved clothes that can be treated with Permethrin, apply insect repellent (may contain DEET) to exposed skin, and inspect clothes and skin for ticks during and after work. 1e. Apply sunscreen (SPF 15+) if exposure to the sun for 30 minutes or more is expected.
	1f. EXPOSURE: Weather-related injuries.	1f. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, nausea, rapid and shallow breathing). Take breaks in cool places and hydrate as needed. 1f. Watch for cold stress symptoms (severe shivering, slowing body movement, weakness, stumbling or inability to walk, collapse). Take breaks in warm areas as needed. 1f. Wear clothing appropriate for weather and temperature conditions (e.g., rain jackets, snow pants, multiple layers). 1f. If lightning is observed, wait 30 minutes in a sheltered location (car is acceptable) before resuming work.
	1g. EXPOSURE: Personal injury from noise hazards.	1g. Wear hearing protection if sound levels exceed 85 dBA (if you must raise your voice for normal conversation).

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-019	DATE: 05/28/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Reconnaissance**	**Site Walk and Inspection**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: earplugs/muffs as necessary ☒ SAFETY SHOES: Steel or composite toed	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: High-visibility vest or high-vis outerwear	☒ GLOVES: /cut-resistant (level II)/chemical resistant ☒ OTHER: Tyvek and rubber boots as necessary, dust mask as necessary

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Site map, emergency contact list, documentation of urgent care/hospital routes, and/or guide familiar with Site, operating cell phone or walkie-talkie if Site allows, and bug spray.

Commitment to Safety – All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

SITE SECURITY: Before site inspection, verify the appropriate method to address Site Security concerns related to potential criminal activity, homeless population, and/or isolation concerns. Work with the Project Principal and/or Project Manager to address appropriately.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Check in with the Site contact.	**1a. CONTACT/EXPOSURE/FALL:** Personal injury caused by a lack of awareness of site-specific hazards.	1a. Inquire about hazards and other activities taking place at the Site. 1a. Inform Site contact of work scope, timeline, and location(s). 1a. Discuss emergency evacuation procedures and muster points with the Site contact.
2. Traversing the Site	**2a. CONTACT:** Property damage and personal injury caused by obstructions/vehicles or unauthorized personnel at remote Sites.	2a. All equipment must be stowed and secured prior to moving. 2a. Maintain speed limit as posted on-site. 2a. When possible, drive on established roadways. 2a. Yield to all pedestrians. 2a. Use pull-through spots or back into parking spots. 2a. Don high-visibility clothing/safety vest. If working at a remote Site, add orange accessories during hunting season.
	2b. FALL: Uneven terrain and weather conditions. Overgrown shrubs and vines. Equipment in the work zone.	2b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 2b. Use established pathways and walk on stable, secure ground when possible. 2b. Communicate traversing hazards with others.
	2c. OVEREXERTION: Muscle strain while carrying equipment.	2c. When carrying equipment to/from the work area, use proper lifting techniques; keep back straight, lift with legs, keep the load close to the body, never reach with a load. Ensure that loads are balanced to reduce the potential for muscle strain. Use the buddy system or mechanical means to maneuver items heavier than 40 lbs. If necessary, make multiple trips to carry equipment.
	2d. EXPOSURE: Biological hazards – ticks, bees/wasps, poison ivy, insects; (Ticks are most active whenever the temperature is above freezing, typically from March to November.)	2d. Inspect the area to avoid contact with biological hazards. 2d. Ticks: • Treat outer clothing, including pants, shirts, socks, boots, and hats, the evening before with Permethrin (allowing at least two hours before use). • Apply DEET or equivalent to exposed skin before travelling to the Site and reapply after two hours. • Wear light colored clothing and visually check for ticks during and after work. 2d. Bees: • Use bee spray as appropriate to deter/eliminate bees. • Protect exposed skin with insect repellent. 2d. Poison Ivy: • Identify areas of poison ivy and spray with weed killer. Don

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
		• Identify areas of poison ivy and spray with weed killer. Don Tyvek and rubber boots while traversing poison ivy areas. • If skin comes into contact with poison ivy, wash the skin thoroughly with soap and water.
	2e. EXPOSURE: Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	2e. Wear sunscreen with SPF 15 or greater on exposed skin whenever 30 minutes or more of sun exposure is expected. 2e. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 2e. Watch for cold stress symptoms (severe shivering, slowing body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 2e. Wear appropriate rain gear as needed. 2e. Take frequent breaks if tired, wet, or cold/hot. Drink water. 2e. If lightning is observed, wait 30 minutes after the last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
3. Walking near heavy equipment and machinery.	**3a. CONTACT:** Personal injury from Site and roadway traffic. Personal injury from flying debris	3a. See 2a. 3a. Maintain an exclusion zone of at least 10 feet from all engaged equipment. Increase distance to include swing tip radius. 3a. Keep body parts out of the line-of-fire of pinch points. 3a. Wear appropriate PPE always.
	3b. OVEREXERTION: Personal injury from lifting/moving/rotating equipment.	3b. See 2c.
	3c. EXPOSURE: Hearing damage from noise-generating equipment/processes. Inhalation/exposure to hazardous vapors and or dust.	3c. Wear hearing protection if >85 dBA. (i.e., noise levels which require you to raise your voice to communicate) 3c. Always wear cut-resistant gloves when handling any tools or equipment. 3c. Always wear appropriate PPE based on the chemicals present.
	3d. EXPOSURE: Working in a remote area.	3d. Use the "buddy system" whenever possible. If working alone, contact PM upon arrival/departure and during work activities prior to commencing work if applicable. 3d. Always carry a communication device (i.e., cell phone, walkie-talkie) or directional (i.e., map, compass, etc.) when traversing remote areas. 3d. If available, follow Lone Worker Protocol/Procedure.
4. Working in adverse weather conditions.	**4a. EXPOSURE:** Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	4a. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 4a. Watch for cold stress symptoms (severe shivering, slowing body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 4a. Wear appropriate rain gear as needed. 4a. Take frequent breaks if tired, wet, or cold/hot. Drink water. 4a. If lightning is observed, wait 30 minutes after the last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
5. Departing Site.	**5a. EXPOSURE:** Exposure to unnecessary hazards should prompt personnel to believe Roux is on-site during an emergency and conduct a search.	5a. Sign out or notify the Site contact and Roux Project Manager of your departure.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-020	DATE: 05/29/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):
GENERIC	**Gauging & Sampling**	**Soil Sampling**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES ☒ FLAME RESISTANT CLOTHING (as needed)	☐ GOGGLES ☐ FACE SHIELD: ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel-toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: , Nitrile and cut resistant level II ☒ OTHER: Insect repellent, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Recommended Equipment: traffic safety cones, caution tape, trowel

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs.

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, the tip zone of the equipment, the fall zone of the equipment, and the contents.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Secure location	**1a. CONTACT:** Personnel and vehicular traffic may enter the work area.	1a. If in an area with foot or vehicle traffic, delineate the work area with traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 1a. Wear a reflective vest and/or high visibility clothing. 1a. Face the direction of any vehicular traffic. Position the vehicle to protect the worker from traffic. 1a. Communicate work activity with adjacent work areas.
	1b. FALL: Tripping/falling due to uneven terrain or entry/exit from excavations.	1b. Inspect pathways and work area for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions. 1b. Use established pathways and walk on stable, secure ground. 1b. Stage equipment and tools in a convenient, stable, and orderly manner. Store equipment at the lowest potential energy. 1b. Roux employees should stay 6 feet from in-progress excavations and trenches. Should entry to an excavation be required (when stabilization is complete), ladders must be employed for steep embankments, excavations, pits, and trenches.
	1c. EXPOSURE: Exposure to sun and excessive heat, possibly causing sunburn, heat exhaustion, or heat stroke. Exposure to cold temperatures may cause cold stress. Skin burn as a result of fire, if applicable. Exposure to explosive vapors due to tank farm operations. Exposure to airborne dust due to high wind speeds. Biological hazards - ticks, bees/wasps, poison ivy, thorns, insects, etc.	1c. Wear sunscreen with an SPF 15 or greater whenever 30 minutes or more of exposure is expected. 1c. Use a tent to shade the work area from direct sunlight, particularly when warm temperatures are expected. 1c. Be aware of the location of all Site personnel. 1c. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). 1c. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). 1c. Take breaks for rest and water as necessary. Move to an area that is well shaded or a climate-controlled area (i.e., car, site trailer, etc.). 1c. No open flames/heat sources. 1c. Conduct air monitoring and ensure that harmful vapor concentrations are within the levels detailed in the Site Specific HASP. Follow the procedures detailed in HASP for exceedances. 1c. Flame retardant clothing must be worn when specified by Site policy. 1c. Cell phones should be disabled when specified by Site policy. 1c. Pre-treat field clothing with Permethrin prior to site visit to kill ticks and insects. 1c. Wear long-sleeved shirts and tuck in (or tape) pant legs into socks or boots to prevent ticks from reaching skin. 1c. Spray insect repellent containing DEET or equivalent on exposed skin when working in overgrown areas of the Site. 1c. Inspect the area to avoid contact with biological hazards. 1c. Wear cut-resistant gloves when handling material, equipment, or branches, shrubs, etc. that may lie within the walking path. 1c. Wear spoggles if the average wind speeds are above 15 mph. 1c. Personnel shall examine themselves and their co-workers' outer clothing for ticks periodically when on-site. 1c. If skin comes in contact with poison ivy, wash skin thoroughly with soap and water. If rash persists after washing, immediately notify your supervisor, the OM, and OHSM for possible consultation with a physician at an approved Occupational Health Clinic.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
2. Collect Soil Sample	**2a. CONTACT:** Personal injury from pinch points, cuts, and abrasions from sampling equipment, tools, and material within the soil sample. Personal injury from contact with moving equipment while sampling. Personal injury from contact with glass sample jars.	2a. Wear cut-resistant (i.e., Kevlar) gloves under chemical-resistant (nitrile) disposable gloves when handling soil samples and sampling jars. 2a. Where possible, use a trowel or equivalent tool to avoid contact with soil. 2a. If sampling from a bucket of heavy equipment, ensure all equipment is off and the operator utilizes the “show me your hands” policy. 2a. See 1a.
	2b. EXPOSURE: Exposure to contamination (impacted soil) and/or lab preservatives.	2b. Wear chemical-resistant (nitrile) disposable gloves over cut-resistant gloves to protect hands when handling samples; use containment material or plastic sheeting to protect surrounding areas. 2b. Wear safety glasses to protect eyes from dust or air-borne contaminants that may result from disturbing the soil. 2b. Where possible, remain upgradient from the sample location if collecting soil samples from stockpile, drill rig, etc., to avoid breathing contaminant vapors, if they are present. 2b. When collecting a soil sample from a hand auger, put a large zip lock bag over the entire auger to prevent soil from spilling onto the ground. 2b. Open sample jars slowly and fill carefully to avoid contact with preservatives.
	2c. EXERTION: Exertion due to repetitive motion and ergonomics.	2c. Utilize a table or raised surface for soil sampling if multiple soil samples are going to be taken to minimize repetitive bending motion.
3. Decontaminate equipment	**3a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated vapors, and/or soil). **3b. EXPOSURE:** Chemicals in the cleaning solution include ammonia.	3a. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3a. Use an absorbent pad to clean spills. 3a. Properly dispose of used materials/PPE in the provided drums in the designated drum storage area. 3a. Remain upwind of the sample and avoid breathing contaminant vapors, if they are present. 3b. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3b. Work on the upwind side of the decontamination area. 3b. Use an absorbent pad to clean spills. 3b. Properly dispose of used materials/PPE in the provided drums in the designated drum storage area. Ensure that all drums are properly labeled and secured.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-023	DATE: 05/29/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Construction**	**Spotting Heavy Machinery**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ Particulate Respirator	☒ GLOVES: Cut resistant Level II
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☒ LONG SLEEVED SHIRT	☒ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective clothing/safety vest	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-/Composite-toe boots		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Heavy Machinery (i.e., excavator, payloader, truck, forklift, etc.), two-way radios.

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs

EXCLUSION ZONE (EZ): Maintain a Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities, and/or footprint of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Prepare for machine activity.	**1a. CONTACT:** Obstructions in the work area may create contact hazards from machinery. **1b. Fall :** Slip/Trip/Fall	1a. Cordon off the work area with safety barrels/cones and a rigid barrier (snow fence, traffic bar, etc.). Ensure that only necessary personnel are in the work area. Spotter and equipment operator shall enforce the Exclusion Zone (**EZ**). The operator will not operate but shall remain in the hands-off mode while personnel are within the exclusion zone. 1b. Ensure that the work area is flat, level, and clear of any obstructions or debris before setting up the work zone.
2. Spotting.	**2a. CONTACT:** Machine or load contact with personnel, property, or machinery.	2a. Discuss the specifics of the work with the operator and be clear about any hand signals that will be used. Clearly discuss the limits of the assigned work area and the machine's **EZ**. Maintain **EZ**. The **EZ** shall be delineated by using traffic cones/barrels and a fixed rigid barrier. 2a. The Minimum Heavy Equipment **EZ** is greater than the swing/tip radius of the equipment. 2a. Both the spotter and equipment operators shall have verbal/ visual contact and/or 2-way radios/cellular devices on their persons to ensure audible communication in the event any changes or new hazards may arise. 2a. All workers should stay outside of the **EZ** of all equipment unless the operator is stopped and in "Hands Off" mode. **(This includes the spotter unless an exception has been established in the Site-specific JSA.)** If the **EZ** must be reduced due to work area restrictions, then the spotter and operator shall enforce the reduced **EZ**. 2a. Spotters must make eye contact with the machine operator, or all movement ceases until visual contact can be reestablished. 2a. Spotter shall keep an eye out for any issues with the machine that the operator may not see and communicate with other work crews and spotters on behalf of the operator. 2a. If the spotter needs to take a break, he must find a replacement before leaving or have the machine stop operations. **No heavy equipment shall operate without a spotter under any circumstances.** 2a. Wear fluorescent clothing/safety vest. 2a. **Do not multitask. Only perform Spotting**

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
	2b. FALL: Slip/Trip/Fall	2b. Look where you are walking to identify and avoid slip/trip/fall hazards. Avoid icy and/or wet surfaces. Remove obstacles if possible. 2b. Use designated walkways during spotting whenever possible. 2b. **Do not walk backwards. Always face the direction towards which you are walking.**
	2c. CAUGHT: Caught between machinery and nearby objects.	2c. **Maintain EZ.** Do not stand between large, loose, or fixed objects or structures and the machinery while it is in motion. Keep the operator in sight at all times while being aware of surrounding structures.
	2d. EXPOSURE: Inhalation of exhaust from machinery.	2d. The spotter will position him/herself upwind of the working machinery, when possible. Spotter will also inform others working within the vicinity of the **EZ** of proper positioning, if applicable.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

JOB SAFETY ANALYSIS	Ctrl. No. GEN-029	DATE: 05/29/2025	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Preclearing/Sampling**	**Hand Augering**

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☐ HEARING PROTECTION ☒ SAFETY SHOES: Steel or composite-toed boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Long-sleeved high-visibility clothing	☒ GLOVES: Cut Resistant level II / Nitrile / Chemical resistant ☐ OTHER

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Hand Auger Tools (buckets, rods), 5-gallon buckets, hand tools (hammer, etc.)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing LMRAs.

Assess [1] JOB STEPS	Analyze [2] POTENTIAL HAZARDS	Act [3] CRITICAL ACTIONS
1. Drive/walk to hand clearing/hand augering location	**1a. CONTACT:** Property damage and personal injury caused by obstructions/vehicles	1a. Maintain speed limit on-site. 1a. All equipment must be stowed and secured prior to moving. 1a. Drive on established roadways. 1a. Do not back up the vehicle without a spotter where visibility is limited; use pull-through spots or back into parking spots; use an audible signal (horn/back-up alarm) when backing up vehicles.
	1b. FALL: Personal injury from tripping/falling due to uneven terrain, weather conditions, and materials/equipment stored at portions of the Site	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Use established pathways and walk on stable, secure ground. 1b. Use the established ramp when descending into/ascending from impoundment areas. 1b. Keep tools and equipment in a designated area. When not in use, tools and equipment must be returned to their proper storage location. Keep the work area clear of obstructions.
	1c. EXERTION: Muscle strain/exhaustion while carrying equipment (i.e., hand auger, post-hole digger, shovel, pry bar)	1c. When carrying equipment to/from the work area, use proper lifting techniques; keep back straight, lift with legs, keep the load close to the body, never reach with a load. Ensure that loads are balanced to reduce the potential for muscle strain. Use mechanical assistance or make multiple trips to carry equipment.
	1d. EXPOSURE: Exposure to the sun, possibly causing sunburn. Biological hazards - bees/wasps, poison oak, thorns, insects, etc.	1d. Wear sunscreen with an SPF of at least 15 whenever 30 minutes or more of exposure is expected. 1d. Inspect the area to avoid contact with biological hazards. 1d. Wear cut-resistant gloves when handling material, debris, branches, shrubs, etc. that may lie within the walking path. 1d. Avoid any areas on-site that have poison oak.

Assess [1] JOB STEPS	Analyze [2] POTENTIAL HAZARDS	Act [3] CRITICAL ACTIONS
2. Secure location	**2a. CONTACT:** Personnel and vehicular traffic may enter the work area.	2a. Delineate the work area with traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 2a. Wear a reflective vest and/or fluorescent clothing. 2a. Face the direction of vehicular traffic. Position the vehicle to protect the worker from traffic. 2a. Communicate work activity with adjacent work areas.
	2b. FALL: Tripping/falling due to uneven terrain, and materials /equipment stored within the work area	2b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment to the impoundments. 2b. Equipment and tools will be staged in a convenient, stable, and orderly manner. 2b. Equipment and tools will be stored at the lowest point of potential energy and out of the walkway and immediate work area (i.e., tools should not be propped against walls or nearby equipment or vehicles). 2b. Equipment and tools that are not anticipated to be used will be returned to an appropriate storage area that is out of the immediate work area.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Verify pre-clearance protocol; review completed Subsurface Utility Checklist and utility verification site walkthrough.	**3a. ENERGY SOURCE:** Underground utility damage; property damage; personal injury	3a. Confirm that "Call Before You Dig"/811 and local utility companies were contacted prior to hand augering. 3a. Walk the Site to evaluate utility markings and review maps.
4. Augering/advancing borehole	**4a. EXPOSURE:** Contaminated soil/water/vapor	4a. Monitor the breathing zone with a PID when VOCs are a concern. If vapors exceed site-specific action levels, upgrade PPE as per the HASP. 4a. Wear chemical-resistant disposable gloves and safety glasses when handling impacted materials. 4a. Place excavated soil on plastic sheeting and store soil waste in a designated area. 4a. Work on the upwind side of the boring.
	4b. EXERTION: Muscle strain from lifting, bending, repetitive motion.	4b. Body positioning and rotating with the auger to reduce strain. Do not twist back.
	4c. CAUGHT: Personal injury as a result of jewelry/loose clothing caught on equipment, well covers, machinery, hand auger, pry bar, etc.	4c. No form of jewelry should be worn while on-site. 4c. Clothing must be appropriately sized so that it is not loose-fitting.
	4d. CONTACT/CAUGHT: Pinch points, abrasions	4d. Keep head and upper body clear when lifting hand auger, pry bar/post-hole digger. Ensure not to be overly aggressive when using the pry bar. 4d. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body.
5. Lithologic observation and soil sampling	**5a. EXPOSURE:** Contact with contamination (impacted soil and/or lab preservatives)	5a. Wear chemical-resistant disposable gloves to protect hands when handling samples; wear safety glasses when on site and/or goggles when handling any preservatives; use containment material or plastic sheeting to protect surrounding areas. 5a. When collecting a soil sample from a hand auger, put a large zip lock bag over the entire auger to prevent the spillage of soil onto the ground. 5a. Open sample jars slowly and fill them carefully to avoid contact with preservatives.
6. Decontaminate equipment	**6a. EXPOSURE:** Contact with contamination (impacted soil and/or lab preservatives, decontamination solution)	6a. Wear chemical-resistant disposable gloves and safety glasses. 6a. Use an absorbent pad to clean spills. 6a. Properly dispose of used materials/PPE trash bags. 6a. Refer to the SDS for the decontamination solution for proper handling.
	6b. CONTACT/CAUGHT: pinch points and cuts/abrasions	6b. Keep fingers/hands out of pinch points when disassembling the hand auger during decontamination.

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Job Safety Analysis - Excavator Operation

Client Job #:	**4694.0001P000**
Sessler Job #:	**25-1700**
Date Created	**7/7/2025**
Date Last Modified:	

SUBCONTRACTOR: L.M. Sessler Excavating & Wrecking, Inc.

SUBCONTRACTOR SCOPE OF WORK: 5 Flint Street Demolition Project

Principle Step	Potential Hazards	Recommended Controls
Excavator Operation	1) Faulty equipment machine failure 2) Falling from ladder boarding the machine 3) Injury to people, damage to product or equipment from running into or over. 4) Thrown out of cab or against cab interior. 5) Personal Injury 6) Noise 7) Tipping over 8) Ground collapse 9) Reversing/ Running over people and equipment and not very good visual 10) Electrocution 11) Ground collapse 12) Environmental – Dust	Check for dents, cracks and faulty welds. Check all hydraulic rams and lines, controls for leaks. Check all safety devices. Check tracks for tightness and rollers, idlers, and sprockets for damage. Ensure 3 point of contact. Only trained & experienced operators should operate the equipment and Competent Banks Worker should be present during mechanical excavation or backfilling activity. Always wear seatbelt. Allow no one to ride outside of the cab. Never use the basket or other attachments as a staging platform for workers. All workers must wear Hi-Viz vest or shirt when on site. Workers exposed to noise provide earplugs/ear muffs. Be alert for trenches, open cuts, sump holes and pits. Keep the machine as level as possible when operating. Provided warning signboard, barricades around the excavation area. If excavations exceed 5 feet, no person(s) should work in the trench without support. If excavations exceed 5 feet undertake benching, battering, or shoring. Make sure that your back up alarm is working. Always check for overhead power lines. Keep Safe distance and wear proper PPE while working near the electrical live line. All stockpiled materials must be “put out of the zone of influence”. If excavations exceed 5 feet no persons should work in the trench without support. If excavations exceed 5 feet undertake benching , battering or shoring. Wet down area in dry dusty conditions.

Recommended PPE:	To be on site PPE is Hard Hat, Safety Toe Shoes, Hi-Viz Shirt or Vest, Safety Glasses, Work Gloves, and Hearing Protection (where applicable). All other required PPE has been outlined in their designated controls.

Sessler Representatives

Developed/Reviewed By: Gustabo Rivera (Director of Health & Safety)	**Signature:**	**Date:**
Reviewed By: Matt Felice (Project Manager)	**Signature:**	**Date:**
Reviewed By: Dan Skinner (Site Superintendent)	**Signature:**	**Date:**

Client Representative

Approved By:	**Signature:**	**Date:**

Job Safety Analysis - Operating Equipment

Client Job #:	**4694.0001P000**
Sessler Job #:	**25-1700**
Date Created	**7/7/2025**
Date Last Modified:	

SUBCONTRACTOR: L.M. Sessler Excavating & Wrecking, Inc.

SUBCONTRACTOR SCOPE OF WORK: 5 Flint Street Demolition Project

Principle Step	Potential Hazards	Recommended Controls
Operating Equipment	1) Unqualified operator or defective equipment. 2) Backing or striking person(s) or property. 3) Dust or flying particles. 4) Material being dropped on personnel.	Only designated qualified personnel will operate machinery and mechanized equipment.
		Equipment deficiencies observed at any time will be corrected before continuing operation.
		Machinery or equipment will not be operated in a manner that will endanger people or property. Operating speeds or loads will not be exceeded.
		All self-propelled construction equipment will be equipped with a reverse signal alarm.
		All personnel required to enter the work area of the equipment will wait until eye contact with the operator is made and acknowledgement from the operator is received before entering the work area of the equipment. Employees will wear long sturdy pants, steel toe boots, working gloves, long-sleeve shirts or arm sleeve protectant, safety googles and face shields where applicable.
		All people exposed to operations that subject the eyes or face to dust or flying particles will use the eye and/or face protection as required.
		Shielding will be provided over all activities where applicable.
		Hoisting/Lifting equipment will not be allowed to raise, lower, or swing loads over personnel in or around the work area.

Recommended PPE:	To be on site PPE is Hard Hat, Safety Toe Shoes, Hi-Viz Shirt or Vest, Safety Glasses, Work Gloves, and Hearing Protection (where applicable). All other required PPE has been outlined in their designated controls.

Sessler Representatives

Developed/Reviewed By: Gustabo Rivera (Director of Health & Safety)	**Signature:**	**Date:**
Reviewed By: Matt Felice (Project Manager)	**Signature:**	**Date:**
Reviewed By: Dan Skinner (Site Superintendent)	**Signature:**	**Date:**

Client Representative

Approved By:	**Signature:**	**Date:**

Job Safety Analysis - Skid Steer Operations

Client Job #:	**4694.0001P000**
Sessler Job #:	**25-1700**
Date Created	**7/7/2025**
Date Last Modified:	

SUBCONTRACTOR: L.M. Sessler Excavating & Wrecking, Inc.

SUBCONTRACTOR SCOPE OF WORK: 5 Flint Street Demolition Project

Principle Step	Potential Hazards	Recommended Controls
1. Perform Pre-Trip Inspection	Damaged or faulty equipment may result in property damage, or injury.	Inspect machine for damage or faulty equipment. 1) Check under machine for signs of fluid leaks. 2) Check chassis for faults such as broken welds, missing bolts, broken or missing lights. 3) Check all accessible hydraulic hoses for dry rot, cuts or slashes. Check all accessible hydraulic pipes for dents, cracks or loose fittings. 4) Check tires for loose or missing lug nuts, cuts, or excessive wear on the tires. Note: A audit of the pre-trip inspection form should be conducted at least once per week.
2. Check engine compartment.	Damaged or faulty equipment may result in property damage, or injury.	1) Inspect engine compartment door, check for loose hinges and that the lock mechanism is working. Check engine oil level. 2) Inspect all belts and check coolant level. 3) Check hydraulic oil level. 4) Look for any leaks or fluid buildup that could cause fires.
3. Check safety devices.	Missing or improperly working safety devices may result in property damage, or injury.	Check to see that all warning lights are working. To do this safely turn power to machine on but do not start it.
4. Enter skid-steer loader.	Potential for property damage, or injury.	Apply seat belt and adjust. It is recommended to not have any loose fitting clothing on that could catch controls.
5. Check inside cab and controls.	Broken or faulty gauges, controls or other items may lead to property damage, or injury.	1) Inspect cab door make sure that it is working properly. 2) Look around the interior of the cab check for hazards or visibly broken items. 3) Sit in operator seat and prepare to check all controls. First make sure emergency brake is on. 4) Next start machine, starting may vary depending on make and model, refer to owner's manual. 5) With machine running test all controls in order to cycle hydraulics. 6) Check for sloppy or loose control arms or foot pedals. 7) Check lights (if applicable), horn and back up alarm.

6. Engine Startup procedures.	Potential for property damage, or injury.	1) Insert key. 2) Turn key to on position and check lights (where applicable), gauges, fuel and hydraulic levels and horn again. 3) Ensure no personnel are close enough to be injured and start engine
7. Operate Skid-steer loader.	Potential for property damage, or injury.	1) DO NOT ALLOW ANY RIDERS. 2) Look in all directions while driving, especially backing, to watch out for other personnel. 3) Do not jerk controls. Use slow and deliberate movements to ensure a smooth ride. 4) Always drive with the load close to the ground. 5) Use the horn at all low-visibility locations and intersections.
8. Talking to co-workers/site-visitors.	Potential for property damage, or injury.	Where other personnel may need to speak to the operator, the following steps shall be taken. 1) Bring the machine to a complete stop. 2) Lower all attachments to the ground and apply parking brake. 3) Shut off the engine. 4) Do not allow other personnel to lean on or into the cab of the skid steer loader. If necessary, get out of the loader to talk to personnel.
9. Working on ramps or near embankments.	Potential for property damage, or injury.	1) Slow down to a minimum normal operating speed. Recommended at half throttle. 2) Avoid sudden movements (jerking controls) near the edge. 3) Avoid sharp turns near the edge. Back away first, then turn. 4) When traveling on severe slopes or grades, always travel with the heavy end uphill.
10. Use of attachments.	Potential for property damage, or injury.	1) Only used manufacturer approved attachments. 2) Always get help loading attachments if the attachment cannot be connected while operating the loader. 3) Once attachments are loaded, follow machine shutdown procedures, exit the loader and secure all locking pins and hydraulic hoses, as necessary. 4) Prior to conducting work with the attachments, cycle all hydraulics and test controls to ensure adequate response levels. 5) Remove attachments in the reverse order they were loaded.
11. Engine Shutdown Procedures.	Potential for property damage, or injury.	1) Drive the loader the storage or parking area. 2) Bring the machine to a complete stop. 3) Lower all attachments to the ground and apply parking brake. 4) Shut off the engine. 5) Remove key.

Recommended PPE:	To be on site PPE is Hard Hat, Safety Toe Shoes, Hi-Viz Shirt or Vest, Safety Glasses, Work Gloves, and Hearing Protection (where applicable). All other required PPE has been outlined in their designated controls.	
Sessler Representatives		
Developed/Reviewed By: Gustabo Rivera (Director of Health & Safety)	**Signature:**	**Date:**
Reviewed By: Matt Felice (Project Manager)	**Signature:**	**Date:**
Reviewed By: Dan Skinner (Site Superintendent)	**Signature:**	**Date:**
Client Representative		
Approved By:	**Signature:**	**Date:**

APPENDIX B

SDSs for Chemicals Used

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CLEANING SUPPLIES

1. SDS - Alconox
2. SDS - CaviCide Liquid
3. SDS - CaviWipes
4. SDS - Clorox Disinfecting Bathroom Cleaner
5. SDS - Clorox®-Regular-Bleach
6. SDS - Dawn Dishwashing Liquid
7. SDS - EN-US Simple Green All Purpose Cleaner
8. SDS - Hydrogen Peroxide 3% Solution
9. SDS - Isopropyl Alcohol Wipes
10. SDS - Lysol Disinfectant Spray All Scents
11. SDS - Windex Original Formula

FIELD EQUIPMENT

1. SDS - Banana Boat® Sport Performance CoolZone SPF 30
2. SDS - CO2_Fire Extinguisher
3. SDS - Dust-Off compressed gas duster
4. SDS - Gel Ice Pack
5. SDS - Generic ALCOHOL HAND SANITIZER
6. SDS - Hand Warmer Air Activated Packet
7. SDS - Kidde Multipurpose ABC Fire Extinguisher
8. SDS - OFF! - Deep Woods Bug Spray
9. SDS - PB Blaster-Penetrating-Catalyst
10. SDS - Permethrin Insect Repellent (Clothing and Gear)
11. SDS - Rust-Oleum Inverted Marking Paint - Fluorescent Orange
12. SDS - Salinaxx Eye Wash
13. SDS - Sharpie Permanant Marker
14. SDS - Spray Adhesive Glue
15. SDS - Sunblock Lotion

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FUELS AND LUBRICANTS

1. SDS - Base Oil and Additives Mobil 2 Stroke Oil
2. SDS - Diesel Fuel
3. SDS - Four-Stroke Small Engine Oil
4. SDS - Gasoline with Ethanol
5. SDS - Liquid Propane Canister
6. SDS - Universal Bar Chain Oil
7. SDS - Vaseline Petroleum Jelly
8. SDS - WD-40-multi-use-product-aerosol

LAB PRESERVATIVES

1. Ammonium Chloride MSDS
2. Ammonium Phosphate Dibasic MSDS
3. Ascorbic Acid MSDS
4. Hydrochloric Acid MSDS (1)
5. Methanol MSDS
6. Nitric Acid MSDS
7. Sodium Bisulfate MSDS
8. Sodium Hydroxide MSDS
9. Sodium Thiosulfate 1.0M MSDS
10. Sulfuric Acid MSDS
11. Trizma MSDS
12. Zinc Acetate MSDS

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RENTAL EQUIPMENT

1. Air SDS
2. Carbon Dioxide SDS
3. Carbon Monoxide in Air SDS
4. Conductivity Solution MSDS
5. Helium SDS
6. Hydrogen SDS
7. Hydrogen Sulfide Mix with Pentane SDS
8. Hydrogen Sulfide in Nitrogen SDS
9. Hydrogen Sulfide Mix with Methane SDS
10. Isobutylene Air SDS
11. Methane in Air SDS
12. Nitrogen SDS
13. Pentane in Air SDS
14. SDS Buffer Solution pH 4.00
15. SDS Buffer Solution pH 7.00
16. SDS Buffer Solution pH 10.00
17. SDS Dissolved-Oxygen-Solution
18. SDS Helium Compressed Gas
19. SDS peracetic-acid 35 with-h2so4
20. SDS Zorbell's Solution and ORP Standard 200mV

APPENDIX C

Heat Illness Prevention Program

HEAT ILLNESS
PREVENTION PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**10/2019**
REVISION DATE	:	**03/2025**
REVISION NUMBER	:	**4**

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1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux"), have established this heat illness prevention program to assist in preventing workplace accidents, injuries, and illnesses associated with temperature extremes. Roux is committed to taking every precaution to protect employees who might be exposed to heat stress, including establishing safe work practices, heat illness prevention controls, and emergency preparedness, which will be detailed in this plan.

2. SCOPE AND APPLICABILITY

Roux's Heat Illness Prevention Program applies to all employees and subcontractors who may be exposed to heat stress in the field.

3. ROLES AND RESPONSIBILITIES

The Heat Illness Prevention Program Administrator for Roux is the Corporate Health and Safety Director (CHSD), Brian Hobbs, CIH, CSP. The daily administration of the program is delegated to the Operations Manager (OM) , Office Health and Safety Manager (OHSM), and Site Health and Safety Officer (SHSO). The CHSD has the authority, responsibility, and overall accountability for the comprehensive implementation of this program.

All managers and supervisors shall implement and maintain the heat illness prevention program in work areas where there is a potential for heat stress.

Management Responsibilities

Management (i.e., Project Managers, Project Principals, OM) must provide the following to promote compliance and foster a good safety culture:

- Comply with applicable standards.
- Inform employees of the provisions of the heat illness prevention program and ensure understanding.
- Provide sufficient water, shade, rest areas, and other heat illness controls for employees.
- Assist with establishing work practices to minimize heat stress risks, such as acclimatization, required rest periods, employee monitoring, and strategic scheduling.
- Encourage employees to report hazardous conditions or heat illness symptoms.
- Provide training to any employee who could possibly be exposed to the risk of heat illness.

Employee Responsibilities

Employees are expected to actively participate in the organization's heat illness prevention program, which includes the following responsibilities:

- Receive appropriate training with regard to heat stress.
- Understand core concepts of heat illness prevention and follow guidelines to mitigate risks.
- Recognize the signs and symptoms of heat illness and immediately report them.
- Cooperate with workplace inspections and incident investigations.

Effective Communication

All Roux employees shall be accountable for ensuring there is effective communication with both the field team and their subcontractors. Communication between Roux employees, project leads (e.g., Project Principal, Project

Managers), and subcontractors (if applicable) will be established and maintained so that employees can quickly contact should there be a change in condition or someone at the Site exhibits signs/symptoms of heat stress. These types of incidents would follow Roux's Incident Investigation and Reporting Management Program 2.12 and Roux's Injury Illness Prevention Program 2.22.

4. HAZARD IDENTIFICATION AND ASSESSMENT

Prior to scheduled fieldwork, the project team shall ensure a hazard assessment is conducted as it relates to heat stress. This will include a determination of how much heat and exertion employees are likely to be exposed to based on the work activity.

Factors that can increase heat stress include the following:

- Temperatures at the work site;
- Humidity;
- A lack of air movement or exchange;
- The amount of time employees spend working in the heat;
- The time of day work takes place;
- Sources of radiant heat (e.g., sunlight, fire, or hot furnace);
- Work activities that produce heat (e.g., welding);
- Physical contact with warm or hot objects or liquids;
- The clothing and PPE employees are required to wear; and/or
- Physically strenuous work.

Results of the hazard analysis should be used to determine appropriate controls for mitigating heat stress, whenever possible, for planning acclimatization, and for developing work schedules that rotate workers to limit employee exposure. Typically, the Site Supervisor (SS) or Site Health and Safety Officer (SHSO) shall conduct worksite observations to ensure all employees follow heat illness prevention procedures and that hazards are sufficiently controlled. However, all employees should be continuously evaluating work site conditions and be able to recognize heat stressors in order to prevent heat illnesses.

5. TRAINING

All Roux employees shall be trained on the topics listed below prior to beginning work, which may potentially expose workers to heat stress.

Training Topics

- The environmental, behavioral, and personal risk factors for heat illness, such as radiant heat sources, exertion, clothing and PPE, and use of alcohol or drugs.
- Types of heat illnesses, common symptoms, and appropriate emergency response for each.
- The knowledge that mild symptoms may quickly become more severe or life-threatening.
- The importance of immediately reporting any signs or symptoms of heat illness to the supervisor.
- The employer's responsibility to provide shade, water, access to first aid, and cool-down rests during work and the employee's freedom to exercise their rights under this standard without fear of retaliation.

- The employer's heat stress plan and its procedures:
  - Procedures for employees who are newly assigned to work in high-heat areas.
  - The organization's acclimatization methods, as applicable.
  - Heatwave procedures.
  - Heat illness and emergency response, including contact information.
- The importance of frequent consumption of water and the taking of rest breaks.
- How heat illness prevention applies to employees' specific tasks.

Increasing Training Effectiveness:

- The SS/SHSO will hold daily tailgates with the field team to go over daily work tasks and basic safety information, including Job Safety Analysis (JSA) review, as well as incorporate elements such as current weather and effects on the work activities for the day.
- If a heat wave or high heat is anticipated, OHSMs and/or OMs will provide communications to Roux employees prior to their shifts and remind them of any special high heat procedures.

6. DRINKING WATER

Employees shall be given access to potable drinking water. Access to water will be provided as near as possible to where employees are working, and there shall be enough locations so employees will have sufficient water. Water should be fresh and pure, free of taste or smell that would discourage employees from drinking, comfortably cool, and obtained from an approved source.

The recommendation is that during warm or hot weather, employees drink four 8-ounce glasses of water, or a total of one quart per hour, throughout the entire work shift. Easy access to sufficient potable drinking water throughout the work shift encourages employees to drink.

During a heat wave, water shall be replenished more often to keep it available and cool. Water containers (and all spouts and levers) must be kept clean. If able, provide single-use drinking cups with appropriate waste receptacles. Accessible sanitation facilities shall also be maintained at work Sites as appropriate.

SS/SHSO is responsible for the following:

- Drink sufficient water before, during, and after work shifts to maintain hydration.
- Encourage frequent drinking of small amounts of water throughout the shift. In high-heat environments, remind field staff and subcontractors that drinking extra water may be necessary.
- Discourage the choice of drinks with caffeine or sugar that may possibly dehydrate employees instead of water. Also, discourage the drinking of alcohol.
- Monitor the water supply.
- If employees become dehydrated and are unable to alleviate symptoms with the steps below, get them immediate medical attention.

Field Staff/Subcontractors are responsible for the following:

- Drink sufficient water before, during, and after work shifts to maintain hydration. Drink up to 4 cups of water per hour, especially during hot weather.
- Be aware that in high-heat situations, you may need to drink more water.

- Monitor yourself and others for signs of dehydration. If you feel dehydrated:
  - Follow Roux's Incident Notification Flowchart;
  - Rest in the shaded resting area; and
  - Drink water in small amounts, but frequently.

7. ACCESS TO SHADE

Access to shaded areas will be provided to Roux staff, as needed. Employees are encouraged to use these areas when they feel overheated. Roux's SS/SHSO shall oversee the proper implementation of shaded areas and will communicate these locations on a daily basis with the Field Team.

Depending on the Site, shaded areas can include the following:

- Pop-up Tents
- Canopies
- Umbrellas
- Structures mechanically ventilated or open to air movement
  - Garage
- Conex-mounted RV canopies
- Full and thick tree canopies that block direct sunlight
- Buildings
- Enclosed areas only if they provide cooling comparable to shade in open-air
  - Vehicles with air conditioning

Shaded Area Requirements

The shade shall be strong enough to cool employees down and other shadows should not be visible in the shade. The shade will be provided by Roux when the air temperature exceeds 80°F. If the temperature is less than 80°F, shade will be available and provided upon request. The SS/SHSO will monitor conditions to determine when the air will exceed (and is exceeding) 80°F. For most Sites, air will be monitored hourly and shade will be set up immediately if 80°F is exceeded.

Shade shall be located as close as practical to areas where employees are working and is easily accessible. These areas will be considered safe and free from other hazards. Shaded areas should be large enough to accommodate all employees who are on a break, resting, or recovering without crowding. Should natural vegetation be used for shade, the SS/SHSO will evaluate shade for effectiveness.

Field Staff Responsibilities

Field Staff should take ordinary rest breaks in the shaded areas and monitor themselves for signs of heat stress, and go to the shaded area when they need to cool down. Any issues or problems with shaded areas should be reported to the SS/SHSO for the Site.

If shaded areas are used for a preventative cool-down, the SS/SHSO will ensure the affected employees will remain in the shade until they begin to feel better. The SS/SHSO will continue to monitor the employees and ask them if

they are experiencing symptoms of a heat illness. Employees shall not be sent back to work before symptoms have ended and at a minimum at least 10 minutes of rest.

8. MONITORING AND SCHEDULING

Monitoring

The SS/SHSO and Field Team will continue to monitor themselves and others for signs of heat illness. The SS/SHSO will monitor when the air temperature exceeds 80°F. Throughout the summer, weather and temperature will be monitored at least two weeks ahead, and the work schedule will be planned to accommodate the expected weather.

Scheduling

Scheduling accommodations may include:

- Working during cooler hours of the day
- Working at night
- Stopping work early
- Rescheduling work activities
- Increasing frequency of breaks

In general, strenuous work activities shall be rescheduled to the coolest parts of the day.

Special precautions are required for temperatures above 80°F, 95°F, and heat waves. These precautions are provided in the sections below.

9. ACCLIMATIZATION AND NEW EMPLOYEE PROCEDURES

Roux requires employees to be acclimatized in order for them to better tolerate heat in the workplace. Acclimatization is the physical process of adapting to a different thermal environment, allowing a better toleration of heat. Acclimatization procedures require gradual exposure that gives the employee time to adjust to each level of exposure. Acclimatization is essential for new employees but is necessary for all employees when the temperature significantly changes. Heat stress is much more likely if these procedures are not followed.

The SS/SHSO is responsible for observing new employees during their first 14 days of employment in high-heat areas.

Re-acclimatization is necessary if employees are absent from high-heat environments for a week or more or the temperature increases significantly.

10. HEATWAVE AND EXTREME HEAT PROCEDURES

Heat Wave Procedures

A heat wave is defined as consistent temperatures over 80°F or if the temperature is 10° higher than the average daily temperatures in the preceding 5 days.

SS/SHSO and Project Management (e.g., PP, PM) shall closely observe and monitor employees during a heat wave. The Field Teams should institute a ratio of one SS to 20 or fewer employees, a mandatory buddy system, or

a consistent practice for supervisors to check on employees. Pre-shift meetings to review high-heat procedures with employees will be carried out to emphasize work-rest schedules, drinking water, shade, etc.

Extreme Heat Procedures

When work-site temperatures equal or exceed 95°F, the employer will enact extreme heat procedures:

- Employees will be closely observed by the SS/SHSO for signs of heat illness. New employees will be supervised for acclimatization.
- Effective communication and monitoring will be ensured through the use of periodic check-ins via phone with the SS/SHSO. Communications between employees and Project Management (e.g., PP/PM) will be established and maintained. Mandatory 10-minute break periods are required for every two hours worked. SS/SHSO must enforce this rule.
- Pre-shift safety tailgate meetings will occur to review procedures and to remind employees to drink water and take cool-down rests if needed. SS/SHSO shall remind employees to rest and drink water. Employees should drink more water than usual.

11. EMERGENCY RESPONSE PROCEDURES

Roux is dedicated to providing prompt appropriate care for all employees who report or show symptoms of heat illness. If an employee shows signs of heat illness, they will be monitored and shall not be left alone or sent home without being offered first aid or emergency medical services. If on-site personnel require any medical treatment, the following steps will be taken:

1. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence, and communicate with the contracted Occupational Health Care Management Provider, AllOne Health (AOH), immediately following the notifications provided above.
2. Based on discussions with the Project Team, Corporate Management, and the AOH evaluation, if medical attention beyond onsite First Aid is warranted, transport the injured/ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an ambulance or transport the victim to the hospital, and continue communications with Corporate Management Team. An Urgent Care/Hospital Route map with locations and directions is provided within Site Specific Health and Safety Plans.
3. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).
4. The SHSO and Project Manager will perform a Loss Investigation (LI), and the Project Team will complete the final Loss Report.

12. HEAT-RELATED ILLNESSES

Heat Stress

Heat stress is a significant potential hazard and can be associated with heavy physical activity and/or the use of personal protective equipment (PPE) in hot-weather environments. For these reasons, the company will provide potable drinking water and access to shade or other areas of relief (i.e., air-conditioned vehicles and work trailers). Supervisors, prior to supervising personnel in the field as well as all personnel involved with the fieldwork of a project, are trained in this HASP that includes preventing heat-related illnesses and the below procedures in response to heat-related symptoms and illness. Since much of our work is dependent upon environmental factors beyond our control, we must closely monitor air temperature and humidity and be aware of avoiding radiant heat sources and providing as much air circulation as possible wherever we work. Physical factors that need to be evaluated as part of our Job Safety Analysis (JSA) reviews include the level of physical activity and duration of work

and the type (i.e., color, weight breathability) of the clothing we select. In addition, personal factors such as age, weight, fitness, drug/alcohol use, and prior history of heat-related illness need to be considered.

Heat cramps are brought on by prolonged exposure to heat. As an individual sweats, water and salts are lost by the body, resulting in painful muscle cramps. The signs and symptoms of heat stress are as follows:

- Severe muscle cramps, usually in the legs and abdomen;
- Exhaustion, often to the point of collapse; and
- Dizziness or periods of faintness.

First aid treatment includes, but is not limited to, shade, rest, and fluid replacement. Typically, the individual should recover within one-half hour while being monitored constantly. If the individual has not improved substantially within 30 minutes and the body temperature has not decreased, the individual should be transported to a hospital for medical attention.

Heat Exhaustion

Heat exhaustion may occur in a healthy individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual fails as blood collects near the skin to rid the body of excess heat through transference. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin with heavy perspiration;
- Skin appears pale;
- Fatigue and weakness;
- Dizziness; and
- Elevated body temperature.

First aid treatment includes, but is not limited to, cooling the victim, elevating the feet, and replacing fluids. If the individual is not substantially improved within 30 minutes and the body temperature has not decreased, the individual should be transported to the hospital for medical attention.

Heat Stroke

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- Dry, hot red skin;
- Body temperature approaching or above 105 degrees F;
- Confusion, altered mental state, slurred speech;
- Seizures;
- Large (dilated) pupils; and
- Loss of consciousness – the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility. Heat stress is a significant hazard if any type of protective equipment (semi-permeable or impermeable) that prevents evaporative cooling is worn in hot-weather environments.

13. OTHER HEAT CONTROLS

Clothing and PPE

Employees should choose clothing that is reflective, light-colored, lightweight, loose-fitting, and breathable. Clothing should cover the exposed parts of the body. In direct sun, hard hats with a brim or bill may be helpful. Should specialized cooling garments be applicable, please consult with your OM/OHSM/CHSD.

Managing Employee Risk Factors

It is recommended that employees are aware of how their health can affect their risk of heat stress. The following increases personnel's risk for a heat-related illness:

- A poor level of physical fitness
- Obesity
- Chronic or acute illnesses
- Conditions such as diabetes, heart disease, or high blood pressure
- Certain medications, such as diuretics
- Age (60+)

Employees should:

- Maintain their health outside of work
- Be aware of the effects of medications
- Drink adequate amounts of water
- Eat light, cool meals during work shifts and save heavy meals until after the shift is over
- Do not skip meals: food helps replace electrolytes when sweating
- Take breaks as needed
- Do not consume alcohol prior to working in a hot environment

APPENDIX D

Personal Protective Equipment (PPE) Management Program

PERSONAL PROTECTIVE EQUIPMENT
MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**01/2019**
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1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, “Roux”), have instituted the following program to establish guidelines for the selection of personal protective equipment (PPE) for use by Roux personnel performing field activities in hazardous environments. PPE is not meant to be a substitute for engineering, work practice, and/or administrative controls, but PPE should be used in conjunction with these controls to protect employees in the workplace. Clothing, body coverings, and other accessories designed to prevent worker exposure to workplace hazards are all types of PPE. To ensure adequate PPE,, employee-owned PPE is assessed on a case-by-case basis to ensure its adequacy, maintenance, and sanitation.

2. SCOPE AND APPLICABILITY

These guidelines apply to all PPE selection decisions to implement the Roux program. The foundations for this program are the numerous Occupational Health and Safety Administration (OSHA) standards related to PPE cited in 29 CFR 1910 Subpart I, 29 CFR 1926 Subpart E, and the hazardous environment work employee protection requirements under the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standard at 29 CFR 1910.120 and 1926.65 as well as California OSHA (Cal/OSHA) Title 8 5192 HAZWOPER. To ensure hazard assessments are documented, the levels of protection, types of protection, and tasks requiring protection are covered in site-specific Health and Safety Plans (HASPs) and Job Safety Analyses (JSAs).

3. PROCEDURES

Due to the varied nature of site activities and the different potential hazards associated with different sites, several aspects must be considered when selecting PPE. The following text describes PPE selection logic and provides guidelines and requirements for the appropriate selection and use of PPE.

3.1 Introduction

To harm the body, chemicals must first gain entrance. The intact skin and respiratory tract are usually the first body tissues that are exposed to chemical contaminants. These tissues provide barriers to some chemicals but, in many cases, are damaged themselves or are highly permeable by certain chemical compounds. PPE, therefore, is used to minimize or eliminate chemical compounds from coming into contact with these first barrier tissues.

Proper PPE selection is essential in preventing exposure. The Project Manager (PM) or health and safety personnel making the selection will have to consider several factors. The level of protection, type, and kind of equipment selected depends on the hazardous conditions. In some cases, additional selection factors include cost, availability, compatibility with other equipment, and performance. All these factors must be accurately assessed before work can be safely carried out.

3.1.1 Training

Training shall be provided to all field-based employees on how to properly use and care for PPE. Training shall include, but not be limited to, the initial 40-hour HAZWOPER training, annual 8-hour HAZWOPER refresher training, and site-specific PPE training. The training program includes when PPE is necessary, what types of PPE are required; how to don, doff, adjust, and wear PPE; the limitations of PPE; the proper care, maintenance, useful life, signs of PPE failure and emergency procedures to follow in the event of PPE failure and disposal of PPE. In addition, retraining shall be conducted when workplace changes require a change in PPE when an employee demonstrates a lack of knowledge or improper use of PPE is identified.

3.2 Types of PPE

The type and selection of PPE must meet certain general criteria and requirements as required under OSHA 29 CFR 1910.132 (General Industry) and 1926.95 (Construction). In addition to these general requirements, specific requirements and specifications exist for some types of PPE that form the basis of the protective clothing scheme. All manufacturer's recommendations for PPE care and use shall be followed. All PPE shall be maintained in a sanitary and reliable condition. Additionally, proper fit and size shall be evaluated to ensure adequate employee protection. Should PPE become defective, it shall be immediately removed from service and discarded.

The following is a list of the common types of specific PPE and the specific requirements for the PPE type, where applicable:

1. Hard Hats - Regulated by 29 CFR 1910.135 and 1926.100; and specified in ANSI Z89.1.
2. Face Shields and Safety Glasses - Regulated by 29 CFR 1910.133 and 1926.102; and specified in ANSI Z87.1.
3. Respiratory Protection - Regulated by 29 CFR 1910.134 and 1926.103.
4. Hand Protection - Regulated by 29 CFR 1910.138
5. Foot Protection - Regulated by 29 CFR 1910.136 and 1926.96; and specified in ANSI Z41.1.
6. Protective Clothing (e.g., fully encapsulated suits, aprons) - Specified in NFPA 1991/1992/1994.

3.2.1 PPE Inspection, Cleaning Maintenance, and Storage

The Office Health and Safety Manager (OHSM) or their designee is responsible for procuring PPE, in accordance with this management program. Single-use/disposable PPE should be purchased and used whenever practicable.

3.2.1.1 PPE Inspection

Roux employees must inspect PPE regularly, before and after each use, to check for defects and damage. Garments and other PPE in central storage must be inspected at least annually or as recommended by the manufacturer by the OHSM, Equipment Manager, and/or their designee. Defective or damaged equipment must be tagged as out-of-service, immediately removed from the work site, and discarded.

3.2.1.2 PPE Cleaning and Maintenance

All Roux employees are responsible for routine cleaning of their assigned PPE. Decontamination of PPE is addressed within Roux's Site Control and Decontamination Program as specified within site-specific health and safety plans. As appropriate, Roux employees should be issued single-use PPE when practicable to minimize the requirement for decontamination. When performing routine cleaning of reusable PPE:

- Always follow the manufacturer's recommendations to avoid damaging the PPE. For example, some cleaning solutions compromise the integrity of protective helmets shell.
- Clean and maintain PPE according to the manufacturer's recommendations. Before being re-issued, PPE should be thoroughly sanitized.
- Disassemble, wash and sanitize reusable respirators after each use. For more information, refer to Roux's Respiratory Protection Management Program.

Employees are not authorized to repair PPE without prior approval from the Health and Safety Department. Reusable PPE may require maintenance by the manufacturer to maintain integrity and certification. Many

manufacturers specify which repairs, if performed by the end-user, will void the product warranty. Therefore, Roux employees are not authorized to perform such maintenance or repairs.

3.2.1.3 PPE Storage

Certain equipment failures can be directly attributed to improper storage. The OHSM or Equipment Manager (or another designated person) is responsible for implementing procedures for appropriate PPE storage, for equipment that is centrally stored. Both central storage and dedicated PPE provided to employees should be stored using the following:

- Store goggles and safety glasses in protective cases.
- Store PPE (such as helmets, boots, etc.) in clean, dust-proof containers or bags out of direct sunlight.
- PPE should ideally be stored under climate-controlled conditions. PPE, stocked gear bags, and/or go-kits should not be stored in hot, cold, or other extreme environmental conditions, and they should not be stored in vehicles (government-owned or rentals) for even short periods of time. Do not store helmets on the rear window shelf of a vehicle.
- Store different kinds of clothing and gloves separately to prevent errors in selection.
- Hang or fold protective clothing in accordance with manufacturers' recommendations.
- Never store contaminated PPE near new protective clothing or street clothing. Potentially contaminated, reusable clothing must be stored (usually bagged) away from new PPE in a well-ventilated area with good airflow around each item until the garment is decontaminated or disposed.
- See Roux's Respiratory Protection Management Program for detailed respirator storage procedures.

3.3 Fitting, Donning, and Doffing PPE

Roux shall provide appropriately sized PPE for Roux employees. Improper fitting such as tight-fitting garments, can tear, especially at the knees, crotch, shoulders, back, and elbows due to movement. Protective clothing that is too large can easily snag and/or limit a user's dexterity. The Roux PM shall ensure site/project-specific PPE is kept in a sufficient stock of appropriately sized PPE (e.g., Level C ensembles). The OHSM, Equipment Manager, and/or their designee shall maintain a sufficient stock of appropriately sized PPE in central storage locations.

The Site Supervisor (SS)/Site Health and Safety Officer (SHSO) is responsible for ensuring that site-specific procedures for donning and doffing PPE are incorporated into site-specific HASPs. Donning and doffing procedures may differ depending on the type of PPE and clothing (e.g., Level D, Modified Level D, Level C) utilized. Figures 1-4, provide examples of procedures that can be used to don and doff Levels A through D and are provided as a reference. Site-specific conditions may warrant adjustments to such procedures. Consult the CHSD for additional information.

Site-specific donning and doffing procedures should include using an assistant where necessary. Donning and doffing certain types of PPE without assistance could risk failure or damage. Care must be taken to prevent the spread of contaminants on the PPE. Decontamination procedures should limit the potential for cross-contamination and may include gross decontamination of outer boots, gloves, and suits as necessary to prevent contaminants from tracking into the contamination reduction zone (CRZ) and clean zone(s).

3.4 Controlling Hazards Associated with PPE Use

PPE use can pose potential health and safety hazards, which range from minor discomfort to life-threatening height stroke. The magnitude of the potential hazard can vary and will depend on various factors, including an individual's fitness level, the type of PPE worn, the work demands, individual work practices, duration of work, and environmental conditions. The use of PPE can also lead to reduced efficiency and work performance.

Among hazards associated with PPE use, heat stress emerges as a prevalent and significant hazard. Particularly, the use of substantial and/or impermeable attire, such as heavy coveralls, Tyvek suits, splash suits, or Level A or B suits, alongside strenuous work, amplifies the risk of heat stress. Regular monitoring for indications of heat stress is imperative for workers operating in such conditions. Roux's Heat Illness Prevention Program lays out requirements for signs and symptoms as well as preventative measures to mitigate the potential for heat illness. In addition, cold environments can pose adverse risk, such examples include use of non-insulated steel-toe safety shoes in frigid conditions which has the potential to increase the risk of frostbite, while safety gloves worn for chemical protection may inadequately insulate hands from the cold.

It is the responsibility of Project Teams to integrate site-specific protocols to manage PPE hazards into such site-specific HASPs. These protocols can encompass considerations like work/rest ratios, crew rotations, and other accommodations for exceptionally demanding conditions.

The following measures are recommended for controlling hazards posed by PPE use:

- Prioritize through the hierarchy of controls with a focus on elimination, substitution, engineering, work practice and administrative control implementation rather than sole reliance on PPE. PPE shall be considered the last line of worker protection.
- Workers should maintain physical fitness to be able to withstand the potential physical strain of PPE use. A physically fit individual will endure less physiological strain, manifesting in a lower heart rate, reduced body temperature (indicating diminished retained body heat), more effective sweating, slightly lower oxygen consumption, and carbon dioxide production. Furthermore, acclimatization to extreme environmental conditions, such as high temperatures, can influence work performance and physical capacity.
- Understand the symptoms of PPE failure. Workers encountering any of these symptoms while donning PPE should promptly notify their onsite SHSO and/or SS:
    - Perception of odors when wearing a respirator
    - Skin irritation
    - Acute discomfort
    - Difficulty breathing
    - Unusual fatigue
    - Dizziness
    - Inability to see, hear, or speak clearly
    - Uncomfortable restriction of movement
    - Rapid pulse, nausea, or chest pain
- Implement a buddy system. Especially in situations where there is a need for increased level of protection (e.g., Level A-C) workers should work in pairs or teams, and are instructed to monitor the integrity of their team/partners gear and remain alert for symptoms of PPE failure.

3.5 PPE Selection

For site-specific work, the Project Manager, in consultation with the Health and Safety Department, has overall responsibility for coordinating the selection and distribution of PPE to field staff and for ensuring that the selected PPE is appropriate for the site-specific hazards. Generally speaking, Roux employees are not engaged in emergency response or perform work at uncontrolled hazardous waste sites; if this is the case, the CHSD shall be made aware of the work and consult with the Project Team on appropriate PPE selection. Most work falls under environmental sampling of low-concentration contaminants in water/soil/perimeter air. Therefore work is carried out in Level D PPE. Upgrades would be based on more information as it becomes available. The United States Environmental Protection Agency (EPA) has created Guidelines for PPE Ensemble Selection to assist workers in selecting PPE ensembles for specific activities and tasks and determining which ensembles and air monitoring equipment should be used to address specific chemicals. Guidelines to Ensembles for Specific Activities/Tasks Where Chemical Exposure is Possible is provided as a reference in Appendix A.

3.6 Protective Clothing Selection Criteria

3.6.1 Chemicals Present

The most important factor in selecting PPE is the determination of what chemicals the employee may be exposed to. The number of chemicals on field investigations may range from a few to several hundred. The exact chemicals or group of chemicals present at the site (certain groups tend to require similar protection) can be determined by collecting and analyzing air, soil, water, or other site media samples. When data are lacking, research into the hazardous materials used or stored at the site can be used to infer potential chemical exposures on the site.

The most appropriate clothing shall be selected once the known or suspected chemicals have been identified and considered based on the type of work to be performed.

Protective garments are made of several different substances for protection against specific chemicals. There is no universal protective material. All will decompose, permeate, or otherwise fail to protect under given circumstances. Fortunately, most manufacturers make guides to using their products (i.e., Dupont's Tyvek™ Permeation Guide). These guides are usually for gloves and coveralls and typically provide information regarding chemical degradation rates (failure of the material to maintain structural integrity when in contact with the chemical) and may provide information on the permeation rate (whether or not the material allows the chemical to pass through). When permeation tables are available, they shall be used with degradation tables to determine the most appropriate protective material for the specific chemical hazard(s).

During most site work, chemicals are usually in mixed combinations, and the protective materials are not in continuous contact with pure chemicals for long periods; therefore, the selected material may be adequate for the particular chemical of most concern and the type of work being performed, yet not the "best" protecting material for all site chemicals and activities. Selection shall depend upon the most hazardous chemicals based on their hazards and concentrations. Sometimes, layering (i.e., using several layers of protective materials) affords the best protection.

3.6.2 Concentration of the Chemical(s)

One of the major criteria for selecting protective material is the concentration of the chemical(s) in air, liquid, and solid state. Airborne and liquid chemical concentrations should be compared to the OSHA standards, American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) guidelines to determine the level of skin or other absorptive

surface (e.g., eyes) protection needed. While these standards are not designed specifically for skin exposed directly to the liquid, they may provide skin designations indicative of chemicals known to have significant skin or dermal absorption effects. For example, airborne levels of PCBs on-site may be low because they are not very volatile, so the inhalation hazard may be minimal; however, PCB-containing liquid coming in direct contact with the skin may cause overexposure. Thus, PCBs have been assigned a skin designation in the OSHA and ACGIH exposure limit tables.

3.6.3 Physical State

The characteristics of a chemical may range from nontoxic to highly toxic, depending on its physical state. Inorganic lead in soil would not be considered toxic to site personnel unless it became airborne since it is generally not absorbed through the intact skin. However, organic lead in a liquid could be readily absorbed through the skin. Soil is frequently contaminated with hazardous materials. Concentrations will vary from a few parts per million to nearly one hundred percent by volume. The degree of hazard depends on the type of soil and concentration of the chemical. Generally speaking, “dry” soils that have not become airborne do not pose a hazard to site personnel if they take minimal precautions, such as wearing lightweight gloves.

3.6.4 Length of Exposure

The length of time a material is exposed to a chemical increases the probability of a breakthrough. Determinations of actual breakthrough times for short-term exposures indicate that several materials that would be considered inadequate under long-term exposures can be used. Different materials that would be considered inadequate under long-term exposures can be used. It should be kept in mind that during the manufacturer’s permeation testing, a pure (100% composition) liquid is usually placed in direct contact with the material, producing a worst-case situation.

3.6.5 Abrasion

When selecting protective clothing, the job the employee is engaged in must be taken into consideration. Persons moving drums or performing other manual tasks may require added protection for their hands, lower chest, and thighs. Using leather gloves and a heavy apron over other normal protective clothing will help prevent damage to the normal PPE and thus reduce worker exposures.

3.6.6 Dexterity

Although protection from skin and inhalation hazards is the primary concern when selecting PPE, the ability to perform the assigned task must be maintained. For example, personnel cannot be expected to perform work that requires fine dexterity if they must wear thick gloves. Therefore, the PPE selection process must consider the task being performed and provide PPE alternatives or techniques that maintain dexterity while still protecting the worker (e.g., wearing tight latex gloves over more bulky hand protection to increase dexterity).

3.6.7 Ability to Decontaminate

If disposable clothing cannot be used, the ability to decontaminate the materials selected must be taken into consideration. Once a chemical makes contact with the material, the PPE must be cleaned before reusing it. If the chemical has completely permeated the material, the clothing cannot be adequately decontaminated, and the material should be discarded.

3.6.8 Climactic Conditions

The human body works best with few restraints from clothing. Protective clothing adds a body burden by increasing weight, restricting movement, and preventing the body's natural cooling process. In severe situations, a modified work program must be used.

Some materials act differently when they are very hot and very cold. For example, PVC becomes almost brittle in frigid temperatures. If there are any questions about the stability of the protective materials under different conditions, the manufacturer should be contacted before using PPE in the field.

3.6.9 Work Load

Like climactic conditions, the type of work activity may affect work duration and personnel's ability to perform certain tasks. Similarly, the amount of protective materials a person wears will affect their ability to perform certain tasks. For example, a person in a total encapsulating suit, even at 72˚F, cannot work for more than a short period of time without requiring a break.

The work schedule should be adjusted to maintain the health of the employees. Modified work practices may include allowing more time for individual job tasks and implementing work/rest cycles per NIOSH and ACGIH thermal stress recommendations. Special consideration should be given to the selection of clothing that protects the worker and adds the least burden when personnel are required to perform strenuous tasks. Excessive bodily stress frequently represents the most significant hazard encountered during fieldwork.

3.6.10 Types of Protective Materials

1. Cellulose or Paper: suitable for nuisance dust and coarse fibers.
2. Natural and Synthetic Fibers
    a. Tyvek™: suitable small-sized hazardous particles, including lead, asbestos, and mold.
    b. Tychem™: is suitable for a variety of hazards, from light liquid splashes to heavy exposures to industrial chemicals and agents.
    c. Nomex™: is suitable for flame-resistance, radiation resistance, acids, alkalis, fluorocarbon refrigerants (CFCs), and non-polar solvents.
3. Elastomers
    a. Polyethylene: suitable for polar substances and solvents.
    b. Saran™ : suitable for flame-resistance, acids, alkalis, oils, and organic solvents.
    c. Polyvinyl Chloride (PVC): suitable for alcohols, oils, inorganic acids, alkalis, and salts.
    d. Neoprene: suitable for polar/non-polar substances, petroleum mixtures, and ≤ 200 F heat resistance.
    e. Butyl Rubber: suitable for polar substances and solvents.
    f. Viton: suitable for non-polar substances, petroleum mixtures, and ≤ 200 F heat resistance.
    g. Nitrile: suitable for polar/non-polar substances and petroleum mixtures.

3.7 Protection Levels

3.7.1 Level A Protection

Level A protection (a fully encapsulated suit) is used when skin hazards exist or when no known data positively rule out skin and other absorption hazards. Per the Roux Respiratory Protection Management Program, Roux employees are not authorized to enter an IDLH atmosphere; therefore, the program does

not allow supplied air respirators (SARs) or self-contained breathing apparatus (SCBA). At no time will Level A work be performed without the consent of the CHSD and OM.

The following conditions warrant the use of Level A protection:

- Hazardous substances have been identified and require the highest level of protection for skin, eyes, and the respiratory system;
- The atmosphere contains less than 19.5% oxygen or an atmosphere immediately dangerous to life and health (IDLH) that have not been ruled out;
- Site operations involve a high potential for splash, skin immersion, or exposure to suspected skin hazards;
- Direct-reading instruments indicate high levels of unidentified but potentially hazardous vapors or gases in the air (e.g., Total atmospheric readings on the Photoionization Detector (PID), Flame Ionization Detector (FID), and similar instruments indicate 500 to 1,000 ppm of unidentified substances); and
- Direct-reading instruments are not available to test the air and suspected highly toxic substances may be present.

It may be necessary to base the decision to use Level A protection on indirect evidence. Other conditions that may indicate the need for Level A protection include:

- Confined spaces;
- Sites containing known skin hazards;
- Sites with no established history to rule out skin and other absorption hazards;
- Site exhibiting signs of acute mammalian toxicity (e.g., dead animals, illnesses associated with past entry into the site by humans);
- Sites at which sealed drums of unknown materials must be opened;
- Visible indicators such as leaking containers or smoking chemical fires; and
- Extremely hazardous substances (e.g., cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials, suspected carcinogens, and infectious substances) are known or suspected to be present, and skin contact is possible.

Table 1: Recommended Level A Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Positive-pressure full-facepiece SCBA or positive-pressure supplied-air respirator with escape SCBA[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program. Roux employees are not approved to utilize Supplied Air (SAR) and/or Self-contained breathing apparatus (SCBA).
Suit	Totally encapsulated chemical- and vapor-protective suit	DuPont® Tychem™ or Responder CSM™	Other material types may be substituted based on known contaminants.
Inner Gloves	Lightweight	Nitrile, Neoprene, PVC, or Viton®	Other material types may be substituted based on known contaminants.
Outer Gloves	An integral part of the suit	See Appendix A for additional information	Confirm chemical performance rating for suspected contaminants. Glove material may have different performance ratings than suit material. All fully-encapsulating suit materials must be compatible with substances involved.
Inner Boot	Integral Part of Suit	-	-
Outer Boot	HazMat boot[2]	–	Confirm chemical performance rating of outer boot for suspected contaminants. Provides slip/abrasion resistance.
Hard Hat	Standard[3]	-	-

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.2 Level B Protection

Level B protection is utilized when the highest level of respiratory protection is needed, but hazardous material exposure to the few unprotected areas of the body is unlikely. At no time will Level B work be performed by Roux personnel without the consent of the CHSD and OM.

The following conditions suggest a need for Level B protection:

- The type and atmospheric concentration of toxic substances have been identified, and they require the highest level of respiratory protection;

- IDLH atmospheres where the substance or concentration in the air does not present a severe skin hazard;
- The type and concentrations of toxic substances do not meet the selection criteria permitting the use of air-purifying respirators and
- It is highly unlikely that the work being done will generate high concentrations of vapors, gases, particulates, or splashes of materials that will affect personnel's skin.

Table 2: Recommended Level B Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Positive-pressure full- facepiece SCBA or positive-pressure supplied-air respirator with escape SCBA[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program. Roux employees are not approved to utilize Supplied Air (SAR) and/or Self-contained breathing apparatus (SCBA).
Suit	Chemical-resistant clothing (liquid-splash protective suit with integral boot and hood)[2]	DuPont® Tychem® CPF 3	Other material types may be substituted based on known contaminants.
Inner Gloves	Light/medium weight	Nitrile, Neoprene, PVC, Viton®, or PE/EVAL	Other material types may be substituted based on known contaminants.
Outer Gloves	Medium/heavy weight	Butyl MIL-G12223, Nitrile, Neoprene, PVC, Viton®, PE/EVAL, or heavy weight Nitrile or Neoprene	Confirm chemical performance rating. Other material types may be substituted based on known contaminants.
Inner Boot	Safety work boot	–	Other boot types may be substituted based on known contaminants and physical hazards. Puncture resistant shanks may be required.
Outer Boot	Heavy weight Latex booties or outer boots[2]	Latex booties are used to protect suit for light duty applications. NFPA-rated outer boots may be required based on anticipated site conditions and tasks.	Other outer boot coverings may be substituted based on known contaminants/anticipated tasks.
Hard Hat	Standard[3]	-	-

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.3 Level C Protection

Level C protection is utilized when skin and respiratory hazards are well defined, and the criteria for using negative pressure respirators have been fulfilled (i.e., known contaminants and contaminant concentrations, acceptable oxygen levels, approved filter/cartridge available, known cartridge service

life, etc.). Level C protection may require an emergency escape respirator during specific initial entry and site reconnaissance situations or when applicable after that.

Table 3: Recommended Level C Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	Full-face air-purifying respirator with appropriate cartridge[1]	NIOSH approved respirator	See Roux's Respiratory Protection Program for information about the brand, model, acceptable configurations, and specific care instructions for the standard issue respirator. Half-faced respirators may be donned if hazard assessment warrants.
Suit	Puncture/tear resistant suit material with boot and hood[2]	DuPont® Tychem® CPF 2/CPF 3 or Saranex	Other material types may be substituted based on known contaminants, if considered more appropriate.
Inner Gloves	Light weight	Nitrile, Neoprene	Other material types like Neoprene, PVC, Viton®, or PE/EVAL may be substituted based on known contaminants, if considered more appropriate.
Outer Gloves	Medium/heavy weight	Butyl, Nitrile, or other work glove	Confirm chemical performance rating. Other material types may be substituted based on known contaminants, if considered more appropriate.
Inner Boot	Safety work boot	–	Other boot types may be substituted based on known contaminants and physical hazards. Puncture resistant shanks may be required.
Outer Boot	Heavy weight Latex booties or outer boots[2]	Latex booties are used to protect suit for light duty applications. NFPA rated outer boots may be required based on anticipated site conditions and tasks.	Other outer boot coverings may be substituted based on known contaminants.
Hard Hat	Standard[3]	-	-
Eye Protection	Safety glasses/goggles[3,4]	-	-

1 Must be NIOSH approved.
2 Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
3 Must comply with the applicable ANSI standard.
4 In the case a ½ face respirator is worn eye protection is required.

3.7.4 Level D Protection

Level D is the basic work uniform. Level D is worn when the atmosphere contains no known hazard. Work functions preclude splashes, immersion, potential for inhalation, or direct contact with hazard chemicals. For most Roux field jobs Level D is the standard minimum level of protection worn.

Table 4: Recommended Level D Ensemble Components

Component	Type	Manufacturer / Recommended Material	Notes
Respirator	None	-	-
Suit	Coveralls, street clothes, or disposable Tyvek suit	–	Other types may be substituted as appropriate.
Inner Gloves	N/A		
Outer Gloves	As appropriate for physical hazards and for comfort	–	-
Boot	Safety work boot	–	Roux's standard safety boot is 6", steel/composite safety toe, and electrical hazard (EH) rated.
Outer Boot Covering	As appropriate	–	–
Hard Hat	Standard[3]	-	-
Eye Protection	Safety glasses/goggles[3]	-	-
High Visibility Clothing	High Visibility Vest /Jacket[3]	-	ANSI Class 2 Safety Vests/Jackets are the standard. Class 3 Safety vests/jackets shall be worn in worksites with 50+ MPH traffic.
Hearing Protection	Ear muffs/plugs	-	Workers exposed to excessive noise shall don hearing protection. Refer to Roux's Hearing Conservation Program for more information.

[1] Must be NIOSH approved.
[2] Must meet NFPA 1991/NFPA 1994 requirements depending on the site hazard assessment.
[3] Must comply with the applicable ANSI standard.

3.7.5 Level E Protection

Level E protection is used when radioactivity above 10 millirems per hour (mrems/hr) is detected at the site. Personal protective equipment for Level E includes:

- Coveralls;
- Air purifying respirator (i.e., P100 or equivalent);
- Time limits on exposure;
- Appropriate dermal protection for the type of radiation present, and

- Radiation dosimetry and ambient monitoring.

3.7.6 Additional Considerations

Fieldwork will contain a variety of situations due to chemicals in various concentrations and combinations. These situations may be partially ameliorated by following the work practices listed below:

1. Foot protection is needed on every site. If the ground to be worked on is contaminated with liquid, and it is necessary to walk in the chemicals, some sort of protective shoe coverings or "booties" can be worn over the boots. Shoe coverings should be designed with soles to help prevent slips. Using disposable shoe coverings when contacting liquid contamination can on and reduce overall decontamination requirements. If non-liquids are to be encountered, a Tyvek™ bootie could be used. The advantage of booties is questionable if the ground contains any sharp objects. Boots should be worn with either cotton or wool socks to help absorb perspiration.
2. If the site requires hard hats, chin straps should be used if a person is stooping over where his/her hat may fall off. Respirator straps should not be placed over the hard hats, as this will affect the respirator's fit.

   Some types of protective materials conduct heat and cold readily. In cold conditions, natural material clothing should be worn under protective clothing. Protective clothing should be removed before allowing a person "to get warm." Applying heat, such as with a space heater, to the outside of the protective clothing may drive contaminant permeation. In hot weather, under clothing will absorb sweat. It is recommended that workers use all cotton undergarments.
3. Body protection should be worn and taped to prevent anything from running into the top of the boot. Gloves should be worn and taped to prevent substances from entering the top of the glove. Duct tape is preferred, but masking tape can be used. When aprons are used, they should be taped across the back for added protection. However, this should be done so that the person has mobility.
4. Atmospheric conditions such as precipitation, temperature, wind direction, humidity, wind velocity, and pressure determine the behavior of contaminants in air or the potential for volatile materials to become airborne. These parameters should be considered in determining the need for and the level of protection.
5. A program must be established for periodic air monitoring during site operations. Without an air monitoring program, any changes to air quality would go undetected and might jeopardize on-site personnel. Monitoring can be done with various types of air pumps and filtering devices, followed by laboratory analysis of the filtration media, personnel dosimeters, and periodic walk-throughs by personnel carrying real-time direct-reading survey instruments.
6. For operations in the exclusion zone, different levels of protection may be selected, and various types of chemical-resistant clothing may be worn. This selection should be based on the job function, reason for being in the area, and the potential for skin contact with, or inhalation of, the chemicals present.
7. Escape masks must be readily available when levels of respiratory protection do not include an SCBA and the possibility of an IDLH atmosphere exists. The use and placement of escape masks should be made on a case-by-case basis. Escape masks should be strategically located at the site in areas with a higher potential for vapors, gases, or particulates.

3.8 Decontamination of PPE

Roux prefers the use of single-use PPE to minimize the requirement for significant decontamination. The following procedures shall be considered should a field project require the need for decontamination of PPE. Roux has also developed a Site Control and Decontamination Management Program.

3.8.1 Site-Specific Decontamination Plans

The Project Manager (or another authorized individual) is responsible for formulating the site-specific PPE decontamination plan as an integral part of the Health and Safety Plan (HASP). The SHSO/SS' responsibilities include ensuring the plan's implementation and adapting it as site conditions evolve. Refer to Roux's Site Control and Decontamination Management program for additional requirements.

The decontamination plan, often created in conjunction with PPE selection, must be established prior to workers entering potentially contaminated areas. The plan should address the following key aspects:

- Decontamination Hazard Evaluation and Risk Assessment: Assessing risks associated with decontamination processes.
- PPE for Decontamination Line Assistants: Specifying appropriate PPE for personnel involved in decontamination.
- Roles and Responsibilities During Decontamination: Defining tasks and duties during the decontamination process.
- Layout and Quantity of Decontamination Stations: Determining the number and arrangement of decontamination stations, along with the designated PPE decontamination procedures at each station.
- Decontamination Equipment: Identifying the necessary equipment for effective decontamination.
- Decontamination Methods: Describing the methods and protocols for decontaminating personnel and equipment.
- Preventing Contamination of Clean Areas: Outlining procedures to prevent contamination of uncontaminated zones.
- Minimizing Contact with Contaminants During CPC Removal: Providing guidelines to reduce wearer exposure during the removal of Chemical Protective Clothing (CPC).
- Disposal Procedures for Inadequately Decontaminated Clothing and Equipment: Ensuring proper disposal practices for items that have not been adequately decontaminated.

The initial decontamination plan, which is developed in conjunction with the initial site hazard assessment, should be based on worst-case assumptions about the extent and type of contamination.

3.8.2 Emergency Decontamination of PPE

The designated SHSO/SS (or another authorized individual) assumes responsibility for addressing emergency decontamination within the site-specific Health and Safety Plan (HASP). Emergency decontamination may become necessary due to events such as fires, explosions, sudden violent storms, or medical emergencies. The emergency decontamination plan must clearly delineate emergency egress routes, as well as procedures for both decontamination and egress.

Some key points to consider regarding emergency decontamination.

- Immediate Notification: The SHSO/SS (or their designated counterpart) must be promptly informed of any circumstances requiring emergency decontamination. Additionally, they are accountable for tracking all personnel during the process.
- Urgent Medical Treatment: If urgent medical attention is necessary, decontamination of PPE may be delayed until the victim's condition stabilizes.
- Balancing Priorities: When feasible, decontamination should occur without hindering essential first aid. However, if a worker is exposed to an extremely toxic or corrosive substance, immediate decontamination is crucial to prevent severe injury or fatality.

- Heat-Related Illness: In cases of heat-related illness, protective clothing must be promptly removed (refer to Roux's Heat Illness Prevention Program).

Emergency Facilities:

- For workers potentially exposed to corrosive materials, quick drenching or flushing facilities must be provided in accordance with 29 CFR 1910.151(c) and 1926.50(g).
- Similarly, if workers face other hazards (such as splash or dust) that could harm the eyes or body, readily accessible wash stations are essential. These stations should be properly located and maintained, including regular water changes, as per the manufacturer's instructions.

3.8.3 Protection of Decontamination Line Assistants

Should work require a decontamination corridor the following shall be used as guidance. The SHSO/SS (or other designated person) must for ensuring that decontamination line assistants receive appropriate PPE and addressing their protection within the site-specific HASP. Key zones—namely, the Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and Clean Support Zone—must be clearly marked both in the field and within the site-specific HASP. The following should be considered when preparing for protection of decontamination line assistants.

1. Task Hazard Analysis: A thorough analysis must be conducted for line assistants to determine the optimal PPE level required. Factors influencing this decision include:
    - Expected or Visible Contamination on Responders
    - Type of Contaminant and associated respiratory and skin hazards
    - Total Vapor/Gas Concentrations in the CRZ
    - Presence of Particulates and specific inorganic or organic vapors in the CRZ
    - Results of Wipe Tests (refer to Section 5.4)
    - Slope and Configuration of the CRZ
2. PPE Levels: Depending on the situation:
    - Line assistants may need to wear the same PPE level as workers in the EZ.
    - Alternatively, line assistants may be adequately protected by using PPE one level lower (e.g., wearing Level C protection while decontaminating workers who are wearing Level B)."

3.8.4 Procedures to Minimize PPE Contamination

Proper work practices and procedures should be implemented at sites to minimize the potential for contact with chemicals of concern while onsite. The following guidance should be considered when developing site-specific procedures:

- Opt for single-use Personal Protective Equipment (PPE) when feasible to minimize decontamination needs.
- Ensure complete sealing of PPE closures and interfaces, including pockets, zippers, and other potential openings.
- Position gloves and boots underneath the sleeves and pant legs of outerwear to reduce exposure.
- Place hoods outside the collar if they are not already attached.
- Utilize disposable outerwear and equipment when suitable to facilitate easy disposal and reduce decontamination efforts.
- Secure all junctions with tape to block contaminants from entering gloves, boots, jackets, and suits.

- Adopt work practices that limit contact with hazardous substances, such as avoiding unnecessary exposure.
- Employ remote techniques for sampling, handling, and opening containers, like using drum grapples and pneumatic impact wrenches.
- Store monitoring and sampling devices in bags designed with openings for sample ports and sensors.
- Cover contaminant sources with plastic sheeting or overpacks to shield PPE from contamination.

3.8.5 PPE Disposal

The PM, in coordination with the field team, shall ensure the safe disposal of all wastes generated from PPE use. PPE must be placed in appropriate containers, labeled, and prepared for disposal separately from other forms of waste. Refer to Roux's General Waste Corporate Management Program for further guidance.

APPENDIX A
EPA's Emergency Responder Health and Safety Manual

APPENDIX E

Subsurface Utility Clearance Management Program

SUBSURFACE UTILITY CLEARANCE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**01/2019**
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APPENDICES

Appendix A – Roux Subsurface Utility Clearance Checklist/ Utility Verification/Site Walkthrough Record

Appendix B – Private Utility Technology Applications and Considerations

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux"), have instituted the following program for completing proper utility mark-outs and for conducting subsurface clearance activities. This establishes a method to ensure, to the greatest extent possible, that utilities have been identified and contact and/or damage to underground utilities and other subsurface structures will be avoided. For the purpose of this program, a structure is defined as any underground feature that may present a potential source(s) of energy, such as, but not limited to, utility vaults, bunkers, piping, electrical boxes, wires, conduits, culverts, utility lines, underground tanks, and ducts.

2. SCOPE AND APPLICABILITY

The Subsurface Utility Clearance Management Program applies to all Roux employees, as well as their contractors and subcontractors. Employees are expected to follow this program for all intrusive work involving Roux or other personnel (e.g., contractors, subcontractors) working for Roux, unless the client's requirements are more stringent. Intrusive work activities can include, but are not limited to, digging or scraping the ground surface, including, but not limited to, excavation; test pitting or trenching; soil vapor sampling or the installation of soil borings, soil vapor monitoring points and wells, or monitoring wells; and drilling within concrete slabs on grade.

Deviation from the program, regardless of the specific work activity or location, must be pre-approved based on the client's site knowledge, experience, site conditions, and additional documentation on the site. Any exceptions shall be documented through the Roux Subsurface Utility Clearance Variance Form, located within the Roux Health & Safety Online Application or via OKTA. Approval is required from the Project Principal (PP) and the Operations Manager (OM), in consultation with the Office Health and Safety Manager (OHSM) or Corporate Health and Safety Director (CHSD), prior to mobilization. Depending on the work location, more stringent federal, state, local, or client requirements may apply. It is the responsibility of the Project Team to identify such requirements prior to mobilization.

3. PROCEDURES

3.1 Before Intrusive Activities/Job Planning Process

Prior to intrusive work at a site, the Project Manager (PM) shall ensure that the notification of the State One Call or equivalent service (Nationwide-811) is completed a minimum of 48-72 hours (One-Call State Law Directory) before intrusive work activities (this timeline excludes Saturdays, Sundays, Legal Holidays and 811 observed holidays). This notification is required by law for all states. State-specific or local laws related to utility location may vary. The project team is responsible for understanding requirements that may affect their work site.

Obtain, review, and field verify relevant historical site data that may include: as-builts/site plans; easement/right-of-way information; historical aerial photos/development plans; local/state permitting records; previous site investigation/boring logs; and/or interviews with site representative/client. Interviews with site or client personnel should ask the following:

- Employee(s) Name and Relationship with the site;
- Types of utilities, including structure and location of utilities on-site;
- Depth of known utilities; and
- Any other relevant information as it pertains to the site.

Prior to intrusive work activities, information pertaining to the site should be included in Roux's Subsurface Utility Clearance Checklist and Utility Verification/Site Walkthrough forms. This form is located within the Roux Health & Safety Online Application or through OKTA.

If there is the potential for unexploded ordnances or munitions, consultation with your OM and CHSD is required prior to site operations.

3.1.1 Project Kick-Off Meeting

During the project kick-off meeting for intrusive activities, the PM will review the Roux Subsurface Utility Clearance Checklist, Utility Verification / Site Walkthrough Record (Appendix A) and the below bullet points with the project field team:

- Confirm that the State One Call or equivalent is received and that the ticket number is confirmed, reviewed, and valid for the time of work. If intrusive work activities are not conducted during this valid time period, the One Call ticket must be renewed, and the site must be remarked;
- Review the work scope to be performed with the site owner/tenant to determine if it may impact any utilities;
- Determine the need for utility owner companies to be contacted or to have their representatives on site;
- Where mark-outs terminate at the property boundary, consider the use of private utility locating / (e.g., Radio Frequency Detection, Electromagnetic Induction), Ground Penetrating Radar (GPR) , and other applicable geophysical inspection services. The use of private utility locating firms, however, does not eliminate the legal requirement for the subcontractor (e.g., driller, excavation firm) to submit a request for Public Utility Mark-outs. Also, the information provided by the service may be inaccurate and unable to locate subsurface utilities and structures in urban areas, landfills, urban fill areas, below-reinforced slabs, etc. They should not be relied upon as the only means of performing utility clearance;
    - A mark-out is defined as the process of contracting with a competent and qualified company to confirm the presence or absence of underground utilities and structures. This process will clearly mark out and delineate identified utilities so that intrusive work activities can be performed without causing disturbance or damage to the subsurface utilities and structures. After utility mark-outs are completed, soft Digging must completed prior to intrusive work. Section 3.4 Preferred Methods of Clearing the Subsurface (Pre-Clearing) outlines requirements for pre-clearing techniques in order of preference.
- Documented description of the dig site, which is included in the project's Health and Safety Plan (HASP), and one call report will be maintained in the field and distributed amongst Roux personnel, its contractors, and subcontractors; and
- Documentation of the actual placement of mark outs in the field shall be collected using dated pictures, videos, and/or sketches with distance from markings to fixed objects. All documentation shall be maintained within the project file.

3.2 Utility Mark Out

- Ensure the Mark-out / Stake-out Request Information Sheet (or one-call report) is complete and accurate for the site, including address and cross streets, and review for missing utilities. Ensure ticket life is still valid for work.
    - Note: Utility mark-out organizations do not have contracts with all utilities, and it is often necessary to contact certain utilities separately, such as the local water and sewer authorities, local transportation departments, and railroad operators. In the event the Project Teams

anticipate subsurface work will impact public utilities, railroad operations, or public roadways, coordination with the utility owners/operators is required.

- Have written confirmation prior to mobilizing to the site that the Project Team or Roux personnel performing the intrusive activity has correctly completed the mark-out notification process, including requesting mark-outs, waiting for mark-outs to be applied to ground surfaces at the site, and receiving written confirmation of findings (via fax or email) from utility operators for all known or suspected utilities in the proposed area of intrusive activity, and provided utility owner written confirmation to Roux personnel for review and project files documentation.
- Do not begin any intrusive activity until all utility mark-outs have been completed (i.e., Did all utilities mark-out the site?) and any unresolved mark-out issues are finalized. Perform a site walk to review the existing utilities and determine if the utility locators have located said utilities.

  (Note: The Tolerance Zone is defined as three feet from the outside edge of any subsurface structure.)
- For non-subscribing utility owners or if public one-call service is not available, perform due diligence and request further information regarding utility type, construction details, location, and burial depth directly from public service providers/utility owners. Request utility mark-out by each public service provider/utility owner as applicable. Confirm contact and response by each public utility owner on the Subsurface Utility Clearance Checklist.
- If utilizing a Private Mark out, ensure the contractor has a plan regarding what types of technology will be used based on Table 1 in Appendix B: Private Utility Technology Applications and Considerations. If possible, it is recommended that multiple technologies be used to sweep each location/work area. Use a tracer wire to locate the utility (when tracer wires are present). Record the results of the private utility mark-out on the Utility Verification/Site Walkthrough Record form.

3.3 Site Visit/Utility Walkthrough

Before mobilization with the subcontractor or during the pre-work safety tailgate with the subcontractor, perform a site walkthrough after utility mark-outs have been completed to determine whether additional potential hazards are present and look for visible signs of utilities that may be present. Outlined below are considerations regarding a site walk before intrusive activities. Before initiating any intrusive work, verify that the utilities marked on-site align with the information provided in the One Call response notification/ticket and with site plans and documents. If any discrepancies arise, address them promptly to ensure accuracy and do not start intrusive work until they are rectified.

- Identify overhead utilities that may impede equipment mobilization or work zones to ensure adequate Occupational Safety and Health Administration (OSHA) clearance distance(s), as specified within the site-specific Health and Safety Plan (HASP) and 29 CFR 1926.1408 Table A.

The presence of any of the following may indicate potential subsurface structures:

- Locations of buildings, equipment, and features like area lights, signs, sprinkler systems, phones, drains, natural gas meters, manholes, etc.;
- Warning tape, which is often a sign of underground services;
- Material like pea gravel, sand, or other non-native materials can indicate the presence of tanks or lines or any deviations from the established native soil or backfill conditions;
- Red concrete that is often used for electrical duct banks;
- Evidence of damaged utilities, such as piping materials, insulation, or odors present in the work area; and

- Other utilities, including fire hydrants, electrical transformers, pipeline markers, valve covers, steam lines, valve box covers, clean-outs, etc.

By observing the path between the main service line and the connection point (e.g., a utility meter at the exterior of the site building), it may be possible to determine the likely routing of on-site utilities. However, this method should not be relied upon solely, and proper risk mitigation strategies should be in place before proceeding with any ground disturbance activities. Look outside your work zone for other potential utilities that may cross through it.

For sites with potential underground storage tanks present (UST), the following guidance applies:

- Identify if the product piping is either rigid or flexible.
- Conduct a visual examination of the tank field, observation wells, dispensers, vent stacks, and UST fill points to determine their location.
- Locate and become familiar with the emergency shutoff button/switch, if present.
- Determine the orientation, arrangement, and location of the tanks, as well as their size and capacity, through the examination of visible features at grade, such as fill ports and extractor covers, and by consulting any available as-built drawings.

Before commencing any subsurface intrusive work, field staff should thoroughly address any discrepancies in utility company mark-outs or the absence of mark-outs.

3.3.1 Project Management - Field Personnel

Whenever possible, it is advisable to assign the same project personnel to both utility location and clearance tasks as well as intrusive activities. This continuity ensures that site knowledge and utility information gathered during the clearance phase remain up-to-date. Having this historical perspective helps minimize the risk potential of utility strikes.

In cases where maintaining the same personnel throughout the project is not feasible, a thorough knowledge transfer regarding site utilities, locations, clearance results, and proposed intrusive activities becomes essential. The PM must ensure that there is a successful handoff of information when there is a change in field personnel.

3.3.2 Utility Markings

The utility marking color code includes various uniform colors. The following APWA uniform color code (ANSI Z535.1) is provided below. While certain government agencies or large industrial facilities may use additional colors, Roux's policy is to consider any unlisted paint marking or pin flag color as a subsurface utility marking unless proven otherwise.

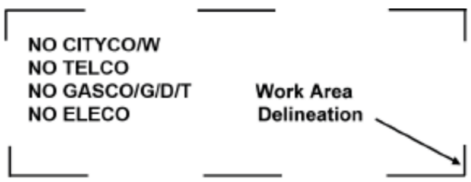
If utilities or subsurface anomalies are identified but their type or classification remains uncertain, it is advised to employ pink paint or pin flag (Temporary Survey Marking) for marking. Once the utility type is definitively established, the pink marks should be updated to represent the correct type of utility accurately.

White	Proposed Excavation
Pink	Temporary Survey Markings
Red	Electric Power Lines, Cables, Conduit, and Lighting Cables
Yellow	Gas, Oil, Steam, Petroleum, or Gaseous Materials
Orange	Communication, Alarm or Signal Lines, Cables, or Conduit
Blue	Potable Water
Purple	Reclaimed Water, Irrigation, and Slurry Lines
Green	Sewers and Drain Lines

Understanding the markings left by locators during the 811 process is crucial for avoiding utility-related issues. Typically, these markings are done when Roux staff members are not physically present on-site. To enhance understanding/accuracy, it is advisable for staff to be present during the 811 process or engage in conversations with locators, both public and private, while on-site. Additionally, utility marks must adhere to the proper standards outlined in the Uniform Color Code.

Common Abbreviations *(Source: Common Ground Alliance)*

Facility Identifier		Underground Construction Descriptions		Infrastructure Materials	
CH	Chemical	C	Conduit	ABS	Acrylonitrile - Butadiene - Styrene
E	Electric	CDR	Corridor	ACP	Asbestos Cement Pipe
FO	Fiber Optic	D	Distribution Facility	CL	Cast Iron
G	Gas	DB	Direct Buried	CMC	Cement Mortar Coated
LPG	Liquefied Petroleum	DE	Dead End	CML	Cement Mortar Lined
PP	Petroleum Products	JT	Joint Trench	CPP	Corrugated Plastic Pipe
RR	Railroad Signal	HP	High Pressure	CMP	Corrugated Metal Pipe
S	Sewer	HH	Hand Hole	CU	Copper
SD	Storm Drain	MH	Manhole	CWD	Creosote Wood Duct
SS	Storm Sewer	PB	Pull Box	HDPE	High Density Polyethylene
SL	Street Lighting	R	Radius	MTD	Multiple Tile Duct
STM	Steam	STR	Structure (vaults, junction inlets, lift station)	PLA	Plastic (conduit or pipe)
SP	Slurry System	T	Transmission Facility	RCB	Reinforced Concrete Box
TEL	Telephone			RCP	Reinforced Concrete Pipe
TS	Traffic Signal			RF	Reinforced Fiberglass
TV	Television			SCCP	Steel Cylinder Concrete Pipe
W	Water			STL	Steel
W	Reclaimed Water "Purple"			VCP	Vitrified Clay Pipe



3.4 Preferred Methods of Clearing the Subsurface (Pre-Clearing)

At least one of the methods listed below shall be carried out during pre-clearing activities. The Project Team is responsible for evaluating risks associated with the Scope of Work to determine which method is selected.

If none of the following pre-clearing activities are performed, a Subsurface Utility Clearance Variance must be submitted to the OM. This Subsurface Utility Clearance Variance must provide clear lines of evidence that there are no utilities present within the intrusive work zone. Examples include demolition permits of the site, utility closure documents indicating no live utilities on-site, as-builts, site history, etc.

The following approaches shall be considered and implemented based on the Scope of Work.

- ***Soft Digging***
  - This is the preferred method of utility clearance when clearing higher-risk utilities. Soil should be cleared through the use of a vacuum truck/equivalent, an accompanying air knife (preferred), or a water lance to break up and loosen the soil for removal with the vacuum.
- ***Hand Digging***
  - Soil should be broken up and removed using a shovel or other appropriate hand tools without excessive force. Limit the use of dig bars or other tools that, if used incorrectly, can significantly damage utilities.
- ***Hand Augering***
  - The hand auger must be turned slowly using even hand pressure without excessive force. Rounded-edge augers are preferred. Hand augers should not be used in pea stone/pea gravel where utilities may be present and could potentially be damaged by the hand auger. The abrupt absence of soil recovery in a hand auger could indicate utilities as pea gravel or sand may have spilled out of the auger (exception: native soil conditions that typically result in poor hand auger recoveries). If any resistance is encountered while operating the hand auger for pre-clearance, the equipment will be removed, and the exploratory test hole will be visually inspected by onsite personnel for any obstructions or indications of subsurface structures.

3.4.1 Guidance for Tools and Equipment

Personnel performing pre-clearance activities shall keep tools and equipment in safe working order and be properly inspected before use. If tools or equipment are broken, they will be tagged and removed from service. The following specify additional guidelines regarding tools and equipment:

- Hand-digging tools must have a non-conductive handle, such as fiberglass, wood, or composite, or fully insulated handles and potential contact surfaces.
- Blades on shovels and post-hole diggers should have rounded or blunt edges.
- Pick axes or pointed spades should not be used for physical clearance.
- Crowbars, pinch-bars, or pry bars should not be used to break hardened soil or backfill except when authorized by the Site Supervisor (SS). This should only be used to loosen materials like bricks or larger stones.
- Electric-powered equipment must have ground-fault protection.
- Should there be refusal or difficulty with advancing hand tools, the contractor shall stop work and notify the Roux SS or Site Health and Safety Officer (SHSO) immediately.

3.5 During Intrusive Activities

3.5.1 Concrete/Paving Surface Removal

Remove any surface coverings (i.e., pavement, brush, debris, etc.) to ensure workers have clear visibility of the work area and subsurface conditions. Avoid mechanical jackhammering over known lines unless they are de-energized, locked-out/tagged-out, and potential repairs are planned or if the utility has been completely disconnected prior. When cutting or coring, go only as far as needed to penetrate the surface cover. When removing a large surface area, begin at the perimeter of the removal zone. This initial step helps identify any utilities passing through the work zone. For extensive areas, using a concrete saw might not be practical. Instead, heavy equipment is often employed. During this process, a designated spotter should guide the heavy equipment. Their role is to watch for warning signs of utilities. It is crucial that the heavy equipment does not have “teeth” that could potentially pass through the surface and damage utilities.

3.5.2 Pre-Clearance Procedures

Install pre-clearance exploratory test holes using one of the techniques, as outlined in Section 3.4, for the first 5-ft below land surface (BLS) at each location before conducting intrusive mechanized activities. Should utilities be located at a greater depth than 5-ft BLS consult with the OM, OHSM and CHSD regarding adjustments to the pre-clearance requirements to go greater than 5-ft BLS. Some Clients may require greater than 5-ft BLS for pre-clearance test holes; Project teams should be aware of such Client requirements prior to work.

Pre-clearance exploratory test holes should be defined in the SOW/proposal provided to the client to prevent project delays and to allow adequate time for the PM and PP to evaluate alternative approaches for the project. Alternative approaches will need to be pre-approved by the OM through a Subsurface Utility Clearance Variance.

Both single-point and three-point clearance are acceptable as long as the following criteria are met below. For single-point clearance, the exploratory test hole is advanced at the exact location of the proposed borehole. If three-point clearance is performed, it must be done in a triangular pattern around the proposed borehole and in a configuration that would not allow utilities to enter the borehole.

- The size of the pre-clearance exploratory test hole should be, at a minimum, twice the diameter of any downhole tool or boring device.
- For direct push applications (CPT, Geoprobe®, etc.), the borehole clearance diameter shall be at least 125% of the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.), to the minimum required depth.
- For excavations, all utilities need to be marked and then exposed by soft-digging or by hand, following the protocols in this program. Pre-clearing for excavations may be performed by the “moat” technique (i.e., soft Digging around the perimeter). In these cases, dig in small lifts (<12” for first 5 feet using a dedicated spotter.
- For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of pre-clearance test holes specified in Section 3.4 to expose the utility. Once structures have been verified, a minimum clearance of three feet must be maintained between the utility and any powered equipment. If considered a high-risk utility, additional requirements may be necessary and required by the Operator of the utility. Consultation with the OM and CHSD may be appropriate.

The PM, field team lead, or personnel performing oversight is to:

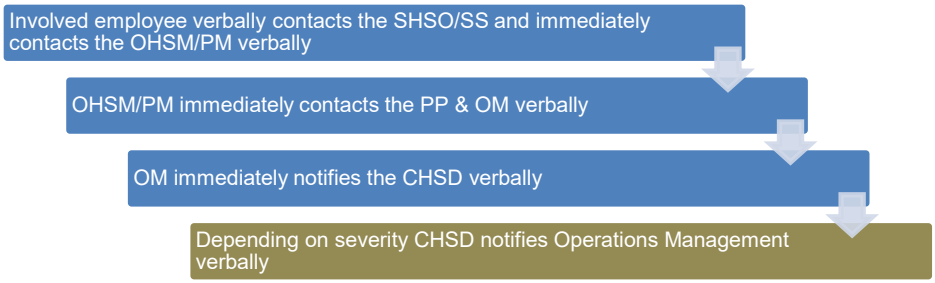
- Ensure the mark-out remains valid. (In certain states, there are limits regarding the duration of time after the mark-out was applied to the ground surface work can be started or interrupted.) Additionally, the mark-outs must be maintained, documented, and in many cases, refreshed periodically to be considered valid. This will be accomplished through calls to the one call center.
- Ensure intrusive activities are only performed within the safe boundaries of the mark-out as detailed in the One-Call Report.
- Halt all work if intrusive activities have resulted in the discovery of an unmarked utility. Roux personnel shall notify the facility owner/operator and the one call center. All incidents such as this will be reported as per Roux Incident Investigation and Reporting Management Program.
- Halt all work if intrusive activities must take place outside of the safe boundaries of a mark-out and only proceed after new mark-outs and subsurface utility clearance are performed.
- Halt the intrusive activities and immediately consult with the PP if an unmarked utility is encountered.
- Complete any loss reports associated with subsurface utility strikes, as necessary.
- If a utility cannot be found as marked, Roux personnel shall notify the facility owner/operator directly or through the one-call center. If the facility operator is not responsive, then the one-call center must be notified. Following notification, the excavation/mechanical intrusive work may continue unless otherwise specified in state law.
- Contractors/subcontractors must contact the one-call center to refresh the ticket when the excavation continues past the life of the ticket. State law dictates ticket life. Project teams must be aware of their state-specific requirements.

3.6 Stop Work Authority

Each Roux employee has Stop Work Authority that he or she will execute upon determination of any imminent safety hazard, emergency situation, or other potentially dangerous situation, such as hazardous weather conditions. This Stop Work Authority includes subsurface clearance issues such as the adequacy of a mark-out or identification during intrusive operations of an unexpected underground utility. Authorization to proceed with work will be issued by the PM/PP in consultation with the OHSM after such action is reviewed and resolved. The PM will initiate and execute all management notifications and contact emergency facilities and personnel when this action is appropriate.

3.7 Reporting Utility Incidents

Roux field personnel engaged in any utility strike (e.g., subsurface/aboveground) must promptly stop work, shutdown any equipment and get to a safe location at the Site. Then notify the PM to discuss the incident. In case of injuries, field personnel must call 911 or the local emergency services number and then inform the PM. Additional notifications shall follow Roux's Incident Notification Process. Depending on the utility strike additional notifications shall be made to utility operators and/or clients/site contacts.



Appendix A
Roux Subsurface Utility Clearance Checklist

Appendix A

Roux Subsurface Utility Clearance Checklist/Utility Verification/Site Walkthrough Record

Roux Subsurface Utility Clearance Checklist ***Date of Revision: 3/2024***

Work site set-up and work execution

ACTIVITY	Yes	No	N/A	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
Daily site safety meeting conducted, SPSAs performed, JSAs reviewed, appropriate work permits obtained (if applicable).				
HASP is available and reviewed by site workers / visitors.				
Subsurface Utility Clearance Procedure has been reviewed with all site workers.				
Mechanical intrusive work activities may not be performed at any location without authorization from the Roux Site Supervisor (SS). Clearance activities may not be performed at any location unless the SS is physically present.				
Work area secured; traffic control established as needed. Emergency shut-off switch located. Fire extinguishers / other safety equipment available as needed.				
Utility mark-outs (public / private) clear and visible. Provide Excavator's Stake-Out Reference Number / Request Date / Time.				
Tolerance zone work identified. Intrusive work activities cannot be performed in areas that are in direct conflict with any markings made by public or private locators.				
Unless the PP & OM authorizes it, all boreholes and test pit locations must be physically cleared before using mechanized equipment. Required minimum physical clearance depths and diameters are as follows: • Physically clear to a depth of 5 feet bls. • The size of the pre-clearance exploratory test hole must be, at a minimum, twice the diameter of any downhole tool or boring device. • For direct push applications (CPT, Geoprobe®, etc.) the borehole clearance diameter shall be at least 125% to the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.).				
Work execution plan reviewed and adhered to (ground disturbance methods, clearance depths, any special utility protection requirements, or any other execution requirements; especially for Tolerance Zone work).				

Mechanical intrusive work is prohibited within 3-feet distance in all directions from subsurface structures that will be intentionally exposed during pre-clearance. Any removal of material within 3-feet of the subsurface structure may only proceed by hand using non-conductive tools/compressed air if authorized by state law and the owner/operator of the utility.				
All equipment onsite must maintain the appropriate horizontal distance from any point on the equipment to the nearest overhead electrical power line. Refer to site-specific HASP and local/utility company requirements.				
Verbal endorsement received from Roux PM and OM for any required field deviations to work execution plan.				

Key Reminders for Execution

The Subsurface Utility Clearance Protocol should be referenced to determine all requirements while executing subsurface work. The bullet points below are intended as general reminders only and should not be relied upon solely.

- The size of the pre-clearance exploratory test hole must be at a minimum twice the diameter of any downhole tool or boring device to minimum required depth of 5 feet bls.
- For direct push applications (CPT, Geoprobe®, etc.) the borehole clearance diameter shall be at least 125% of the diameter of the largest tool being pushed through the subsurface (e.g., tip, rod, sampler, etc.), to the minimum required depth of 5 feet bls.
- The tolerance zone is defined as three feet plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct banks, and other non-cylindrical utilities) of a utility and three feet from the outside of any subsurface structure.
- For excavations, all utilities need to be marked and then exposed by hand, following the protocols in this program. Pre-clearing for excavations may be performed by the “moat” technique (i.e., soft digging around the perimeter). In these cases, dig in small lifts (<12” for first five feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes to expose the utility. Once structures have been verified, a minimum clearance of three feet must be maintained between the utility and any powered equipment.

Utility Verification/Site Walkthrough Record

Employee Name:_____

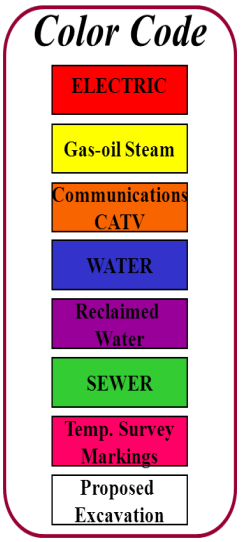
Date: _____

Instructions: For each utility suspected at the job site, indicate the location on the job site, approximate burial depth, and means of detecting the utility. Leave blank if that utility is not believed to be present.

Utility	Description of Utility Location Identified Onsite	Approx. Depth (bls)	Method / Instrumentation used to determine Utility Location	Utility Owner Response (Date/Time)	Mark Out Indicates (Clear / Conflict)
Electrical Lines					
Gas Lines					
Pipelines					
Steam Lines					
Water Lines					
Sanitary and Stormwater Sewer lines					
Pressured Air-Lines					
Tank Vent Lines					
Fiber Optic Lines					
Underground Storage Tanks					
Phone Lines/ Other					

* bls - below land surface

Site Sketch Showing Utilities:



Other Comments / Findings:

Completed by: _____

Signature: _____ Date: _____

Appendix B
Private Utility Technology Applications and Considerations

Appendix B – Private Utility Technology Applications and Considerations

Technology ⇒ Utility/Object ⇓	Radio Frequency Electro-Magnetic Detector (connection to utility, or induction without connection)	Radio Frequency Electro-Magnetic Detector (passive sweep)	Ground Penetrating Radar (GPR)⊙	Acoustic Plastic Pipe Locator	Beacon, Sonde or Conductive Rodder Insertion	EM-61 (time domain electromagnetics) Ξ	
Power/Instrument Line (Energized/Signaled) □	❋ G	G	G	R	R	G	
Power Line (Non-energized) □	❋ G	R	G	R	R	G	
Sewer/Water Line (Metallic) □	❋ G	Y	G	Y	G	G	
Sewer/Water Line (Non-metallic)	R	R	G	G	❋ G	R	
Instrument / Telecomm Lines (Non-energized)	❋ G	R	G	R	R	Y Only if metallic	
Hydrocarbon Transmission Line (Pipeline)◆ □	❋ G	R	G	R	R	G	
Metallic/Non-Metallic Line (with Tracer Wire)	❋ G	Y	G	Y	Y	G metallic	Y non-metallic
Metallic/Non-Metallic Line (without Tracer Wire)	G metallic	R non-metallic	R	❋ G	Y	Y	G metallic	R non-metallic
Metal or Fiberglass UST	R	R	❋ G	R	R	G metallic	R non-metallic

Additional Considerations

Technology ⇒ Variable ⇓	Radio Frequency Electro-Magnetic Detector	Ground Penetrating Radar (GPR)⊙	Acoustic Pipe Locator	Beacon, Sonde, or Conductive Rodder Insertion	EM-61 Ξ
Moist Soil	G	Y	G	G	G
Dry Soil	Y	G	Y	G	G
Clay	Y	R	G	G	G
Concrete w/Rebar	R	Y	G	G	R
Long Horizontal Profile	G	G	G	G	G
Short Horizontal but Deep Vertical Profile	Y	G	R	R	G
Access to Line✚	G	N/A	G	G	G
No Access to Line✚	G (induction or passive)	G	R	R	G
	R (direct connect)				G
Ferrous Metal	G	G	G	G	G
Non-ferrous Metal	Y	G	G	G	G
Adjacent or crossing conductive utility(ies)	Y	N/A	N/A	N/A	Y

Each site will be unique. Do not use this table as the sole criteria for technology selection. Use it as a starting point to assess available, applicable technology(s).

❋ Indicates best technology for given object. Site structures, rebar in concrete, shallow groundwater tables, perched storm water, etc. can significantly affect performance and reliability of any electro/magnetic method. Other utilities which cross or are adjacent to the target line can cause the EM signal to bleed or jump to the other utility line.

□ Metallic lines that have power running through them or can be connected to a tracer signal generator.

◆ Natural gas pipeline locating technicians must be trained/certified (in the U.S. requires DOT and Office of Pipeline Safety standards, other regions may have similar certification or requirements).

⊙ Most sensitive to interpretation. The skill, training and experience of operator are critical.

Ξ Emerging technology with limited availability.

✚ Access: induce unique electronic signature, apply acoustical impulse or insert conductive rodder/beacon/sonde.

Green Generally, an applicable technology **Yellow** May or may not be applicable **Red** Not generally applicable

APPENDIX F

Heavy Equipment Exclusion Zone Policy

HEAVY EQUIPMENT EXCLUSION ZONE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY DIRECTOR	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**01/2019**
REVIEWED DATE	:	**03/2025**
REVISION NUMBER	:	**4**

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1. PURPOSE

The Exclusion Zone Management Program aims to establish the minimum clearance distance that must be maintained between workers and heavy equipment while the equipment is in operation (i.e., engaged or in motion). The intent is to have no personnel or equipment entering the Exclusion Zone while the equipment is in operation or moving to ensure that Roux and Subcontractor employees are unnecessarily exposed to the hazards of the equipment.

2. SCOPE AND APPLICABILITY

This Management Program applies to all Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C., and Remedial Engineering (collectively, "Roux") employees and their subcontractors performing fieldwork and are potentially exposed to heavy equipment. Heavy equipment includes, but is not necessarily limited to, excavation equipment, drill rigs, vacuum trucks, forklifts, lull telehandlers, man lifts, bobcats, delivery trucks, etc.

3. PROCEDURES

As specified in the following sections of this program, Exclusion Zones must be established and maintained during activities involving the movement/operation of heavy equipment. The Exclusion Zone requirements apply to all personnel on the site but are primarily focused on personnel required to work near the equipment. The exclusion zone is in effect when heavy equipment is moving or engaged (e.g., movement of an arm or bucket of an excavator, rotation of an auger, lifting of a load with a forklift, raising/lowering of a man lift, etc.).

1. The Exclusion Zone must meet the following minimum requirements:
   - A minimum distance of 10 feet from all heavy equipment and loads being moved by the equipment;
   - Greater than the swing/reach radius of any moving part on the heavy equipment (i.e., for large equipment, this may mean an exclusion zone distance larger than 20 feet);
   - Greater than the fall zone of equipment and their contents; and
   - Greater than the tip-over distance of the heavy equipment.

   The size of the Exclusion Zone will need to be determined on a task-specific basis considering the size of the heavy equipment in use and the task being performed. Prior to all heavy equipment operations, the Exclusion Zone(s) distance must be specifically identified in the Job Planning Process and incorporated in the pre-job tailgate meeting with the subcontractor(s), including any updates to our Job Safety Analysis (JSA).
2. The spotter (or another authorized individual) is responsible for enforcing the Exclusion Zone and not conducting any other task. The spotter should be positioned immediately outside of the Exclusion Zone within a clear line of sight of the equipment operator. The spotter must signal the operator to stop work if anyone or anything has the potential to enter or compromise the Exclusion Zone. The operator should stop work if the spotter is not within their line of sight. If a spotter must be within the Exclusion Zone, they must be in a designated area outside the swing/tip radius, fall zone, line of fire of lifted loads, etc. If multiple pieces of equipment are being used, one spotter may be adequate so long as there is a clear line of sight and the spotter can control the zone(s). Radios would be required since hand signals would not be adequate if two pieces of equipment are in operation at the same time in the Exclusion Zone.

3. If an individual must enter the Exclusion Zone, the designated Spotter must signal the Equipment Operator to stop the equipment. Once the equipment is no longer moving (e.g., movement of an arm of an excavator is STOPPED, lifting of a load with a forklift STOPPED, raising/lowering of a man lift is STOPPED, etc.), the operator must bring the boom/arm to the ground ensuring a “Zero Energy State” and DISENGAGE THE CONTROLS and STOP and SIGNAL BY “SHOWING HIS HANDS.” This signal will indicate that it is safe for the person to enter the limits of the Exclusion Zone to perform the required activity. The equipment must remain completely stopped/disengaged until all personnel exited the Exclusion Zone's boundaries and the designated Spotter has signaled by “SHOWING HIS HANDS” to the Equipment Operator that it is safe to resume operations.
4. When entering the limits of the Exclusion Zone, personnel must, at a minimum:
    - Establish eye contact with the operator and approach the heavy equipment in a manner that is in direct line of sight to the Equipment Operator;
    - Never walk under any suspended loads or raised booms/arms of the heavy equipment; and
    - Identify a travel path free of Slip/Trip/Fall hazards.
5. The Exclusion Zone should be delineated using cones with orange snow fences or solid poles between the cones, barrels, tape, or other measures. For work in rights-of-way, rigid barriers, such as Jersey barriers or temporary chain link fences, should be used. For certain types of widespread or moving/mobile equipment operations, such delineation may not be practicable around equipment or individual work areas. In such instances, it is expected that the entire operation will be within a larger secure work area or that additional means will be utilized to ensure the security of the work zone.

All subcontractors who provide heavy equipment operations to field projects must implement a program that meets or exceeds the expectations described above, as well as any additional requirements that may be required on a client or site-specific basis. Logistics involving heavy equipment should be understood and discussed prior to the field event during the job planning phase.

3.1 Exceptions

It is recognized that certain heavy equipment activities may require personnel to work within the limits of the Exclusion Zone as specified in this program. Such activities may include certain excavation clearance tasks, drill crew activities, or construction tasks. However, any such activity must be pre-planned, emphasizing limiting the amount and potential exposure of any activity required within the zone. The critical safety steps to mitigate the hazards associated with working within the Exclusion Zone must be defined in the JSA and potentially other project-specific plans (i.e., critical lift plans, etc.), and approved by the Roux Project Principal (PP), Office Health and Safety Manager (OHSM) and client representative, if required, prior to implementation.

4. TRAINING

Many Roux projects have different requirements that are client-specific or site-specific in nature. However, all Roux employees are provided initial training, as well as annually thereafter, on our Heavy Equipment Exclusion Zone policy.

5. STOP WORK AUTHORITY

All Roux employees and their subcontractors have stop-work authority. Upon initial hire, all Roux employees are provided initial safety orientation, including stop work authority. All Roux employees and subcontractors are encouraged to stop work whenever any task or operation presents an unreasonable risk or employees

are unsure how to carry out work safely. This includes upon observing any questionable safety-related behavior or condition, they are to stop work immediately and discuss the behavior or condition with the individual(s) involved. Upon stopping work, the following actions will be taken:

- Notify the affected parties to include the Project Manager (PM) and Site Health and Safety Officer (SHSO);
- Work to correct the situation or not proceed until the situation is corrected by the PM or SHSO;
- Resume work only when told to proceed by either the PM or SHSO;
- The SHSO will document the Stop-Work intervention in the field logbook;
- Stop-Work interventions will be reported to the PP for review to ensure the interventions are closed; and
- The PP will share learnings from the interventions, as appropriate, throughout the firm, to demonstrate the importance of the Stop-Work interventions.

Please note: Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated.

APPENDIX I

Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

Portion of the Former Vacuum Oil Refinery Site (5 Flint Street)
Rochester, New York

July 15, 2025

Prepared for:

5 Flint Street LLC

Prepared by:

Roux Environmental Engineering and Geology, D.P.C.
209 Shafter Street
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A. Action Limit Report

1.0 INTRODUCTION

Roux Associates, Inc. and Roux Environmental Engineering and Geology, D.P.C. (collectively referred to as Roux) on behalf of 5 Flint Street LLC, has prepared the following Community Air Monitoring Plan (CAMP) to be employed during subsurface investigation and remediation (i.e., excavation and in-situ stabilization) activities (collectively, hereafter referred to as "intrusive activities") as well as building demolition activities at 5 Flint Street, Rochester, NY (hereafter referred to as the "Site").

The purpose of this CAMP is to mitigate the potential for intrusive activities and building demolition activities to adversely affect the downwind community and to preclude or minimize airborne migration of Site contaminants. The proposed intrusive activities include excavation, soil transport, pre-design investigation (PDI) sampling, soil waste characterization sampling, groundwater and soil sampling, and in-situ soil stabilization (ISS). Compliance with this CAMP is required during all intrusive activities and building demolition activities that have the potential to generate airborne particulate matter and volatile organic compounds (VOCs).

This CAMP is consistent with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan, which is included as Appendix 1A of the New York State Department of Environmental Conservation (NYSDEC) "DER-10 Technical Guidance of Site Investigation and Remediation" (DER-10), dated May 3, 2010.

2.0 AIR MONITORING PROCEDURES DURING INTRUSIVE AND BUILDING DEMOLITION ACTIVITIES

Semi-volatile organic compounds (SVOCs), metals, and VOCs all may be constituents of concern at the Site. The appropriate method to monitor air for these constituents during intrusive activities and building demolition activities is through real-time VOC and air particulate (dust) monitoring.

2.1 Wind Direction

Wind direction will be evaluated, at a minimum, at the start of each workday, noon of each workday, and the end of each workday. These readings will be utilized to determine the positioning of the monitoring equipment in appropriate upwind and downwind locations. A Site figure will be marked daily to record the wind direction and monitoring equipment locations.

2.2 Volatile Organic Compound Monitoring

During all ground intrusive activities and building demolition activities, VOCs will be monitored continuously at the upwind perimeter and at the downwind perimeter of the designated work areas at monitoring stations. Locations of both upwind and downwind monitoring stations will be determined based upon the meteorological data collected throughout the workday and are subject to change in response to changes in wind direction and speed.

Monitoring equipment capable of measuring total VOC concentrations (photoionization detector [PID]) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at the upwind and downwind locations, at a height of approximately 4 to 5 feet above land surface (i.e., the breathing zone).

Monitoring equipment will be a MiniRAE 2000 portable VOC monitor or similar equipment. The audible alarm on the PID will be set at 5 parts per million (ppm).

The following summarizes VOC action levels and the appropriate responses:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 ppm above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities must be halted. While continuing to monitor, the source of vapors must be identified, and corrective actions must be taken to abate vapor emissions. After these steps are performed, work activities can resume, provided the total organic vapor level 200 feet downwind of the work area or half the distance to the nearest potential receptor or residential/commercial structure – whichever is less but in no case less than 20 feet – is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down, the source of vapors identified, and corrective measures taken to abate emissions, as described below in **Section 2.2.1**.

All readings will be recorded and made available for NYSDEC and NYSDOH personnel to review upon request. If an exceedance of the Action Limits occurs, an Action Limit Report, as shown in **Appendix A**, will be generated, and NYSDEC, NYSDOH, and the City will be notified within 24 hours of the exceedance .

2.2.1 Potential Corrective Measures and VOC Suppression Techniques

If the 15-minute integrated VOC level at the downwind location persists at a concentration that exceeds the upwind level by more than 5 ppm but less than 25 ppm during ground intrusive activities or building demolition activities, then vapor suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive organic vapors:

- Limiting the excavation size;
- Backfilling portions of the excavation;
- Covering soil stockpiles (if any) with 6-mil polyethylene sheeting;
- Hauling waste materials off-Site in properly covered container;
- Odor masking; and/or
- Pausing operations until the wind conditions change such that VOCs and/or odors due to the work are not migrating toward downwind receptors.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review upon request.

2.3 Particulate Monitoring

Air monitoring for particulates (i.e., dust) will be performed continuously during intrusive activities and building demolition activities using both air monitoring equipment and visual observation at upwind and downwind locations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM_{10}) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at upwind (i.e., background) and downwind locations, at heights approximately 4-5 feet above land surface (i.e., the breathing zone). Monitoring equipment will be MEI Data Ram monitors, or equivalent. The audible alarm on the particulate monitoring device will be set at 90 micrograms per cubic meter ($\mu g/m^3$). This setting will allow proactive evaluation of worksite conditions prior to reaching the action level of 100 $\mu g/m^3$ above background. The monitors will be calibrated at least once per day prior to work activities and recalibrated as needed thereafter. In addition, fugitive dust migration will be visually assessed during all intrusive activities and building demolition activities.

The following summarizes particulate action levels and the appropriate responses:

- If the downwind PM_{10} particulate level is 100 $\mu g/m^3$ above background (upwind perimeter) for the 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM_{10} particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM_{10} particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work must be stopped, and an evaluation of activities initiated. Work can resume provided that dust suppression measures (as described in **Section 2.3.1** below) and other controls are successful in reducing the downwind PM_{10} particulate concentrations to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and available for NYSDEC and NYSDOH personnel to review upon request. If an exceedance of the Action Limits occurs, an Action Limit Report (**Appendix A**) will be completed.

2.3.1 Potential Particulate Suppression Techniques

If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 µg/m^3 at any time during intrusive activities or building demolition activities, then dust suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive dusts:

- Spraying water on the equipment or directly on building materials being worked;
- Placing/hauling materials in properly tarped containers or vehicles;
- Limiting vehicle/equipment activity and speeds on Site; and/or
- Hydro-seeding of disturbed areas (as needed).

Work may continue with dust suppression techniques provided that downwind PM_{10} levels are not more than 150 µg/m^3 greater than the upwind levels.

There may also be situations where the dust generated by intrusive activities or building demolition activities migrates to downwind locations and is not detected by the monitoring equipment at or above the action level. Therefore, if dust is observed leaving the work area, dust suppression techniques such as those listed above will be employed.

If dust suppression techniques do not lower particulates to below 150 µg/m^3, or visible dust persists, work will be suspended until appropriate corrective measures are identified and implemented to remedy the situation.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review upon request.

3.0 REFERENCES

NYSDOH, 2010. New York State Department of Health Generic Community Air Monitoring Protocol, May 3, 2010 (also included as Appendix 1A to the Draft Technical Guidance for Site Investigation and Remediation, NYSDEC, May 2010).

APPENDICES

A. Action Limit Report

APPENDIX A

Action Limit Report

ACTION LIMIT REPORT

Project Location: _____

Date: _____ Time: _____

Name: _____

Contaminant: PM-10: _____ VOC: _____

Wind Speed: _____ Wind Direction: _____

Temperature: _____ Barometric Pressure: _____

DOWNWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

UPWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

BACKGROUND CORRECTED LEVELS

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

SITE ACTIVITIES

CORRECTIVE ACTIONS TAKEN

APPENDIX J

List of Site Contacts

Appendix J - Site Contact List
BCP Site No. C828162B
Portion of the Former Vacuum Oil Refinery Site, Rochester, New York

Organization	Contact	Title	Email	Office	Cell	Role
5 Flint Street, LLC (Volunteer, Remedial Party)	Ian Reed	Vice President, Principal Hydrogeologist	ireed@rouxinc.com	(781) 569-4030	(617) 875-9384	Primary Contact: Project Principal
	Michael Roux	Managing Member	mroux@rouxinc.com	(631) 630-2425	(631) 774-7289	Managing Member
Organization	**Contact**	**Title**	**Email**	**Office**	**Cell**	**Role**
Roux (Environmental Consultant)	Eric Runstrom	Senior Project Manager	erunstrom@rouxinc.com	(781) 569-4000	(413) 548-6350	Primary Contact: Project Manager
	Noelle Clarke	Principal Engineer	nclarke@rouxinc.com	(631) 232-2600	(631) 807-6523	Project Engineer / Remedial Engineer
Organization	**Contact**	**Title**	**Email**	**Office**	**Cell**	**Role**
New York State Department of Environmental Conservation (Overseeing Agency)	Charlotte Theobald	Assistant Engineer Division of Environmental Remediation	charlotte.theobald@dec.ny.gov	(585) 314-1719	NA	Project Manager
	David Pratt	Regional Remediation Engineer Division of Environmental Remediation	david.pratt@dec.ny.gov	(585) 226-5449	NA	Supervisor
	Kelly Lewandowski	Environmental Program Specialist 2, Site Control Section	kelly.lewandowski@dec.ny.gov	(518) 402-9569	NA	Site Control Specialist
Organization	**Contact**	**Title**	**Email**	**Office**	**Cell**	**Role**
New York State Department of Health	Christopher Budd	NYSDOH Project Manager	Christopher.budd@health.ny.gov	(518) 402-1769	NA	Project Manager

Notes:
N/A - Not Available

APPENDIX K

Reserved for Environmental Easement/Notice/Deed Restriction

APPENDIX L

Boring Logs and Groundwater Monitoring Well Construction Logs

APPENDIX A

1999-2000 SITE INVESTIGATION

TEST PIT LOGS

SOIL BORING LOGS

WELL INSTALLATION LOGS

WELL DEVELOPMENT LOGS

GROUNDWATER SAMPLING FIELD PARAMETER MEASUREMENTS

Test Pit Log

Site No:	828089P			Test Pit No: TP-1
Project Name:	Former Vacuum Oil Company			Sheet 1 of 1
Contractor:	SLC	Geologist:	Jennifer League	By: JL Date:12/06/99
Operator:	Ken Kuhn	Date Started:	6-Dec-1999	
Equipment:	Komatsu 35R	Date Completed:	6-Dec-1999	

DEPTH (FT.)	PID (PPM)	SAMPLE DESCRIPTION
-0-	0	0'-1': 3" Topsoil;9" Brn sand, little gravel, l.clay, l.silt, moist (fill)
	0	1': Brn. silty sand, moist (fill)
-2-	0	2.5'-3.5': slag & brick fill w/sand, moist
-4-	14	3.5'-4.7': Blk. silt and f/c sand, l.gravel, l.clay, moist, petroleum odor (ML/fill)
		4.7'-5': Lt. grey 3" layer
-6-	50 (5'-7.7')	5'-8.5': Blk. silt, s.f.sand, s.clay, tr.gravel, wet (ML/fill)
	200 at 7.7'	
-8-	6	8.5': Lt. grey silt and clay
	0	9': l.f/c sand, wet (ML) not much staining present; bottom of pit
-10-		
-12-		

Comments:	**Samples Collected:**
Excavation Dimensions	B70601 (3-5')
9.7'Lx2'Wx9'D	B70602 (7-8')



Test Pit TP-1

Test Pit Log

Site No:	828089P			Test Pit No: TP-2
Project Name:	Former Vacuum Oil Company			Sheet 1 of 1
Contractor:	SLC	Geologist:	Jennifer League	By: JL Date:12/06/99
Operator:	Ken Kuhn	Date Started:	6-Dec-1999	
Equipment:	Komatsu 35R	Date Completed:	6-Dec-1999	

DEPTH (FT.)	PID (PPM)	SAMPLE DESCRIPTION
-0-	0	0'-2.8': 3" topsoil, Dk. brn sand, brick, tr.slag, tr. tile, moist
-2-	0	2.8'-4.5': Roofing shingles
-4-	0	4.5'-5': Brn. flc sand, s.slag, moist (fill) At 5', encountered concrete slab that excavator could not penetrate.
-6-		
-8-		
-10-		
-12-		

Comments:	**Samples Collected:**
Excavation Dimensions 8'Lx4'Wx5'D	B70603 (5')



Test Pit TP-2

Test Pit Log

Site No:	828089P			Test Pit No: TP-3
Project Name:	Former Vacuum Oil Company			Sheet 1 of 1
Contractor:	SLC	Geologist:	Jennifer League	By: JL Date:12/06/99
Operator:	Ken Kuhn	Date Started:	6-Dec-1999	
Equipment:	Komatsu 35R	Date Completed:	6-Dec-1999	

DEPTH (FT.)	PID (PPM)	SAMPLE DESCRIPTION
-0-	0	Dk. drn f/m sand, l.gravel, l.silt, tr. roots, moist (fill)
-2-	0	Brn. f.sand and silt, some clay, tr. brick, moist (fill)
-4-	0	4'-8.5': Brn silt, some clay, l.f. sand, tr. gravel, moist (ML)
-6-		
-8-	0	8.5': Grey silt and clay, l.f.sand, moist (ML); bottom of excavation
-10-		
-12-		

Comments:	Samples Collected:
Excavation Dimensions 11'Lx3'Wx8.5'D	B70604 (8-9')



Test Pit TP-3

Test Pit Log

Site No:	828089P			Test Pit No: TP-4
Project Name:	Former Vacuum Oil Company			Sheet 1 of 1
Contractor:	SLC	Geologist:	Jennifer League	By: JL Date:12/06/99
Operator:	Ken Kuhn	Date Started:	6-Dec-1999	
Equipment:	Komatsu 35R	Date Completed:	6-Dec-1999	

DEPTH (FT.)	PID (PPM)	SAMPLE DESCRIPTION
-0-	0	0'-1.5': 6" topsoil & roots; Dk. brn f/c sand, tr.gravel, tr.silt, tr.roots,moist (Topsoil/SM)
-2-	0	1.5'-4.2': Brn. silt, sand, s. clay, tr. gravel, moist (ML) 4.2' Bottom of excavation
-4-		
-6-		
-8-		
-10-		
-12-		

Comments:	**Samples Collected:**
Excavation Dimensions 7.4'Lx4'Wx4.2'D	B70605 (5')



Test Pit TP-4

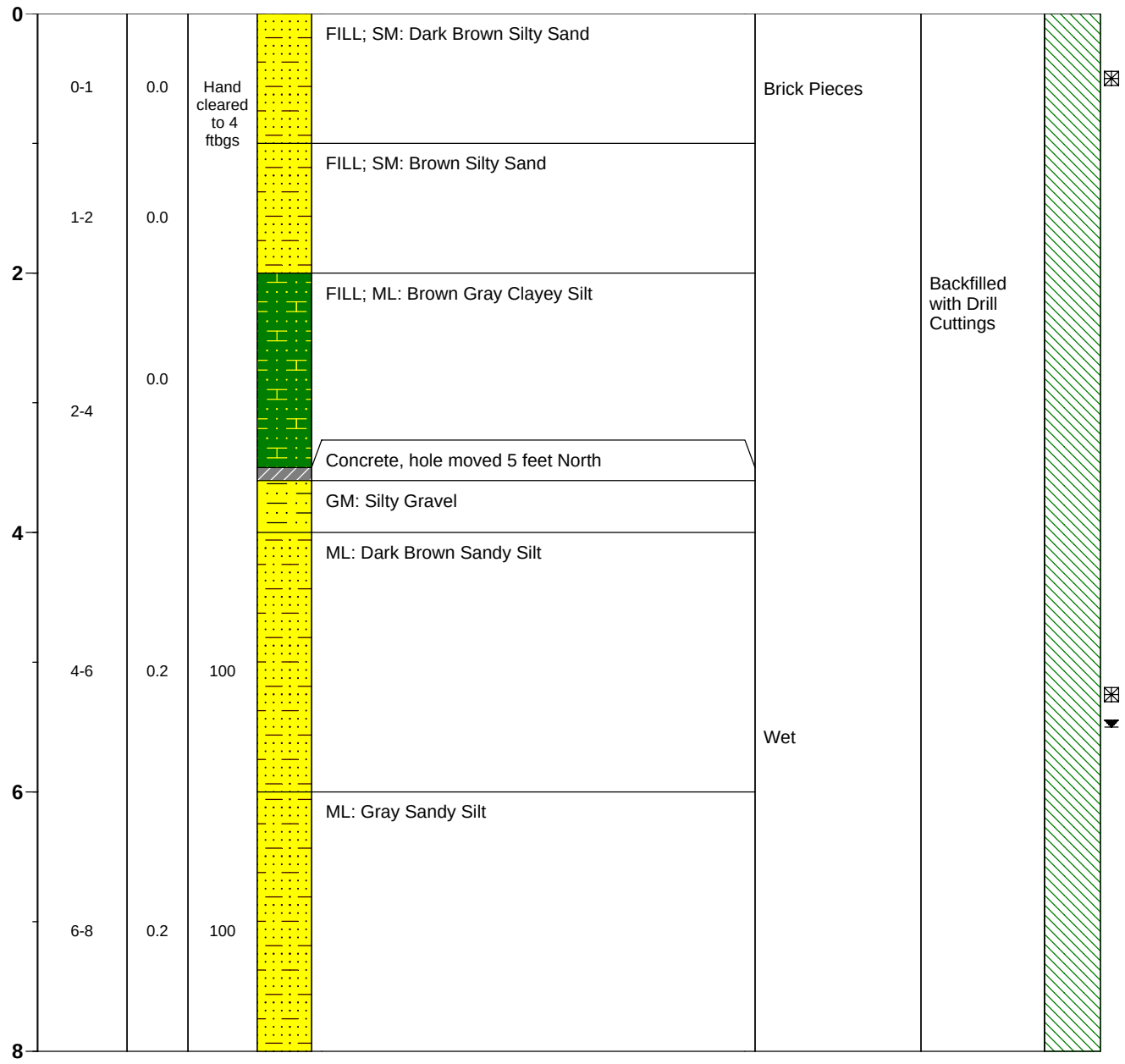
BORING LOG

ID NO. **SB-008**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**513.8 feet**	TOTAL DEPTH:	**8 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**5.5 feet**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/18/08; 6/23/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**



General Comments:

Bottom of boring at 8 feet. Bedrock not encountered.

Concrete encountered at 3.5 ftbgs; hole relocated 5 feet North

Symbol Key:

Apparent Water Level

Lab Sample Location

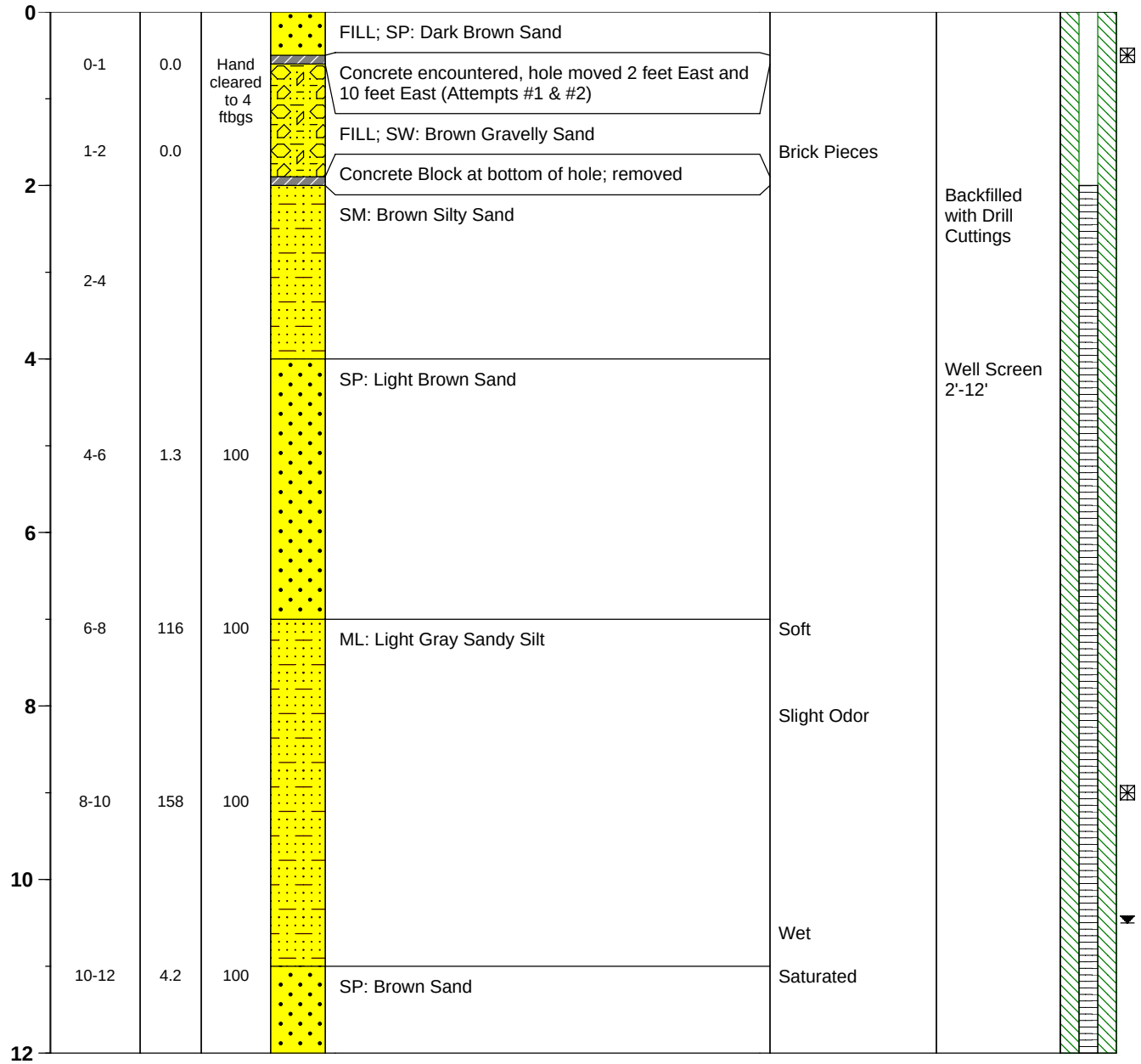
BORING LOG

ID NO. **SB-009**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**514.4 feet**	TOTAL DEPTH:	**12 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**10.5 feet**	CASING EL.:	**516.41 feet**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**1 inch**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/18/08; 6/23/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**



General Comments:

Bottom of boring at 12 feet. Bedrock not encountered.

Attept #1; Concrete encountered at 6 inches, hole moved 2 feet East

Attempt #2; Concrete encountered at 6 inches; hole moved 10 feet East

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-010**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**0.5 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/18/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-0.5		Hand cleared to 0.5 ftbgs	FILL; SW: Gravelly Sand Concrete encountered		

General Comments:

Concrete encountered at 6 inches; location abandoned.

Symbol Key:

Apparent Water Level

Lab Sample Location

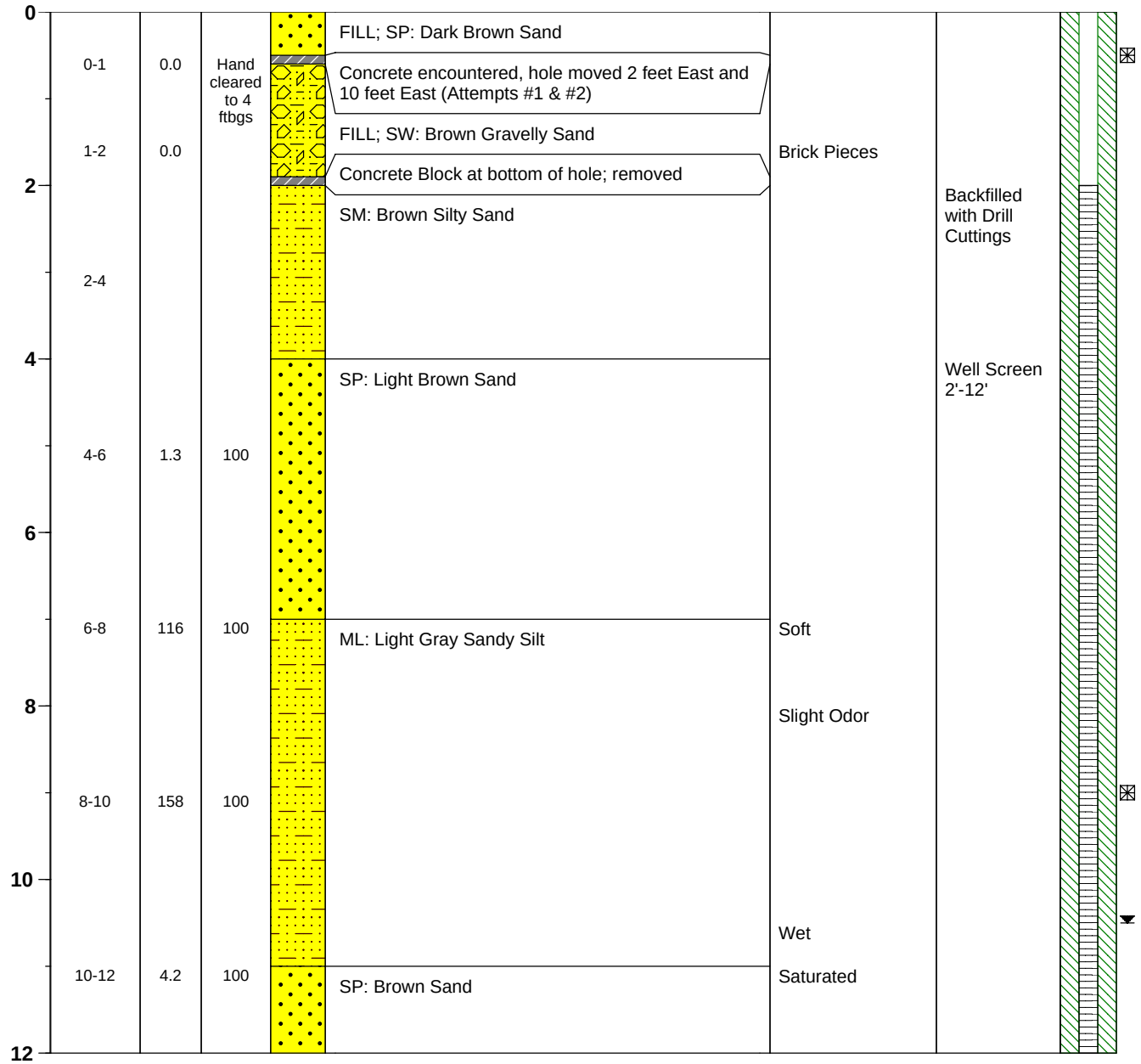
BORING LOG

ID NO. **SB-009**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**514.4 feet**	TOTAL DEPTH:	**12 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**10.5 feet**	CASING EL.:	**516.41 feet**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**1 inch**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/18/08; 6/23/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**



General Comments:

Bottom of boring at 12 feet. Bedrock not encountered.

Attept #1; Concrete encountered at 6 inches, hole moved 2 feet East

Attempt #2; Concrete encountered at 6 inches; hole moved 10 feet East

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-010A**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**512.9 feet**	TOTAL DEPTH:	**12 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**7.5 feet**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/23/08; 6/29/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-1	0.0	Hand cleared to 4 ftbgs	SW: Dark Brown Gravelly Sand		
				SM: Brown Silty Sand		
	1-2	0.0				
2				ML: Brown Clayey Silt		Backfilled with Drill Cuttings
	2-4	0.0				
4				SP: Dark Brown Sand		
				ML: Brown Gray Sandy Silt		
	4-6	0.4	100		Fairly Soft Plant Roots	
6						
	6-8	204	100			
				SP-SM: Light Gray Silty Sand	Wet, Soft	
8				No Recovery		
	8-10	NR	NR			
10						
	10-12		50	ML: Light Gray Sandy Silt		
		13.6				
12						

General Comments:

Refusal at 12 feet. Bedrock Suspected.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-015**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**2 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/23/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0						
	0-1	2.5	Hand cleared to 2 ftbgs	FILL; ML: Dark Brown Silty Sand	Tree Roots	Backfilled with Drill Cuttings
				Concrete encountered at 8 inches, hole moved 5 feet West		
				FILL; ML: Dark Brown Silty Sand		
				Concrete encountered at 1 foot, hole moved 2 feet West		
				FILL; ML: Brown Silty Sand		
	1-2	0.9			Brick Pieces	
				Concrete encountered at 2 feet, Abandoned location		
2						

General Comments:

Concrete encountered at 8 inches, 1 foot and 2 feet; location abandoned

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-015A**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**514.3 feet**	TOTAL DEPTH:	**14 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**6 feet**	CASING EL.:	**516.05 feet**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**1 inch**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/27/08; 7/2/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-1	0.0	Hand cleared to 4 ftbgs	FILL; SW: Brown Gravelly Sand	Brick Pieces	
	1-2	0.0				
2				FILL; ML: Brown Clayey Silt	Pipe encountered at 2 feet, not continuous but could not remove	Backfilled with Drill Cuttings
	2-4	0.0				
4				FILL: ML: Dark Brown Sandy Silt	Construction Debris, Tree Roots	
	4-6	3.5	100	SM: Light Brown Silty Sand		Well Screen 4'-14'
6				ML: Brown Gray Sandy Silt	Wet, Soft	
	6-8	2.8	100			
8						
	8-10	0.0	100		Saturated, Soft	
10						
	10-12	0.0	100			
12						
	12-14	0.0	100			
14						

General Comments:

Refusal at 14.2 feet. Bedrock Suspected.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

Groundwater and Environmental Services, Inc.

ID NO. **SB-016A**

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**NA**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/27/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0				Brick Floor at 3 inches		

General Comments:

Brick Floor encountered; location abandoned.

Relocated 15 feet East

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

Groundwater and Environmental Services, Inc.

ID NO. **SB-016A**

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**NA**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/27/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0				Brick Floor at 3 inches		

General Comments:

Brick Floor encountered; location abandoned.

Relocated 15 feet East

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-016B**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**3 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/27/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-1	0.0		FILL; ML: Brown Silty Sand	Bricks	
	1-2	0.0				
2	2-3			Concrete		

General Comments:

Concrete encountered at 3 feet. Abandoned location.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-016C**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**514.9 feet**	TOTAL DEPTH:	**15.6 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**9 feet**	CASING EL.:	**516.52 feet**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**1 inch**

Logged By:	**E. Popken / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**7/1/08; 7/2/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-1	0.0	Hand cleared to 4 ftbgs	FILL; SW-SM: Black Silty Sand	Bricks	
	1-2	0.0		FILL; SP: Sand	Dry Concrete, Bricks	
2	2-4	0.0		FILL; SP: Brown Sand	Concrete, Bricks	Backfilled with Drill Cuttings
4	4-6	2.8	100	SM: Dark Brown Silty Sand	Very Moist	
				SM: Brown Silty Sand	Moist, Fairly Stiff	
6	6-8	0.0	100	ML: Light Brown Slit	Stiff	Well Screen 5'-15.6'
8	8-10	1439	100	ML: Gray Brown Sandy Silt	Wet, Soft, Odor	
10	10-12	727	100		Saturated, Soft, Odor	
12	12-14	3.7	100	ML: Sandy Silt	Wet, Soft	
14	14-15.6	0.0	100	SW: Gray Gravelly Sand	Saturated	

General Comments:

Refusal at 15.6 feet. Bedrock Suspected.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-017**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**0.66 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/23/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-0.66		Hand Cleared to 0.66 ftbgs	FILL; SW: Gravelly Sand Concrete		Backfilled with Drill Cuttings

General Comments:

Concrete encountered at 8 inches; location abandoned.

Attempt #2, moved 4 feet South, Concrete encountered at 8 inches.

Attempt #3, moved 10 feet Northeast, Concrete encountered at 8 inches.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-017A**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**513.5 feet**	TOTAL DEPTH:	**12.5 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**11.5 feet**	CASING EL.:	**514.28 feet**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**1 inch**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/23/08; 6/24/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-1	0.1	Hand cleared to 4 ftbgs	FILL; SW: Dark Brown Sand	Cobbles, Brick Pieces, Tree Roots	
	1-2	0.3		SW: Brown Sand		
2				SM: Brown Silty Sand		Backfilled with Drill Cuttings
	2-4	0.0				
4				SW: Brown Sand		Well Screen 2.5'-12.5'
	4-6	0.9	100		Leaf Litter	
6				ML: Gray Sandy Silt		
	6-8	372	100		Tree Roots, Slight Odor	
8				No Recovery		
	8-10	NR	NR			
10				ML: Gray Sandy Silt		
	10-12	873	75		Wet	
12						

General Comments:

Refusal at 12.5 feet. Bedrock Suspected.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-046**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**NA**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/24/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0				Concrete Slab at 3 inches		

General Comments:

Concrete encountered; location abandoned.

Relocated 3 feet West

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-046A**

Page 1 of 1

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**NA**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/24/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0				Concrete Slab at 3 inches		

General Comments:

Concrete encountered; location abandoned.

Relocated 15 feet East

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-046B**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**513.6 feet**	TOTAL DEPTH:	**12.5 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**7.5 feet**	CASING EL.:	**515.17 feet**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**1 inch**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/24/08; 6/25/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0				Brick Road	Removed Bricks	
	0-1	0.0	Hand cleared to 4 ftbgs	FILL; SP: Dark Brown Sand		
				FILL; SP: Brown Sand		
	1-2	0.0				
2				FILL; SM: Brown Silty Sand		Backfilled with Drill Cuttings
		0.0				
	2-4			FILL; ML: Gray Sandy Silt	Moist	
		580				
4				FILL; SP: Brown Fine to Medium Sand		Well Screen 2.5'-12.5'
					Construction Debris, Brick Dust	
	4-6	694	100	ML: Light Gray Sandy Silt mottled with Brown Silt	Slightly Moist, Stiff	
					Plant Roots	
6					Odor	
	6-8	1489	100			
				NL: Light Gray Sandy Silt	Wet	
8						
	8-10	233	100		Odor	
10					Saturated, Soft	
	10-12	705	100			
12					Very Soft	
	12-12.5	53.7	100			

General Comments:

Refusal at 12.5 feet. Bedrock Suspected.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-046C**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**NA**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/24/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0				Concrete Slab at 6 inches		

General Comments:

Concrete encountered; location abandoned.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-046D**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**NA**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/24/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0				Concrete Slab at 10 inches		

General Comments:

Concrete encountered; location abandoned.

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

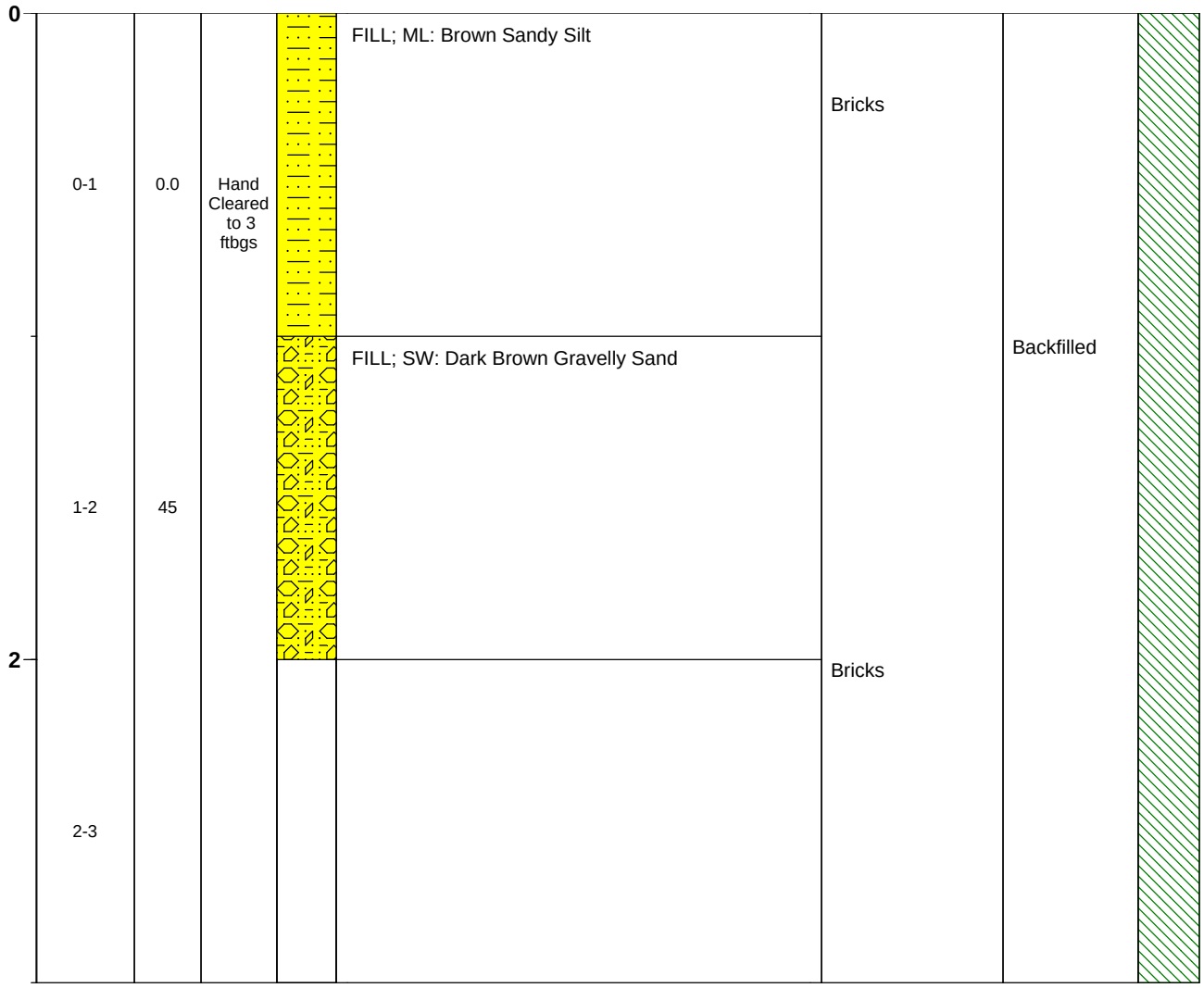
ID NO. **SB-061**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**NA**	TOTAL DEPTH:	**NA**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**NA**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**NA**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/25/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-1	0.0	Hand Cleared to 3 ftbgs	FILL; ML: Brown Sandy Silt	Bricks	Backfilled
				FILL; SW: Dark Brown Gravelly Sand		
	1-2	45				
2					Bricks	
	2-3					



General Comments:

4 inch Pipe encountered at 3 feet, location abandoned; moved 3 feet East

Symbol Key:

Apparent Water Level

Lab Sample Location

BORING LOG

ID NO. **SB-061A**

Groundwater and Environmental Services, Inc.

PROJECT:	**Former Vacuum Oil Refinery**	SURFACE ELEV.:	**513.1 feet**	TOTAL DEPTH:	**12.2 feet**
ADDRESS:	**Flint & Exchange Sts, Rochester, NY**	WATER DEPTH:	**3.5 feet**	CASING EL.:	**NA**
STATION NO.		BOREHOLE DIA.:	**1.75 inches**	WELL DIA.:	**NA**

Logged By:	**K. Hubbard / N. Pratt**	Drilling Method:	**Hand Clear/Direct Push**
Dates Drilled:	**6/25/08**	Sampling Method:	**Hand Auger/4 foot Macrocore**
Drilling Company:	**Parratt Wolff**	Soil Class. System:	**USCS**
		Field Screening:	**PID (Readings in ppm)**

Depth (feet)	Sample Interval	Field Screen	Recovery (Percent)	SAMPLE LITHOLOGY	Comments	COMPLETION DETAILS
0	0-1	0.0	Hand cleared to 4 ftbgs	FILL; ML: Brown Sandy Silt	Bricks	Backfilled with Drill Cuttings
	1-2	45		FILL; SW: Dark Brown Gravelly Sand		
2	2-4	336		FILL; SM: Dark Gray Silty Sand	Bricks Wet	
4	4-6	1175	100	FILL; SP: Dark Brown Black Sand ML: Light Gray Sandy Silt	Saturated Ash and Coal Ash Wet, Soft, Odor	
6	6-8	284	100		Soft, Odor	
8	8-10	285	100		Soft	
10	10-12	24.8	100			
12						

General Comments:

Refusal at 12 feet. Bedrock Suspected.

Symbol Key:

Apparent Water Level

Lab Sample Location

RAVI ENGINEERING & LAND SURVEYING, P.C.

APPENDIX 5

Soil Boring Logs, Test Pit Logs

RAVI ENGINEERING & LAND SURVEYING, P.C.

5&15 Flint Street
BCP C828162

BORING SB-01/MW-01
PROJECT #: 45-14-003-0L

CHKD. BY: PSM

CONTRACTOR: Nature's Way Environmental
DRILLER: Steve
RE&LS PERSONNEL: LZ

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A
START DATE: 10/14/2014

TYPE OF DRILL RIG: Geoprobe Direct Push
CASING SIZE AND TYPE: Flushmount
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1						0'-1' - Topsoil, C&D	0.0
						1'-1.5' - Concrete slab	
2						1.5'-2.5' - Silty soil, fill, ash	
3						2.5'-4.5' - Ash	
4							
5						4.5-5 - Grey clayey silt - Stained	
6						5'-7' - Blue Grey Clay	75
7							
8						7'-8' SAA; petroleum odors	50
9						8'-12' Blue grey Clay; petroluem odors	6.9
10							
11							
12							
						12.0-12.7' SAA	27
13							
14							
						Refusal at 12.7'	
15						Notes: Well Installed :	
16						Screen from 2.7'-12.7' BGS;	
						10' Slotted Screen 2.7' Riser. Flushmounted well casing.	
17						Samples taken from 0'-1' and 8'-10'	
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

RAVI ENGINEERING & LAND SURVEYING, P.C.

5&15 Flint Street
BCP C828162

BORING SB-02
PROJECT #: 45-14-003-0L
CHKD. BY: PSM

CONTRACTOR: Nature's Way Environmental
DRILLER: Steve
RE&LS PERSONNEL: LZ

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A
START DATE: 10/15/2014

TYPE OF DRILL RIG: Geoprobe Direct Push
CASING SIZE AND TYPE: NA
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1						0'-2.5' Crusher run base below slab	0.0
2							
3						2.5'-4' Moist Grey Silty sandy clay	
4							
5						4-5.5' Medium, moist. Grey, sandy silt, tr clay	
6						5.5'-8' Grey Silt, tr clay. Odors detected @ 7.6'-8'	~2500
7							
8							
9						8'-10' SAA. Wet,grey silt, tr clay. Gravel and Organic matter	0.0
10							
11						10'-12' Black Sand, Odors	20.6
12							
13						Refusal at 12.5'	
14						Samples collected at 0'-1' and 7'-8'	
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

RAVI ENGINEERING & LAND SURVEYING, P.C.

	5&15 Flint Street BCP C828162	BORING SB-03/MW-03 PROJECT #: 45-14-003-0L CHKD. BY: PSM

CONTRACTOR: Nature's Way Environmental
DRILLER: Steve
RE&LS PERSONNEL: LZ

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A
START DATE: 10/15/2014

TYPE OF DRILL RIG: Geoprobe Direct Push
CASING SIZE AND TYPE: Flushmount
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS
		5.5-6' BGS		

DEPTH	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID (ppm)
1						0'-2' Floor base - Brick, crushed fill. Greasy film	0.3
2							
3						2'-3' Black silty, sandy fill material, odors	5.6
4						3'-4' Grey silt, tr clay	
5						4'-6' Wet f sand, tr clay. No odors. (5.5'-6') Saturated.	1.0
6						5.5-6 Saturated f sand, tr clay	
7						6'-8' Blue grey clayey silt	
8							
9						8'-9' Saturated silty clay	0.3
10						9.0'-9.5' Grey clay, mild odors	
11						9.5'-12.0' - Saturated sandy clay, no odors	
12							
13						Refusal at 12.3'	
14						Sample collected at 0'-1'	
15						Sample collected at interval directly above bedrock 11.5'-12.3' 1' PVC well installed	
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

RAVI ENGINEERING & LAND SURVEYING, P.C.

5&15 Flint Street
BCP C828162

BORING SB-04/MW-04
PROJECT #: 45-14-003-0L
CHKD. BY: PSM

CONTRACTOR: Nature's Way Environmental
DRILLER: Steve
RE&LS PERSONNEL: LZ, DD

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A
START DATE: 10/14/2014

TYPE OF DRILL RIG: Geoprobe Direct Push
CASING SIZE AND TYPE: Flushmount
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1-4						0'-4' Surface materials (asphalt, brick, wood)	0.0
5-9						4'-9' Blue grey silt, tr clay	25.0
10-11						9'-11' Saturated dark grey/black sand, odors	53.9
12-13						11'-13' - Black/greyish saturated sand	0.5
14-26						Refusal at 12.01' Sample collected from 9'-10' Sample site located to SE exterior corner of 5 Flint St Building	

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

RAVI ENGINEERING & LAND SURVEYING, P.C.

	5&15 Flint Street BCP C828162	BORING SB-05 PROJECT #: 45-14-003-0L CHKD. BY: PSM

CONTRACTOR: Nature's Way Environmental
DRILLER: Steve
RE&LS PERSONNEL: LZ

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A
START DATE: 10/15/2014

TYPE OF DRILL RIG: Geoprobe Direct Push
CASING SIZE AND TYPE: NA
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
						0'-0.5' Concrete slab	
1						0.5'-2' Brown gravelly fill	0.3
2							
3						2-4' Grey silt, tr clay. Odors. Oily sheen noted on macrocore sampler	1.2
4							
5						4'-5' Moist, black sandy silt, tr clay	0.8
6						5-6' SAA-Brown	
7						6-7' SAA - Black Stains	
8						7-8.5' SAA- Strong odors	580
9						8.5-10.5' Wet grey sandy silt, tr clay	
10							
11						10.5-12' Moist wet sand. Odors	
12							
13						12.6' Refusal Sample collected at 7'-8'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) Stratification Lines represent approximate boundary between soil types; transitions may be gradual.
2) PID readings were taken directly on exposed soil in disposable sleeve, immediately following retrieval from boring.
bgs = below ground surface
ppm = parts per million

RAVI ENGINEERING & LAND SURVEYING, P.C.

5&15 Flint Street
BCP C828162

BORING SB-06
PROJECT #: 45-14-003-0L
CHKD. BY: PSM

CONTRACTOR: Nature's Way Environmental
DRILLER: Steve
RE&LS PERSONNEL: LZ, DD

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A
START DATE: 10/13/2014

TYPE OF DRILL RIG: Geoprobe Direct Push
CASING SIZE AND TYPE: NA
OVERBURDEN SAMPLING METHOD:
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID (ppm)
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
1						0'-1'Asphalt - Brick	0.0
2						1'-7' Dark Cinders and ash	
3							
4							
5							
6							
7							
8						7'-8' Blue/grey silt, tr clay, black stains	6
9						8'-10' Saturated blue/grey f sand and silt	180
10							
11						10'-12' Wet blue/grey fine sand and silt	5
12							
13						12.5 Refusal Sample collected at 0'-1' and 4'-6'	
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

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APPENDIX M

Quality Assurance Project Plan (QAPP)

QUALITY ASSURANCE PROJECT PLAN / FIELD SAMPLING PLAN FOR INTERM SITE MANAGEMENT PLAN

Portion of the Former Vacuum Oil Refinery Site (5 Flint Street)
Rochester, New York

August 15, 2025

Prepared for:

5 Flint Street LLC

Prepared by:

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Islandia, New York 11749

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4. Laboratory's Standard Operating Procedures

1. Introduction

Roux Environmental Engineering and Geology, D.P.C. (Roux), on behalf of 5 Flint Street LLC (referred to herein as 5 Flint), has prepared this Quality Assurance Project Plan/Field Sampling Plan (QAPP/FSP) to describe the measures that will be taken to ensure that the data generated during the planned building demolition scope of work proposed in the Interim Site Management Plan (ISMP) at the 10 Flint Street, Rochester, New York Site (the "Site") are of quality sufficient to meet project-specific data quality objectives (DQOs). This QAPP/FSP also includes field sampling procedures.

The Site is in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP), BCP Site # C828190. Although the redevelopment plan for the Site is not finalized, it is anticipated that when development is completed, the development plan will be consistent with the City master development plan for the Vacuum Oil Brownfield Opportunity Area (BOA).[1]

This QAPP/FSP was prepared in accordance with the guidance provided in NYSDEC Technical Guidance DER-10 Technical Guidance for Site Investigation and Remediation (DER-10), the NYSDEC BCP Guide, and the United States Environmental Protection Agency's (USEPA's) Guidance for the Data Quality Objectives Process (EPA QA/G 4).

1.1 Purpose

The QAPP/FSP describes in detail the field sampling and quality assurance/quality control (QA/QC) methods to be used during soil and groundwater sampling tasks performed during building demolition related activities under the ISMP. Subsurface disturbances associated with the building demolition scope-of-work, covered under the ISMP, are limited to excavations required to cap subsurface utility lines connected to the building. Based on the known depths to groundwater in the vicinity of the excavation areas, groundwater in anticipated to be removed from the excavation and stored onsite pending characterization and off-Site disposal.

This QAPP/FSP provides guidelines and procedures to be followed by field personnel during performance of sampling during the building demolition related activities. Information contained in this QAPP/FSP relates to:

- Sampling objectives (**Section 2**);
- Project organization (**Section 3**);
- Sampling locations, analytical suites, sampling frequencies and analytical laboratory (**Section 4**);
- Field sampling procedures (**Section 5**);
- Sample handling, sample analysis, and quality assurance/quality control (**Section 6**); and
- Site control procedures and decontamination (**Section 7**).

[1] City Vacuum Oil - South Genesee River Corridor Brownfield Opportunity Area (BOA). Additional information on this BOA can be found online: https://www.cityofrochester.gov/VacuumOilBOA/

2. Sampling Objectives

The sampling program is designed to meet the data quality objectives (DQOs) set forth in DER-10. Specifically, analytical parameters selected for each sample, as described in **Section 4**, are comprehensive, and are intended to meet the following objectives:

- Analyze concrete, brick and concrete block building materials generated as part of the building demolition to assist with the determination for the end use of these materials;
- Analyze excavated on-Site soil and/or off-Site backfill soil to evaluate its suitability for use as backfill that meets the lower of the NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (RRSCOs) for human health or the SCOs for protection of groundwater (PGWSCOs) presented in Table 6.8 (b) of the latest revision of Title 6 of New York Code of Rules and Regulations (NYCRR) Part 375 (Part 375); and
- Aid waste characterization for disposal of soil and groundwater (as needed).

Sampling procedures are discussed in **Section 5** of this QAPP/FSP. A discussion of the DQOs and quality assurance/quality control is provided in **Section 6**.

3. Project Organization

A general and generic summary of the overall management structure and responsibilities of project team members are presented below. Contact information for the Roux team and primary subcontractors is provided in the table below. Professional profiles for the team are provided in **Attachment 1**.

Project Principal

Ian Reed will serve as Project Principal. The Project Principal is responsible for defining project objectives and bears ultimate responsibility for the successful completion of the ISMP.

Remedial Engineer

The Remedial Engineer for this project will be Noelle Clarke, P.E. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the ISMP and future remedial program for the Site. The Remedial Engineer will certify in the Final Engineering Report (FER) that the ISMP activities were observed by qualified environmental professionals under her supervision as well as any other relevant provisions of ECL 27-1419 have been achieved in full conformance with the ISMP.

Project Manager

Eric Runstrom of Roux will serve as Project Manager. The Project Manager will provide overall management for the implementation of the scope of work and will coordinate all field activities. The Project Manager is also responsible for data review/interpretation and report preparation.

Field Team Leader

The Field Team Leader will be determined prior to the start of work. The Field Team Leader bears the responsibility for the successful execution of the field program. The Field Team Leader will direct the activities of the technical staff in the field, as well as all subcontractors. The Field Team Leader will also assist in the interpretation of data and in report preparation. The Field Team Leader reports to the Project Manager.

Laboratory Project Manager

The Laboratory Project Manager will be determined prior to the start of work. The Laboratory Project Manager is responsible for sample container preparation, sample custody in the laboratory, and completion of the required analysis through oversight of the laboratory staff. The Laboratory Project Manager will ensure that quality assurance procedures are followed and that an acceptable laboratory report is prepared and submitted. The Laboratory Project Manager reports to the Project Principal and Project Manager.

Quality Assurance Officer

Brian Klaus of Roux will serve as the Quality Assurance Officer (QAO) for this project. The QAO is responsible for conducting reviews, inspections, and audits to ensure that the data collection is conducted in accordance with the FSP and QAPP. The QAO's responsibilities range from ensuring effective field equipment decontamination procedures and proper sample collection to the review of all laboratory analytical data for completeness and usefulness. The QAO reports to the Project Manager and makes independent recommendations to the Field Team Leader.

Roux Personnel	Title	Contact Information
Ian Reed Executive Vice President / Principal Hydrogeologist	Project Principal	(781) 569-4000 ireed@rouxinc.com
Noelle Clarke, P.E. Principal Engineer	Project Principal/ Engineer of Record	(631) 232-2600 nclarke@rouxinc.com
Eric Runstrom Senior Geologist	Project Manager	(781) 569-4000 erunstrom@rouxinc.com
To Be Determined	Field Manager	To Be Determined
Brian Klaus Senior Geologist	Quality Assurance Officer	(781) 569-4000 bklaus@rouxinc.com
James Hauri Senior Scientist	Data Usability Summary Report Preparation	781-569-4000 jhauri@rouxinc.com

Subcontractor	Company Name	Contact Information
General Contractor / Soil Excavation	Roux	Michael Lesakowski mlesakowski@rouxinc.com (716) 856-0599
Building Demolition Subcontractor	Sessler Wrecking	Matt Felice mfelice@sesslerwrecking.com 315-539-3353
Laboratory Analysis	Alpha Analytical, a Pace® Analytical Services Laboratory	Jennifer Byrnes jbyrnes@alphalab.com (800) 624-9220
	Paradigm Environmental Services	Steven DeVito SDeVito@paradigmenv.com (585) 647-2530

4. Sampling Locations, Analytical Suites, and Frequency

The sampling to be completed during the ISMP includes analysis of concrete, brick and concrete block building materials generated as part of the building demolition to assist with the determination for the end use of these materials, and analysis of excavated on-Site soil and imported soil (if needed) to evaluate its suitability for use as backfill, and to aid waste characterization for disposal of excavated on-Site soil (if needed).

A discussion of the sampling schedules for concrete, brick and concrete block building materials and excavation areas are provided below, while the assumed number of field samples to be collected for each location for laboratory analysis, including quality control (QC) samples, is shown in **Table 2**. Specifics regarding the collection of samples at each location and for each task are provided in **Section 5** of this QAPP/FSP.

4.1 Concrete, Brick and Concrete Block Building Materials Sampling

The following four distinct types of concrete, brick and concrete block building materials have been identified:

- reinforced concrete (building floors/ceilings, columns, stairs);
- concrete masonry unit (CMU) block walls;
- fire brick (elevator shaft); and
- masonry brick (exterior southwest wall facade).

Representative samples of three of the four types of concrete, brick and concrete block building materials (reinforced concrete, CMU and fire brick) will be sampled at up to four locations on each story of the building, including the structure at the top of the building, if present. The fourth type of concrete, brick and concrete block building material, masonry brick, is only located on the lower portion of the exterior southwest side of the building. As such, representative samples of masonry brick will only be sampled from this area. Approximate sample locations are shown on **Figures 5a through 5e** of the ISMP. Samples of each building material type will be collected in a manner consistent with this QAPP/FSP and composited by building material type. One composited sample for each of the four building material types will be submitted to an Environmental Laboratory Approval Program (ELAP) laboratory. Chemical testing shall be performed at a minimum for the parameters listed in Table 375-6.8(a) of the latest revision of Part 375. Samples will be analyzed for:

- the full suite of Part 375 parameters (TAL/Part 375 metals including hexavalent chromium; TCL/Part 375 VOCs and SVOCs, TCL/Part 375 pesticides/herbicides, and PCBs);
- total cyanide and Emerging Contaminants.[2]
- Toxicity Characteristic Leaching Procedure (TCLP) for barium and chromium; and

[2] Emerging Contaminants (ECs) list includes 1,4-Dioxane and the 40 Per- and Polyfluoroalkyl Substances (PFAS) which include the 40 compounds listed in the most recent April 2023 NYSDEC guidance Sampling, Analysis, and Assessment of Per-and Polufluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (NYSDEC April 2023 Guidance) is included as an attachment to this QAPP/FSP.

- asbestos containing material (ACM).

Material	Floor 1	Floor 2	Floor 3	Roof Structures	Total Discrete Samples	Total Composite Samples	Notes
Reinforced concrete (floors/ceilings, columns, stairs)	3	3	3	1	10	1	1 floor/ceiling slab, 1 column, 1 stairs per floor/roof structure.
CMU Block walls	4	4	4	1	13	1	1 per CMU block wall, per floor
Fire brick (elevator shafts)	2	2	2	0	6	1	1 per elevator shaft, per floor
Masonry brick (rear exterior façade)	N/A	N/A	N/A	N/A	4	1	Exterior distribution by elevation: 2 low, 2 mid, along rear façade, first story. (appropriate ratio of mortar and brick will be considered during sample collection)
Total Samples					33	4	

N/A = Not applicable

4.2 Excavated On-Site Reuse and Offsite Backfill Soil Sampling

Site soils excavated to facilitate the capping of subsurface utility lines will be stockpiled separately for each excavation area, excavated on-site soil and/or offsite backfill soil.

For excavated on-Site reuse and offsite backfill soil materials requiring chemical testing, the following samples shall be collected:

- One sample for pre-qualification chemical testing at the source location, including the following:
  1. Chemical testing shall be performed at a minimum for the parameters listed in Table 375-6.8(a) of the latest revision of Part 375. Samples will be analyzed for the full suite of Part 375 parameters (TAL/Part 375 metals including hexavalent chromium; TCL/Part 375 VOCs and SVOCs, TCL/Part 375 pesticides/herbicides, and PCBs), total cyanide and Emerging Contaminants.
  2. On-Site reuse and offsite backfill soil materials excluding those materials that do not require sampling as described below, shall meet criteria presented in Section 2.0.
  3. On-Site reuse and offsite backfill soil materials that exceed the criteria presented in Section 2.0 shall not be imported to the Site without prior approval of the NYSDEC.
  4. The on-Site reuse and offsite backfill soil materials will be free of extraneous debris or solid waste.
  5. If the NYSDEC agrees that the material originated from a virgin source, then a minimum of one sample (i.e., the pre-qualification sample) will be collected and analyzed per source.

- If the source is not virgin, the sampling frequency will comply with DER-10 Table 5.4(e)10 shown below:

Table 5.4(e)10 Recommended Number of Soil Samples for Soil Imported To or Exported From a Site			
Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
➢ 1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

The source of the offsite fill/on-Site reuse soil must be documented by the supplier, including the location where the fill/on-Site reuse soil was obtained and a brief history of the site that is the source of the fill.

All PFAS compounds, listed above, in soil will be analyzed and reported to 0.5 ug/kg. 1,4-Dioxane will be analyzed and reported to 0.1 mg/kg.

The following materials may be imported, without chemical testing, to be used as backfill beneath pavement, buildings or as part of the site cover, provided that it contains less than 10 percent by weight material that would pass through a size 100 sieve and consists of:

- gravel, rock or stone, consisting of virgin material from a permitted mine or quarry; or
- recycled concrete or brick from a NYSDEC registered construction and demolition debris processing facility if the material conforms to the requirements of Section 304 of the 2002 New York State Department of Transportation Standard Construction and Materials Volume 1.

4.3 Disposal Characterization Sampling

If excavated soils are determined to be unsuitable for on-Site reuse, soil samples will be collected from these soils as required for off-Site disposal. As discussed, groundwater removed from excavations to facilitate the capping of utilities will be containerized for off-Site disposal. Soil and groundwater samples will be collected and analyzed for any parameters that may be required by the disposal facilities.

As needed, disposal samples will be collected from building demolition materials to facilitate disposal at permitted landfill and/or recycling facilities. Samples will be collected and analyzed for any parameters that may be required by the landfill and/or recycling facilities.

5. Field Sampling Procedures

This section provides a detailed discussion of the field procedures to be used during sampling of the various locations being evaluated as part of the remedial action (i.e., PDI delineation sampling). Additional details regarding sampling procedures and protocols are described in Roux's relevant SOPs, which are provided in **Attachment 3**.

5.1 Concrete, Brick and Concrete Block Building Material Sampling

Concrete, brick and concrete block building material samples will be collected using a hammer drill with clean masonry bits and/or a hammer and chisel. As discussed above, representative samples of each of the four concrete, brick and concrete block building material types will be sampled at up to four locations on each story of the building, including the structure at the top of the building and composited by building material type. Sample compositing will be performed by combining the discrete samples from each of the four concrete, brick and concrete block building material types and crushing this material to an appropriate size as required by the laboratory for analysis.

5.2 Soil Sampling

All soil samples will be collected using pre-cleaned stainless steel sampling tools (i.e., trowels, spatulas, etc.) or new Ziploc® bags. In general, where composite samples are required for offsite fill/on-Site reuse soil material samples, composite samples will be collected from a minimum of three locations across the stockpiled materials. The exception is for VOC samples, which will be collected as grab samples.

5.3 Emerging Contaminates Sampling

Additional necessary precautions will be taken when sampling for emerging contaminates in the field, incuding but not limited to:

- Using the proper field clothing or personal protective equipment (i.e. no materials will contain Gore-Tex or Tyvek);
- Avoid sampling equipment components/containers making contact with aluminum foil, low density polyethylene (LDPE), glass, or polytetrafluoroethylene materials;
- Following PFAS field sampling guidelines (i.e., using sampling materials made from high density polyethylene [HDPE], silicon, or stainless steel and avoid using equipment containing Teflon and using sharpies, permanent markers, adhesives, and waterproof/plastic clipboards and notebooks); and
- Utilizing regular ice cubes for sample presevation and only Alconox for decontamination.

5.4 Groundwater Sampling

All groundwater samples will be collected using new polyethylene bailers or a peristaltic pump (with new tubing), into laboratory supplied containers.

6. Sample Handling and Analysis

To ensure quality data acquisition and collection of representative samples, there are selective procedures to minimize sample degradation or contamination. These include procedures for preservation of the samples, as well as sample packaging, shipping procedures, and QA/QC.

6.1 Field Sample Handling

A discussion of the proposed number and types of samples to be collected during each task, as well as the analyses to be performed, can be found in Section 4 of this QAPP/FSP. The types of containers, volumes, and preservation techniques for the aforementioned testing parameters are presented in Table 3.

6.2 Sample Custody Documentation

The purpose of documenting sample custody is to ensure that the integrity and handling of the samples is not subject to question. Sample custody will be maintained from the point of sampling through the analysis (and return of unused sample portion, if applicable).

Each individual collecting samples is personally responsible for the care and custody of the samples. All sample labels should be pre printed or filled out using waterproof ink. The technical staff will review all field activities with the Field Team Leader to determine whether proper custody procedures were followed during the field work and to decide if additional samples are required.

All samples being shipped offsite for analysis must be accompanied by a properly completed chain of custody form. The sample numbers will be listed on the chain of custody form. When transferring the possession of samples, individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents transfer of custody of samples from the sampler to another person, to/from a secure storage area, and to the laboratory.

Samples will be packaged for shipment and dispatched to the appropriate laboratory for analysis with a separate signed custody record enclosed in each sample box or cooler. Shipping containers will be locked and/or secured with strapping tape in at least two locations for shipment to the laboratory.

6.3 Sample Shipment

If sample shipment is necessary, sample packaging and shipping procedures are based upon USEPA specifications, as well as DOT regulations. The procedures vary according to potential sample analytes, concentration, and matrix and are designed to provide optimum protection for the samples and the public. Sample packaging and shipment must be performed using the general outline described below.

All samples will be shipped within 24 hours of collection and will be preserved appropriately from the time of sample collection. A description of the sample packing and shipping procedures is presented below:

1. Prepare cooler(s) for shipment:
    - tape drain(s) of cooler shut;
    - affix “This Side Up” arrow labels and “Fragile” labels on each cooler; and
    - place mailing label with laboratory address on top of cooler(s).
2. Arrange sample containers in groups by sample number.

3. Ensure that all bottle labels are completed correctly. Place clear tape over bottle labels to prevent moisture accumulation from causing the label to peel off.
4. Arrange containers in front of assigned coolers.
5. Place packaging material approximately at the bottom of the cooler to act as a cushion for the sample containers.
6. Arrange containers in the cooler so that they are not in contact with the cooler or other samples.
7. Fill remaining spaces with packaging material.
8. Ensure all containers are firmly packed in packaging material.
9. If ice is required to preserve the samples, ice cubes should be repackaged in Ziploc® bags and placed on top of the packaging material.
10. Sign chain of custody form (or obtain signature) and indicate the time and date it was relinquished to courier as appropriate.
11. Separate chain of custody forms. Seal proper copies within a large Ziploc® bag and tape to inside cover of cooler. Retain copies of all forms.
12. Close lid and latch.
13. Secure each cooler using custody seals.
14. Tape cooler shut on both ends.
15. Relinquish to overnight delivery service as appropriate. Retain air bill receipt for project records. (Note: All samples will be shipped for "NEXT A.M." delivery).

6.4 Quality Assurance/Quality Control

The primary intended use for the soil data is to characterize soil conditions within excavation areas for potential reuse at the Site. The primary DQO of the imported fill/on-Site reuse soil sampling programs, therefore, is that data be accurate and precise, and hence representative of the actual Site conditions. Accuracy refers to the ability of the laboratory to obtain a true value (i.e., compared to a standard) and is assessed through the use of laboratory quality control (QC) samples, including laboratory control samples and matrix spike samples, as well as through the use of surrogates, which are compounds not typically found in the environment that are injected into the samples prior to analysis. Precision refers to the ability to replicate a value and is assessed through both field and laboratory duplicate samples.

Sensitivity is also a critical issue in generating representative data. Laboratory equipment must be of sufficient sensitivity to detect target compounds and analytes at levels below NYSDEC standards and guidelines whenever possible. Equipment sensitivity can be decreased by field or laboratory contamination of samples, and by sample matrix effects. Assessment of instrument sensitivity is performed through the analysis of reagent blanks, near-detection-limit standards, and response factors. Potential field and/or laboratory contamination is assessed through use of trip blanks, method blanks, and equipment rinse blanks (also called "field blanks"). Field blanks for PFAS will be collected at a minimum frequency of one per day. A laboratory SOP for analysis of PFAS is included in Attachment 4.

Table 1 lists the requirements for field and laboratory QC samples that will be analyzed to assess data accuracy and precision, as well as to determine if equipment sensitivity has been compromised. Table 2 lists the number/type of field and QA/QC samples that will be collected during the remedial action. Table 3 lists the preservation, holding times and sample container information.

All remedial action “assessment” analyses will be performed in accordance with the NYSDEC Analytical Services Protocol (ASP), using USEPA SW 846 methods.

All laboratory data are to be reported in NYSDEC ASP Category B deliverables and will be delivered to NYSDEC in electronic data deliverable (EDD) format as described on NYSDEC’s website (http://www.dec.ny.gov/chemical/62440.html). A Data Usability Summary Report (DUSR) will be prepared meeting the requirements in Section 2.2(a)1.ii and Appendix 2B of DER-10 for all data packages generated for the remedial action. James Hauri of Roux, who is independent from the project team, will review the analytical data for quality assurance and quality control in accordance with NYSDEC standards. The professional profile for James Hauri is provided in Attachment 1.

7. Site Control Procedures

Site control procedures, including decontamination and waste handling and disposal, are discussed below. Site control procedures have been developed to minimize both the risk of exposure to contamination and the spread of contamination during field activities at the Site. All personnel who come into designated work areas, including contractors and observers, will be required to adhere strictly to the conditions imposed herein and to the provisions of a Site-Specific Health and Safety Plan (HASP). The HASP is included as Appendix E to the RAWP.

7.1 Decontamination

In an attempt to avoid the spread of contamination, all excavation and sampling equipment must be decontaminated at a reasonable frequency in a properly designed and located decontamination area. Detailed procedures for the decontamination of field and sampling equipment are included in Roux's SOPs for the Decontamination of Field Equipment located in Attachment 3. The location of the decontamination area will be determined prior to the start of field operations. The decontamination area will be constructed to ensure that all wash water generated during decontamination can be collected and containerized for proper disposal. Only "PFAS-free" water will be used for decontamination of sample equipment onsite. Only Alconox will be used as decontamination detergent (Liquinox shall not be used).

TABLES

1. Field and Laboratory QC Summary
2. Interim Remedial Measure Sampling Summary
3. Preservation, Holding Times, and Sample Containers

Table 1. Field and Laboratory QC Summary

QC Check Type	Minimum Frequency	Use
Field QC		
Duplicate	1 per matrix per 20 samples or SDG*	Precision
Trip Blank	1 per VOC cooler	Sensitivity
Field Blank (non-PFAS)	1 per matrix per 20 samples	Sensitivity
Field Blank (PFAS)	1 per day when sampling for PFAS	Sensitivity
Laboratory QC		
Laboratory Control Sample	1 per matrix per SDG	Accuracy
Matrix Spike/Matrix Spike Duplicate/Matrix Duplica	1 per matrix per SDG	Accuracy/Precision
Surrogate Spike	All organics samples	Accuracy
Laboratory Duplicate	1 per matrix per SDG	Precision
Method Blank	1 per matrix per SDG	Sensitivity

Notes:

* SDG - Sample Delivery Group - Assumes a single extraction or preparation

** Provided to lab by field sampling personnel

PFAS - Per- and Polyfluoroalkyl Substances

Table 2. Soil Sampling Plan

Sample Type	Sample Medium	Target Analytes	Field Samples	Sample Intervals	Duplicate[1]	Trip Blanks[2]	Field Blank[1]	Equipment Blank[3]	Matrix Spike[1]	Spike Duplicate[1]	Total No. of Samples
Building Material Sampling	Concrete, Brick and Concrete Block Building Materials	TCL VOCs +TICs	4	Composite of discrete samples of each of the four building material types	1	1	1	1	1	1	10
		TCL SVOCs +TICs	4		1	0	1	1	1	1	9
		TCL Pesticides	4		1	0	1	1	1	1	9
		TCL PCBs	4		1	0	1	1	1	1	9
		TAL Metals	4		1	0	1	1	1	1	9
		PFAS	4		1	0	1	1	1	1	9
		1,4-Dioxane	4		1	0	1	1	1	1	9
		Total Cyanide	4		1	0	1	1	1	1	9
		Hexavalent Chromium	4		1	0	1	1	1	1	9
		TCLP Barium & Chromium	4		1	0	1	1	1	1	9
		Asbestos Containing Materia	4		1	0	1	1	1	1	9
Offsite Backfill Soil	Soil Sampling	TCL VOCs +TICs	6	See Table 5.4(e)10 in QAPP	1	1	1	1	1	1	12
		TCL SVOCs +TICs	2		1	0	1	1	1	1	7
		TCL Pesticides	2		1	0	1	1	1	1	7
		TCL Herbicides	2		1	0	1	1	1	1	7
		TCL PCBs	2		1	0	1	1	1	1	7
		TAL Metals	2		1	0	1	1	1	1	7
		PFAS	2		1	0	1	1	1	1	7
		1,4-Dioxane	2		1	0	1	1	1	1	7
		Total Cyanide	2		1	0	1	1	1	1	7
		Hexavalent Chromium	2		1	0	1	1	1	1	7

Notes:

Totals are estimated based on scope of work as written, actual sample quantities may vary based on field conditions. QA/QC sample quantities will be adjusted accordingly.

[1] Based on 1 per 20 samples or 1 per Sample Delivery Group (3 days max)

[2] Based on 1 cooler per day

[3] Based on 1 per day PFAS sampling occurs

TCL - USEPA Contract Laboratory Program Target Compound List

USEPA - United States Environmental Protection Agency

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

TAL - Target Analyte List

TICs - Tentatively Identified Compounds

Table 3. Preservation, Holding Times and Sample Containers

Analysis	Matrix	Bottle Type	Preservation(a)	Holding Time(b)
Part 375 TAL Metals via EPA 6010D / 7471B	Soil / CBB	4 oz amber glass, teflon lined cap	Cool to 4°C	180 days, Hg 28 days
Hexavalent Chromium	Soil / CBB	4 oz wide mouth glass, teflon lined cap	Cool to 4°C	30 days from sample collection
1,4-Dioxane via EPA 8270E	Soil / CBB	4 oz wide mouth glass, teflon lined cap	Cool to 4°C	14 days from sample collection
Per- and Polyfluoroalkyl Substances (PFAS) via EPA 1633/537	Soil / CBB	8 oz plastic container (non teflon lined)	Cool to 4°C	28 days from sample collection
TCLP Metals via EPA 6010C, EPA 1311 / 3005A	CBB	4 oz amber glass, teflon lined cap	Cool to 4°C	180 days
Abestos Containing Material (ACM)	CBB	Airtight Plastic Baggie	N/A	N/A
Target Compound List (TCL)				
Part 375 TCL Volatile Organic Compounds (VOCs) via EPA 8260D, including TICs	Soil / CBB	Encore Samplers	Cool to 4°C	48 hours from sample collection to extract, 14 days for analysis after extraction
Part 375 TCL Semivolatile Organic Compounds (SVOCs) SW-846 8270E, including TICs	Soil / CBB	4 oz amber glass, teflon lined cap	Cool to 4°C	14 days from sample collection to extract, 40 days to analysis after extraction
Part 375 TCL Pesticides via EPA 8081B	Soil / CBB	4 oz wide mouth glass, teflon lined cap	Cool to 4°C	14 days to extract, 40 days to analysis
Part 375 TCL Herbicides via EPA 8051B	Soil / CBB	4 oz wide mouth glass, teflon lined cap	Cool to 4°C	14 days to extract, 40 days to analysis
Part 375 TCL Polychlorinated biphenyls (PCBs) via EPA 8082A	Soil / CBB	4 oz amber glass, teflon lined cap	Cool to 4°C	14 days to extract, 40 days to analysis

N/A = Not Applicable
CBB = concrete, brick and concrete block
(a) All soil and groundwater samples to be preserved in ice during collection and transport
(b) Days from date of sample collection.
TAL - Target Analyte List
TCL - USEPA Contract Laboratory Program Target Compound List
TICs - Tentatively Identified Compounds
Gas chromatography-mass spectrometry (GC/MS) in selected ion monitoring (SIM) mode

ATTACHMENTS

1. Professional Profiles
2. NYSDEC PFAS Sampling Guidance
3. Roux's Standard Operating Procedures
4. Laboratory's Standard Operating Procedures

ATTACHMENT 1

Professional Profiles

PROFESSIONAL PROFILE



Brian Klaus, LSP

Senior Geologist I

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Website: www.rouxinc.com

200 Summit Drive, Suite 500
Burlington, MA 01803

EDUCATION
BS, Environmental Geosciences, Boston College, 2013
BA, Communications, Boston College, 2013

PROFESSIONAL LICENSES
Massachusetts Licensed Site Professional #2540

EXPERIENCE SUMMARY
Prior work experience includes Senior Geologist (2019-present), Project Geologist (2017-2019), and Staff Geologist (2013-2017) at Roux; Intern, Chartis (AIG), Boston, Massachusetts (2012); and Intern, Department of the Environment, Community and Local Government, Dublin, Ireland (2011).

TECHNICAL SPECIALTIES
Mr. Klaus has over ten years of experience conducting environmental site assessments, environmental due diligence assessments, and designing and implementing environmental site investigation and remediation projects. These experiences are focused around identifying, assessing, and remediating environmental contamination in soil, groundwater, and soil vapor. Mr. Klaus also has significant experience managing remedial construction and soil excavation, including management of subcontractors, waste characterization, regulatory reporting, and community air monitoring. Mr. Klaus also has experience with implementing hazardous building materials surveys in support of real estate transactions.

REPRESENTATIVE PROJECTS

- **Superfund Site, Massachusetts.** Represented a confidential major developer client throughout the acquisition of an Environmental Protection Agency (EPA) National Priorities List (NPL) Superfund Site that was found to be contaminating the public water supply. As part of the acquisition process, provided environmental support throughout the client's due diligence process and negotiations with seller and EPA. Environmental services provided included due diligence support, the development and costing of a remediation approach that was in line with the EPA site goals, as well as within the clients desired timeline. Continued to provide environmental services for site investigation and remediation activities, which are managed by both the EPA as well as the Massachusetts Department of Environmental Protection (MassDEP).
- **Urban Redevelopment, South Boston, Massachusetts.** Managed overall environmental services in support of redevelopment across multiple parcels encompassing approximately 12-acres and multiple environmental releases. Managed waste characterization and waste profiling efforts, Massachusetts Contingency Plan (MCP) reporting, and environmental investigation activities, all of which were performed on an expedited schedule to meet property redevelopment goals. In addition to environmental releases being regulated by the Massachusetts Department of Environmental Protection (MassDEP), portions of the project were subject to USEPA Toxic Substances Control Act (TSCA) regulations due to elevated levels of polychlorinated biphenyls (PCBs) present in environmental media.
- **Phase I Environmental Site Assessments.** Conducted, oversaw, and managed dozens of Phase I Environmental Site Assessments in accordance with ASTM E1527-13 throughout New England, New York, and New Jersey. Property types included large retail shopping centers, industrial facilities, and residential properties. Associated activities included agency contact, database management and interpretation, site inspections, identification of recognized environmental conditions (RECs), and report preparation. Based on Phase I findings, provide recommendations to clients, legal counsel, and lenders on potential liabilities and, and recommendations for additional

- **Demolition and Redevelopment Support.** Managed numerous hazardous building material surveys (asbestos-containing building materials [ACBM], lead-based paint [LBP] and PCBs) in support of demolition, as well as in support of due diligence for real estate transactions. Surveys often conducted on an aggressive schedule to meet client deadlines. Surveys included subsequent PCB substrate sampling, and consulting on approaches for bulk product removal/remediation of PCB impacted materials. Coordinated and oversaw abatement measures with strict timeframes. Associated activities included daily reporting, oversight of subcontractor field crews, and coordination with property tenants.
- **Petroleum Bulk Storage Facility, Albany, New York.** Provided remediation management, regulatory interfacing and reporting for bulk petroleum terminal in upstate New York. Remediation includes recovery of separate phase petroleum hydrocarbons through passive pumping and the installation and operation of an air sweep/soil vapor extraction system.
- **Retail Center, Enfield, Connecticut.** Implemented remedial responses to a CT DEEP Significant Environmental Hazard (SEH) created by a chlorinated solvent plume located beneath an active restaurant after original consultant's remedy was unsuccessful. Response actions included investigation to properly identify the source and source extents, design and installation of a sub-slab depressurization (SSDS) system, and the design and implementation of an in-situ chemical oxidation (ISCO) injection system infrastructure beneath the restaurant. Chemical injections and air sparging technologies were implemented to address the source zone of contamination. Work was completed on an aggressive schedule to reduce the impacts to restaurant operations. Work included remedial system infrastructure installation, abatement of ACBM floor tile, chemical injections, air sparging, environmental monitoring, and regulatory coordination and reporting.
- **Former Industrial Waste Discharge Site, Middleborough, Massachusetts.** Project manager for the investigation and MCP reporting of a 26-acre Site. The Site featured three ponds that received industrial wastewater discharge between approximately 1900 and 1983. Prior to Roux's involvement, the Site was in a state of regulatory non-compliance with MassDEP. Designed, implemented, and managed investigation, response, and assessment actions, including human health and ecological risk assessments, in order to bring the Site back into a state of regulatory compliance.
- **Brownfields Cleanup Program, Olean, New York.** Project manager for a 9-acre NYSDEC Brownfields Cleanup Program Site, located on one of the first oil storage and refining centers in the Northeast. Project included the design and implementation of a 25,000 cubic yard soil in-situ stabilization, and excavation and backfill of approximately 75,000 cubic yards of soil. Work included engineering design, development of an excavation and solidification sequencing plan to minimize and control vapors and odors; and installation QA/QC and validation. Work conducted to allow for redevelopment of property for an industrial client.
- **Bulk Storage Facility, East Providence, Rhode Island.** Designed and implemented a direct sensing investigation to identify the extents of LNAPL at a petroleum bulk storage terminal in order to evaluate additional LNAPL recovery potential. Technologies utilized include Laser Induced Fluorescence (LIF) and Hydraulic Profiling Tool (HPT), as well as traditional direct-push soil borings. Delineation efforts reduced the estimated size of the LNAPL plume from 24 acres to 13 acres.
- **I-495 Roadway Spill, Chelmsford, Massachusetts.** Managed and oversaw response actions and remediation of a roadside diesel spill resulting from a vehicle accident involving an international shipping clients' fleet vehicle. Managed all aspects of remediation, including subcontractor management, MCP reporting, and Massachusetts Department of Transportation (MassDOT) coordination. Spill was located directly above a fiber-optic cable, which required additional coordination with the fiber-optic company.
- **Environmental Consulting and Support, Massachusetts Municipality.** Provided environmental consulting support to a local municipality by monitoring groundwater proximal to the Town's public water supply wells. Based on groundwater monitoring data, advised the Town of groundwater conditions, and provided recommendations to prevent 1,4- dioxane from entering the public water supply wells.
- **Bulk Storage Facility, East Providence, Rhode Island.** Oversaw the installation of an Engineered Natural System (ENS) to treat shallow groundwater and surface water in East Providence, Rhode Island. Provided oversight of installation of permeable reactive barrier, subsurface flow constructed treatment wetland, and contingency treatment system. Work was completed to fulfill the requirements of the Rhode Island Department of Environmental Management.
- **Field Manager, Rutland, Vermont.** Field Manager for a remedial excavation project to remove 11,000 tons of petroleum impacted soil from 3 excavation areas to depths exceeding 30 feet below grade. Responsible for overseeing subcontractors and ensuring the work and the support-of-excavation system installation were completed in accordance with engineering specifications.

- **Field Manager, Brooklyn, New York.** Field Manager for large redevelopment project encompassing approximately 22 acres. Project included coordination and oversight of in situ waste characterization sampling, excavation, and proper disposal of soil. Managed field personnel and subcontractors for characterization of 250,000 cubic yards of soil. Provided excavation and construction oversight of NYCOER E-designation site with the removal of 20 unknown USTs and off-site disposal of 300,000 tons of soil. Inspected SSDS infrastructure and vapor barrier installation as part of remedial implementation.
- **Field Sampling Team Leader, Los Angeles, California.** Field Sampling Team Leader for residential surficial soil assessment throughout the County of Los Angeles, California. Responsible for implementing DTSC Work Plan in conjunction with LA County personnel. Soil was analyzed utilizing X-ray fluorescence (XRF) equipment to provide real- time results. Results were then communicated to homeowners via public health nurses, in conjunction with LA County.
- **Field Manager, Manhattan, New York.** Field Manager for a NYCOER E-designation redevelopment site. Responsibilities included excavation oversight and waste disposal oversight of 20,000 tons of soil, Community Air Monitoring implementation, as well as waterproofing and vapor barrier inspections as part of remedial implementation.
- **Field Manager, Multiple Sites, New York City.** Field Manager for numerous NYCOER Remedial Investigations and NYSDEC Brownfields Cleanup Program Remedial Investigations in the five boroughs of New York. Responsibilities included the installation of soil borings, monitoring wells, and soil vapor points, in situ waste characterization, health and safety oversight, Community Air Monitoring implementation, and report preparation.

PROFESSIONAL TRAININGS

OSHA 40-Hour HAZWOPER Training, (yearly 8-hr refreshers)

OSHA 10-Hour Construction Outreach Training

First Aid and CPR Certified

Loss Prevention System (LPS) Manager/Supervisor Certification

Transportation Worker Identification Credential (TWIC) Certification

PROFESSIONAL PROFILE



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EDUCATION
BS, Geology University of Massachusetts, Amherst, 2006

PROFESSIONAL LICENSES
Licensed Site Professional Association (Associate)

Eric Runstrom

Senior Geologist I | Project Manager

EXPERIENCE SUMMARY
Mr. Runstrom has eighteen years of experience, including Senior Geologist I and Project Manager (2019-Present), Project Geologist (2013-2019), Staff Geologist (2011-2013) at Roux; and Geologist at Sovereign Consulting Inc. (2006-2010).

TECHNICAL SPECIALTIES
Mr. Runstrom's technical specialties include designing and implementing environmental remediation projects, conducting environmental site assessments and environmental due diligence. Focus on management of comprehensive site investigations including environmental assessment and risk characterization; evaluation of remedial alternatives; development and implementation of remedial work plans; regulatory reporting and permitting; quality control; and health and safety compliance. Mr. Runstrom has extensive experience managing site assessment, remedial construction and soil excavation projects including management of subcontractors, data collection and waste characterization and management. Mr. Runstrom also has experience with wetland regulations & sensitive resource area permitting for oil and gas industry rights-of-ways in MA, CT, RI, and NJ.

REPRESENTATIVE PROJECTS

- **Senior Project Manager, Major Oil Company.** Managed and oversaw remedial action and monitoring work scopes at a former refinery and active petroleum bulk storage facility in accordance with a Remedy Implementation Plan (RIP). The RIP addressed 8 Areas of Concern (AOCs) across the terminal and included soil excavation, use of engineered barriers and site controls, and passive and active LNAPL recovery. Short term response actions were conducted concurrently with ongoing comprehensive remedial actions in response to spills and/or release typically as either Release Abatement Measures (RAM) or Immediate Response Actions (IRA). Responsibilities involved the scheduling and coordination of RIP, RAM, and/or IRA activities with the client, terminal personnel, and subcontractors. Also prepared associated work scopes and budgets and assisted with the overall regulatory strategy for the site.
- **Senior Project Manager, Major Oil Company, Everett, Massachusetts.** Developed and implemented environmental assessment work plans for the assessment and delineation of petroleum hydrocarbons and metals (primarily lead and organic lead) impacted areas for a former refinery and active petroleum bulk storage facility. Managed development of updated site risk characterization and selection of remedial action alternatives to advance site towards permanent solution.
- **Project Manager, Major Oil Company.** Developed and managed a LNAPL investigation at a former refinery and active petroleum bulk storage facility. Work included delineation of 8 different plumes, advancement of over 50 soil borings, installation of over 40 monitoring wells, collection of over 100 soil samples and gauging and sampling of monitoring wells. Evaluated collected data and historical data to develop remedial action plans to address each LNAPL plume and advance site towards permanent solution.
- **Project Manager, Major Oil Company.** Developed and oversaw investigation and rehabilitation of storm water system structures and piping (SWS) for a former refinery and active petroleum bulk storage facility. Included remote video survey of approximately 2,500 feet of SWS to evaluate structural integrity of the stormwater system, identifying where petroleum seeps were infiltrating into the network, and implementing appropriate remedial response measures. Major activities included use of line jetting equipment to clean SWS and excavation activities to facilitate repair and abandonment of SWS, and associated

management and disposal of impacted soils and sediments. Included the oversight of subcontractors performing permit required CSEs with Marine Chemist certs.

- **Project Manager, Major Oil Company, Upstate New York.** Managed and oversaw soil excavation and abandoned subsurface pipeline cleaning and removal activities at 9-acre NYSDEC Brownfields Cleanup Program Site, located on one of the first oil storage and refining centers in the Northeast. Project included the removal and disposal of over 5,000 cubic yards of impacted soil and over 1,500 linear feet of piping. Work included planning and implementation of engineering and trenching protective system designs, development of soil excavation and pipe removal plans, confirmatory endpoint sampling plan, and waste management plan including steps to minimize and control dust, vapors, and odors.
- **Project Manager, Major Oil Company.** Developed and oversaw large scale survey and confirmatory testing of over 8,500 linear feet of suspected asbestos insulated pipelines. Project included planning and implementation of work plans to abate and dispose of approximately 3,000 linear feet of asbestos insulation. Work including several elevated work areas requiring the use of scaffolding and aerial lifts to safely access work areas in accordance with OSHA requirements. Included the management and oversight of subcontractors performing asbestos abatement and confirmatory testing activities, and proper management and disposal of asbestos containing waste.
- **Senior, Project & Staff Geologist, Phase I Environmental Site Assessments.** Conducted, oversaw, and managed multiple Phase I Environmental Site Assessments in accordance with ASTM E1527-13 throughout New England for due diligence of commercial and industrial facilities, and residential buildings. Associated activities included agency contact, database management and interpretation, site inspections, identification of recognized environmental conditions (RECs), and report preparation. Based on Phase I findings, provide recommendations to clients, legal counsel, and lenders on potential liabilities and, and recommendations for additional due diligence.
- **Staff Geologist-Project Manager, Major Oil Company, Pipeline Facilities.** Provided technical support for securing over 100 wetland and various construction and access permits (state, local, federal). Developed risk reduction plans, engineering design for stream & RR crossings. Work scopes included assisting with foreign lines, dent, and corrosion anomalies. Conducted site walks and oversaw wetland delineation activities, corresponded with state, local and federal agencies, and presented at local Conservation Committees to obtain required permits. Permits include CWA Order of Conditions, DOT access, road opening, NHESP VMP & OMP, Water Quality Cert., and US Army Corp.
- **Staff Geologist, Petroleum Product Bulk Storage and Distribution Facility, East Providence, Rhode Island.** Conduct field tasks such as groundwater monitoring and sampling, contractor oversite and management, product recovery system operation & maintenance. Responsible for remedial system sampling and maintenance, surface/groundwater treatment system sampling and repairs, and groundwater monitoring and sampling. Conducted groundwater product recovery & pump maintenance as well as hazardous waste inspections of waste recovery systems/ containers and the storm sewer & remedial system inspections.
- **Staff Geologist, Petroleum Bulk Storage and Distribution Facility, East Providence, Rhode Island.** Oversaw the installation of an Engineered Natural System (ENS) to treat shallow groundwater and surface water in East Providence, Rhode Island. Provided oversight of installation of permeable reactive barrier, subsurface flow constructed treatment wetland, and contingency treatment system. Work was completed to fulfil the requirements of the Rhode Island Department of Environmental Management.
- **Staff Geologist, Shipping Freight Facility Inspections, multiple locations, Massachusetts/Rhode Island/New Hampshire.** Provided stormwater permitting to multiple facilities throughout New England. Coordinated and conducted inspections of facilities. Prepared stormwater pollution prevention plans (SWPPPs) and Stormwater Management Plans (SWMPs) in accordance with Federal and state industrial discharge permits.

PROFESSIONAL TRAININGS

OSHA 29 CFR 1910.120 40-Hour Safety Training

OSHA 29 CFR 1910.120 8-Hour Annual Refresher

OSHA Excavation and Trenching Safety Regulations

Confined Space Safety Training

DOT HM-181/126F Certificate

Red Cross Certified, First Aid and CPR

Loss Prevention System Training

PROFESSIONAL PROFILE



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EDUCATION
BS, Environmental Science,
Springfield College, 1997

Ian T. Reed

Vice President | Principal Hydrogeologist

EXPERIENCE SUMMARY
Over 20 years of experience: Vice President – Roux, New England Office (current); Principal/Office Manager – Roux Associates, New England Office (2012-2017); Senior Hydrogeologist/Project Manager, Roux (2005-2012); Project Hydrogeologist, Roux (2001-2005); Associate Hydrogeologist, Aqua Science Engineer, Inc. – San Francisco, CA (1998-2001); Associate Geologist, Parsons ES – Boston, MA (1997-1998); Emerald Excavating – Plymouth, MA (1993-1997).

TECHNICAL SPECIALTIES
Development, implementation, and management of comprehensive site investigations, implement remedial work plans, environmental investigations, and construction management.

Development and implementation of project/regulatory closure strategies for challenging sites in New England and New York.

Management and support for construction/redevelopment projects including Brownfields regulatory stewardship. Regulatory liaison and customer support with extensive experience in New England and New York.

Investigation and remedial implementations of impacted sediments including development and implementation of investigations in navigable waterways in New England. Scopes have included conventional sediment sample collections as well as innovative qualitative analysis (Sediment Profile Imagining). Sediment remediation scopes have included dredging, sheet pile installations, and engineered natural systems.

Management of environment and construction projects for oil and gas industry including pipeline maintenance and repairs, facility compliance, engineering support and construction management in MA, CT, RI, NY, and NJ.

Management and support of litigation projects for both petroleum and industrial clients. Currently technical expert for major oil company on challenging petroleum site investigation and remediation strategies.

Management and strategic support for challenging insurance claim cases in Massachusetts and New Hampshire. General duties performed have included both federal, state and local reporting, project and construction management, litigation support, soil/sediment excavation/dredge/removal management, emergency response management, soil and groundwater sampling, soil gas surveys, stream gauging, sediment investigations, soil immunoassay/XRF testing and hazardous materials surveys/ demo management, GIS data evaluations and mapping, UXO geophysical surveys, treatment system installations, Cone Penetration Testing, phytoremediation implementation, data tabulation and report preparation.

REPRESENTATIVE PROJECTS

- **Project Principal, Major Oil Company**. Manager of a complex dredging project on the Allegheny River to remove petroleum impacted sediments. Included the Site Investigation, Remedial Investigation, Alternative Feasibility Study, regulatory permitting and planning for upcoming dredge of 1,000 tons of sediment. Project requires the relocation of the largest documented population of a federally listed endangered mussel species.
- **Project Principal, Major Oil Company, Active Bulk Storage and Pipeline Facilities.** Manager of environment and construction projects at both active terminals and pipeline facilities on the east coast (Florida to Maine). Work scopes have included various types of

permitting, pipeline corrosion/dent inspections and repairs, OWS design and installation, Method 21/LDAR inspections, AST annual inspections, building upgrades including demo surveys and general construction management, containment dike surveys and secondary containment evaluations and designs. Safety awards received by Major Oil Company multiple times over the last several years.

- **Project Principal, Major Oil Company, Pipeline Facilities.** Provided engineering and technical support for securing > 100 wetland and various construction permits (state, local, federal). Developed risk reduction plans, engineering design for stream & RR crossings. Work scopes included assisting with foreign lines, dent anomalies (>1,000). Permits include CWA Order of Conditions, DOT access, road opening/construction, NHESP VMP & OMP, Water Quality Cert., and US Army Corp.
- **Project Principal, Major Petroleum Co., Former Petroleum Refinery, Upstate New York.** This Site is one of the 1st refineries in the US, at one time encompassing 700+ acres of land now in various stages of investigation, cleanup, and redevelopment. Roux currently has several roles and manages many aspects of the overall project. Serving as technical consultant for this client reviewing all regulatory submittals and overall strategy to achieve site closure through both the NY State Brownfields and Spills Programs. Serves as liaison to regulators, local stake holders and construction/redevelopment firms. Additional value added has included significant identified cost efficiencies during both remediation and redevelopment.
- **Expert/Technical Witness and Project Principal, Major Oil Company, Rochester, New York.** Oversaw large-sale investigation of several 100+ acre former refinery. Assisted with 3rd party negotiations and regulatory liaison.
- **Project Manager, Oil Company, Albany, New York**. Project Manager in-charge for large scale dredging project on the Hudson River to remove petroleum impacted sediments and soil. Included the removal of 3,000 tons of sediment, installation of sheet pile wall, carbon trench and phyto-remediation plot. Work performed in accordance with Stip. Agreement with NYSDEC. Included various stages of client advocacy. Project was completed on-time and under budget resulting in significant cost savings to the client.
- **Project Manager, Oil Company, Newington, New Hampshire.** Project Manager in-charge for large scale remediation and regulatory closure of former petroleum terminal on navigational waterway.
- **Project Principal, Multiple Spill Sites for Insurance Co., New Hampshire and Massachusetts.** Assist local insurance company with complex emergency response spills including development of closure strategy and oversight/management of response actions.
- **Project Manager, Demolition of Former Bulk Storage Facilities, New England, and New York.** Oversaw and managed team during the demolition of several facilities including completing the hazardous materials surveys, ACM removal, building demo and soil excavations.
- **Litigation Project Manager, Several Projects.** Managed litigation teams for several large-scale litigation, allocation, and facility assessment projects. Included the development and design of significant GIS and database systems to assist in the review of large quantities of both analytical and geographic information.
- **Project Manager for Several Secondary Containment System Evaluation Projects on Petroleum Bulk Storage Facilities in Several States.** Included both aerial and conventional surveys/mapping, use of 3D AutoCAD/GIS for evaluating secondary containment requirements in accordance with local, state, and federal programs. Project work also included the development of complex containment system designs and engineering oversight.
- **Project Manager, Major Oil Company, Everett, Massachusetts.** Project Manager-in-Charge for massive exploration, investigation, and rehabilitation of storm water collection system for former refinery and active petroleum bulk storage facility. Included the mapping of 5 miles of piping, extensive reconstruction, and abandonment of large-scale and deep structures in an active loading rack and terminal. Included the oversight of numerous subcontractors performing permit required CSEs with Marine Chemist certs.
- **Field Manager, USARMY, Seneca, New York and Falmouth, Massachusetts.** Oversaw numerous geophysical surveys, locating unexploded ordinance (UXO) and radioactive materials at a former US Army Depot (storing tactical nuclear weapons) and at on a former anti-tank weapons range. Responsible for performing extensive and thorough geophysical surveys using GPS and GIS mapping. Required compliance of strict UXO and radiation safety programs.
- **Project Manager, Oil Company, Upstate New York.** Project Manager in-charge and point of contact with NYSDEC project managers for emergency response following release of 30,000 gallons of Jet Fuel from a bulk storage facility in New York. Oversaw initial cleanup, following by rapid subsurface investigation to identify leak location and product plume.
- **Task/Field Manager, Major Oil Company, Several Locations.** Manager for multiple bulk petroleum storage and distribution facilities/terminals located in New England and New York.

Schedule, coordination, and oversight of all field operations including remediation system O&M, subsurface investigations, product recovery, surface water sampling, groundwater sampling events, waste management including soil excavation/removal.

- **Hydrogeologist/Field Manager, Stratford, Connecticut.** Site Assessments for Major Design Plant including Phase II Site Assessments of various industrial properties. Assessments included property inspection and review of state and federal documents, aerial photographs, and environmental databases. Historical land use research and interviews with property occupants and municipal personnel were conducted as part of these assessments.
- **Field Manager, Retail Service Station, Manteca, California.** Oversaw down-gradient groundwater investigation, domestic well sampling, cone penetration testing.

PROFESSIONAL TRAININGS

Operator Qualification (OQ) Training (several tasks)

OSHA 29 CFR 1910.120 40-Hour Safety Training

OSHA 29 CFR 1910.120 8-Hour Annual Refresher

Confined Space Safety Training

DOT HM-181/126F Certificate

Red Cross Certified, First Aid and CPR

ExxonMobil Loss Prevention System Training

Radiation Safety and Monitoring/Measurement

PROFESSIONAL PROFILE



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EDUCATION

PhD, Environmental Engineering, University of California, 2001
MS, Environmental Science (concentration in environmental chemistry), Indiana University, 1993
BA, Biochemistry, University of Texas, 1991

James Hauri, PhD

Senior Scientist I

EXPERIENCE SUMMARY

Dr. Hauri is a broad-based environmental scientist with more than twenty years of experience in environmental science, engineering, and chemistry. His professional experience includes Roux, Senior Scientist I (2022 – present); Assumption University, Associate Professor (tenured), (2007-2012, 2014-2022) and Assistant Professor (2001-2007); Exponent, Senior Scientist (part-time: 2014-2015) (full-time: 2012-2014); Harvard University, School of Public Health, Visiting Scientist (part time: 2008-2012); CH2M-Hill, Environmental Consultant (2001); San Francisco Estuary Institute, Intern, (1997-1998); and Southwest Research Institute, Scientist (1993-1994).

TECHNICAL SPECIALTIES

Dr. Hauri's multidisciplinary background has included field sampling, environmental analytical chemistry, toxicity testing and data analysis. Much of his work has explored the nexus between the chemistry and ecotoxicity of environmental contaminants.

Dr. Hauri's areas of expertise include:

- Heavy metal speciation and toxicology;
- Environmental data analysis and validation;
- Analysis of ecotoxicology data; and
- Aquatic chemistry and contamination.

REPRESENTATIVE PROJECTS

Chemistry and Toxicology

- **Deep Water Horizon Oil Spill.** Evaluated the appropriateness of new methods to solubilize oil used with toxicity tests during the DWH spill. Compared the composition and concentration changes in polycyclic aromatic hydrocarbons (PAHs) associated with the new preparatory methods with field collected samples in order to determine if the toxicity tests performed were relevant to the actual toxicity expected to be seen in the field.
- **Alameda Corridor Transportation Authority (ACTA).** Provided technical expertise to gain a unique temporary discharge waiver for a multi-billion-dollar construction project in California. ACTA gained a waiver to discharge dewatering effluent during construction into the LA-Long Beach Harbor. The waiver regulated the effluent based on bioavailable (labile) metal concentration rather than total or dissolved concentrations, and then the project ensured non-detect labile metal concentration via the addition of EDTA.

REPRESENTATIVE EXPERT RETENTIONS/APPEARANCES

Analytical Environmental Chemistry

- Knurr, B. and J. Hauri (2021) Connecting Bomb Calorimetry to Environmental Issues: Two Bomb Calorimetry Experiments. Presented at the Fall ACS National Meeting, August 22-26. Atlanta, GA.
- Hauri, J. and B. Niece. (2018) Fingerprinting White Wines with Excitation-Emission Matrix Fluorescence. Poster presented at the Fall ACS National Meeting, August 19-23. Boston, MA.
- Hauri, J. (2017) Variation to the Excitation-Emission Matrix Fluorescence Characterization of Allochthonous Dissolved Organic Carbon due to pH changes. Poster presented 38th Annual Society of Environmental Toxicology and Chemistry National Meeting, 12 - 16 November, Minneapolis, MN.

- J. Hauri and K. Wirzbicki. (2011) Excitation-Emission Matrix Fluorescence Characterization of Dissolved Organic Carbon Leached from Leaves from Various Tree Species. Poster presented at the Society of Environmental Toxicology and Chemistry National Meeting, 13 - 17 November, Boston, MA.
- Miller, M. and J.F. Hauri. (2005) Development of an HPLC/UV Method for the Detection of Ibuprofen in River Water. Poster presented at the National Conference on Undergraduate Research, April 21-23, Lexington, VA.
- Parnass, K. and J.F. Hauri. (2004) Development of an HPLC/UV Method for the Measurement of Environmentally Relevant Concentrations of Ibuprofen. Poster presented at the North Atlantic Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, June 9-11, Portsmouth, RI.

Chemistry and Toxicology

- S. Kane Driscoll, J. Hauri, K. Kulacki, A. M. Morrison, M. McArdle, A. Schierz, K. Yozzo, and M. Edwards. (2016) The Influence of Mixing Energy on the Concentration and Composition of Oil in Laboratory Toxicity Tests. Poster presented 37th Annual Society of Environmental Toxicology and Chemistry National Meeting, 6 - 10 November, Orlando, FL.
- Yozzo, K. S. Kane Driscoll, J. Hauri, M. McArdle, and A.M. Morrison. (2016) Review of Current Literature of Cardiotoxicity of Oil to Early Life Stages of Fish and the Use in Injury Assessments. Presentation at 37th Annual Society of Environmental Toxicology and Chemistry National Meeting, 6 - 10 November, Orlando, FL.
- Kane Driscoll, S., R. Wells Whittlesey, J. Hauri, K. Kulacki, A. Schierz, T.L. Morse, A.M. Morrison, and K. Yozzo. (2016) The Influence of Mixing energy on the Concentration, Composition, Toxicity, and Relevance of the Laboratory Toxicity Tests. Poster presented at the Gulf of Mexico Oil Spill and Ecosystem Science Conference. 1-4 February, Tampa Bay, Fl.
- Frazier, K., K. Cushing, and J. Hauri (2010) A visual documentation of acute toxicity in zooplankton. Poster presented at the North Atlantic Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, June 2-4, Narragansett, RI.
- Hauri, J.F. and A.J. Horne. (2002) Copper toxicity reduction via EDTA addition: a real-world application. Presentation at the Society of Environmental Toxicology and Chemistry National Meeting, 16 - 20 November, Salt Lake City, UT.
- Hauri, J.F. and A.J. Horne. (2002) Copper toxicity reduction via EDTA addition: a real-world application. Poster presented at the American Chemical Society National Meeting, 18-22 August, Boston, MA.
- Hauri, J.F., K.D. Zoh, A. Steding, and A.J. Horne. (1999) Trinitrotoluene toxicity reduction to Ceriodaphnia dubia by humic acid complexation. Poster presented at the 19th NALMS Annual Meeting, 1-4 December, Reno, Nevada.
- Hauri, J.F., and A.J. Horne. (1997) Toxicity and chemistry of copper in urban runoff from San Francisco Bay creeks. Presented before the CALMS Annual Meeting, November, California.
- Hauri, J.F., and A.J. Horne. (1997) Influence of food on bioavailability of copper in the 7-day Ceriodaphnia dubia bioassay. Poster presented at the 18th SETAC Annual Meeting, 16-27 November, San Francisco, California.
- Hauri, J.F., and A.J. Horne. (1997) Toxicity and chemistry of copper in urban runoff from San Francisco Bay creeks. Presented before the 17th NALMS Annual Meeting, 2-6 December, Houston, Texas

Misc. Environmental Chemistry

- Drumm, E., and J. Hauri (2020) Analysis of Existing Water Quality Datasets of Lake Quinsigamond, Massachusetts. Poster accepted at North Atlantic Regional Chapter of the Society of Environmental Toxicology and Chemistry Meeting, April 13-14, Avery Point, CT. Accepted, but conference was cancelled.
- Hauri, J. (2007) Adapting research for laboratory experiments in undergraduate environmental chemistry courses. Presented at the 234th ACS National Meeting, August 19-23, Boston, MA.
- Kulevich, S. J. Van Doren, and J. Hauri. (2006) Green arsenic remediation. Presented at the 231st ACS National Meeting, March 26-30, Atlanta, GA.
- Hauri, J. and B. Niece. (2005) Removal of Ibuprofen through a Wastewater Treatment Plant. Poster presented Society of Environmental Toxicology and Chemistry National Meeting, 14 - 17 November, Baltimore, MD.
- Hauri, J.F., P. Frank, and A.J. Horne. (1999) Acid mine drainage in rural and urban environments. Presented before the 19th NALMS Annual Meeting, 1-4 December, Reno, Nevada.

PROFESSIONAL AFFILIATIONS

American Chemistry Society (ACS)

Society of Environmental Toxicology and Chemistry (SETAC)

NAC SETAC – board of directors 2005-2008, VP 2008-2009, Pres 2009-2010

PUBLICATIONS

Analytical Environmental Chemistry

Knurr, B. and J.F. Hauri. (2020) An Alternative to Recycling: Measurement of Combustion Enthalpies of Plastics via Bomb Calorimetry. Journal of Chemical Education. V.97, pp 1465-1469.

Niece, B. and J.F. Hauri. (2013) Determination of Mercury in Fish: A Low-Cost Implementation of Cold-Vapor Atomic Absorbance for the Undergraduate Environmental Chemistry Laboratory. Journal of Chemical Education. V.90 (14), pp 487–489.

Hauri, J. and B. Niece. (2011) Leaching of silver from silver-impregnated food containers. Journal of Chemical Education. V.88 (10), pp 1407–1409.

Chemistry and Toxicology

Hauri, J.F. and A.J. Horne. (2006) Copper toxicity reduction via EDTA addition: a real-world application. Water Environment Research. v. 78, pp. 2508-2513.

Hauri, J.F. and A.J. Horne. (2004) Reduction in Labile Copper in the 7 Day Ceriodaphnia dubia Toxicity Test due to the interaction with zooplankton food. Chemosphere. v. 56, pp. 717-723.

Misc. Environmental Chemistry

Hauri, J.F., C. Daughton, and R. Klaper. (2016) The Challenge: Establishing Policy in an Uncertain World: What can be done to address emerging environmental contaminants having indeterminate or subtle ecological or human impacts? Environmental Toxicology and Chemistry. V.35(2), pp. 266-270.

Hauri, J.F. and L.A. Schaider. (2009) Remediation of Acid Mine Drainage with Sulfate Reducing Bacteria. Journal of Chemical Education. v. 86 (2), pp. 216-218. Other Publications

Lincoln, R., C. Amarasiriwardena, J. Shine, A. Ettinger, C. Paciorek, J. Hauri, R. Wright, J. Spengler (2011) Meconium as a biomarker for prenatal metals exposure: Methodological considerations and variations in serial samples over time (Diss. Chapter). Biomarkers of Metals Exposure in Two High-Risk Communities. School of Public Health, Harvard University.

Hauri, J.F. (1998) Scoping study of air deposition monitoring information relevant to water quality of San Francisco Bay, Final Report. Bay Area Stormwater Management Agencies Association.

Hauri, J.F., and Alex J. Horne. (1997) Bioavailability and toxicity of heavy metals in urban runoff in simulated natural conditions. University of California Water Resources Center.

PROFESSIONAL PROFILE



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EDUCATION

BS, Civil Engineering,
Manhattan College, 1991
ME, Environmental Engineering,
Manhattan College, 1994

PROFESSIONAL LICENSES

Professional Engineer in New York

Noelle M. Clarke, PE

Principal Engineer

EXPERIENCE SUMMARY

Thirty-two years' experience: Principal Engineer/Senior Engineer at Remedial Engineering, P.C./Roux; Project Engineer at Camp Dresser & McKee.

TECHNICAL SPECIALTIES

Feasibility studies, pilot testing, remedial design, implementation, construction management, and startup evaluations for remediation of soil, groundwater, soil vapor and sediment. Phase I/Phase II Environmental Site Assessments (ESA). Extensive experience at brownfields redevelopment sites, former industrial facilities, and public works facilities. Evaluation and design of storm water drainage systems. Evaluation, design, and construction management for new and existing wastewater treatment processes.

REPRESENTATIVE PROJECTS

- Principal Engineer providing due diligence support for real estate transactions on multiple projects in the New York metropolitan area. Projects have included multi-family housing (both affordable and market rate), retail/ commercial, community services and industrial properties. Services have included Phase I and Phase II ESAs.
- Principal Engineer for a Brownfield redevelopment of a property adjacent to a dry cleaning solvent distribution facility in Brooklyn, New York under the NYSDEC BCP. The site was previously a warehouse built on a former freight railyard that serviced the dry cleaning solvent facility. Offloading spillage on site and migration from the offsite facility resulted in significant soil, groundwater, and vapor contamination with chlorinated VOCs. The site was developed into multifamily housing with first floor retail use. Pre-remediation and posts-remediation Phase I ESAs were prepared by Roux. The remedy, as summarized in the Remedial Action Work Plan, consisted of soil hot spot removal, a physical barrier to limit on site groundwater migration, a permeable reactive wall to treat groundwater and mitigate offsite migration, and a sub slab depressurization system. Roux, under the direction of Ms. Clarke, provided full-time oversight of the remediation and prepared the Final Engineering Report and Site management Plan. The Certificate of Completion for the Site was obtained in October 2015 and Roux is currently providing post-remediation monitoring services.
- Principal Engineer for a Brownfield redevelopment in Brooklyn, New York at a mixed-use multifamily housing/neighborhood retail complex with a former onsite dry cleaner under the NYSDEC BCP. There is soil, groundwater, and vapor contamination from chlorinated VOCs from the former onsite dry cleaner, as well as groundwater contamination from offsite dry cleaners. The remedy, described in the Remedial Action Work Plan prepared by Roux, consisted of hot spot soil removal, *in situ* groundwater treatment and a sub slab depressurization system for vapor mitigation in the existing buildings. The NYSDEC accepted the Final Engineering Report prepared by Roux and the Site received a Certificate of Completion from NYSDEC in 2016 and Roux is currently providing post-remediation monitoring services.
- Principal Engineer for a complex dredging project for a major petroleum company on the Allegheny River in New York. The goal of the project was to remove 1,000 tons of petroleum impacted sediments from the river. Work included Site investigation, remedial investigation, alternatives evaluation, remedial design, planning and extensive regulatory permitting with multiple federal, state, and local agencies. The remediation work was completed in 2021.

- Principal engineer for the investigation and remediation of a former petroleum refinery located in Olean, New York under the NYSDEC BCP. The work included site investigation and preparation of an Alternatives Analysis Report (to document analysis of engineering options and remedy recommendation), Remedial Action Work Plan and remedial design documents to address the environmental impacts associated with the historical operations. The selected remedy includes excavation of shallow soil, in-situ stabilization of 25,000 cubic yards of deep petroleum impacted soil and capping. The work is being completed in phases beginning in 2022, with an anticipated completion date of 2024.
- Principal Engineer for the alternatives evaluation, remedy selection, regulatory negotiation, preparation of design documents (drawings, specifications, and permit applications) and permitting for all remedial components in support of redevelopment at a former metals manufacturing site in Staten Island, New York under the NYSDEC Voluntary Cleanup Program (VCP). The remedy included dredging and onsite disposal of stream sediments; consolidation and capping of fill material across the site; in-place abandonment of the Site's former sewer system; installation of drainage swales for storm water management; and wetland bank stabilization and mitigation/restoration. Required permits and regulatory approvals for the project included a Joint Permit from the USACE and NYSDEC; a NYSDEC SPDES equivalency permit for discharge of treated water to the Arthur Kill, a New York State Department of State Coastal Management Program (CMP) Federal Consistency Assessment; a New York City Waterfront Revitalization Program Consistency Assessment, a modification of topography authorization from New York City Department of City Planning; and a New York City Department of Environmental Protection permit for temporary discharge to a combined sewer. Also required by the USACE and National Marine Fisheries, was preparation of an Essential Fish Habitat Study, in support of the Joint Permit application. Permitting activities included preparation of the various permit applications, forms and supporting documentation, as well as follow up meetings and correspondence to finalize the authorizations.
- Principal Engineer for the design, bidding, contractor selection, and remedial construction phase at a former metals manufacturing facility in Staten Island under the NYSDEC VCP. Responsibilities included finalizing biddable construction documents, issuing to bidders, preparing addenda, and evaluating bids for presentation to the client. Following contractor selection Roux was heavily involved in coordinating with the client, regulators, and contractor for mobilization to the site in late 2006. During the construction Ms. Clarke provided support to the onsite construction manager regarding field changes, design revisions to account for unexpected conditions and contractor questions. The Final Engineering Report summarizing the construction activities was accepted by NYSDEC.
- Principal-in-Charge of an investigation and remediation project at a former petroleum refinery and current distribution facility located in Buffalo, New York. The site entered the NYSDEC BCP in 2006. Roux completed the BCP application and supported the application process. The work included assessing and remediating the potential environmental impacts associated with historical Site operations. These activities have included preparing multiple work plans and directing the activities of another consultant performing the fieldwork and preparing reports of results for field investigations including soil boring and sampling, well installation and groundwater sampling, aquifer pump testing, and groundwater/separate phase modeling. An in situ chemical oxidation system was designed, installed, and was operated as an IRM to remediate an area of free product and impacted groundwater discharging to the Buffalo River in OU-4.
- For the same petroleum Site in Buffalo, New York, multiple Alternatives Analysis Reports (to document analysis of engineering options and remedy recommendation), Remedial Action Work Plans and remedial design documents have been prepared to address the environmental impacts associated with the five Operable Units (OU) on the Site. Remedial construction for OU-1 was completed in 2007 and included excavation and disposal of impacted soil. The Final Construction Certification Report for OU-1 was accepted by the NYSDEC. The Alternatives Analysis Report and Remedial Design for OU-4 were submitted and approved by NYSDEC. The remedy for OU-4 included excavation and onsite consolidation of river sediments and site soil, stabilization of 1,400 linear feet of river embankment using tiered slopes, rip rap, and reinforced bioengineering, slurry wall groundwater containment, low permeability capping, a stormwater collection system and constructed wetland treatment for stormwater. Various vegetative measures were incorporated into the design in order to promote vegetative growth and enhance wildlife habitats. The remedial construction was completed in 2013 and 2014 and preparation of the Final Construction Completion Report was completed in 2015. The Alternatives Analysis Reports for OU-2 and OU-3 were submitted to NYSDEC. For OU-2, bench scale studies of stabilization/solidification agents were completed and evaluated for treatment of lead and petroleum impacted soil. In addition, field pilot studies of multiple options to treat petroleum impacted soils were completed and evaluated. Design of a stormwater collection system for portions of OU-2 and OU-3 was completed in 2010 and construction was completed in 2014 under the direction of Ms. Clarke.

- For the same petroleum terminal in Buffalo, New York, the work also included performing activities related to the operation of the remediation systems at the Site. These activities have included preparing a feasibility study work plan for improving water management systems at the site; preparing a work plan, directing the field work, and preparing an evaluation summary report for startup and testing of a portion of the groundwater extraction system at the Site; and assisting in preparation of plans to upgrade the existing treatment facilities at the Site.
- For the same petroleum terminal in Buffalo, New York, the work also included preparation of design documents and a completion report for in-place closure of the site's former in-ground oil water separator. In addition, a vapor enhanced extraction pilot study work plan was prepared and implemented at the site for recovery of separate-phase product in one portion of the site located adjacent to the Buffalo River. The results of the VER pilot testing, along with the results of chemical oxidation pilot testing conducted at the site, have been summarized in a Remedial Action Selection report, which recommended implementation of chemical oxidation in this portion of the site. A conceptual plan for implementation of chemical oxidation was submitted with the selection document. The work also included maintaining contact with regulatory agencies regarding the status of activities at the Terminal; preparing compliance monitoring reports for submittal to the regulatory agencies; overall project coordination; and budget management and tracking.
- Principal Engineer for the investigation, design, and implementation of a soil remediation project at a 4-acre former oil terminal in Cold Spring Harbor, New York under the NYSDEC spills program. The remedy completed included excavation and offsite disposal of approximately 20,000 tons of petroleum contaminated and/or hazardous lead contaminated soil in accordance with the future use of the site under an Environmental Easement. Additional activities completed by Roux at the site included asbestos remediation followed by building demolition, UST removal, and cesspool remediation. Roux prepared a Final Engineering Report, which was accepted by NYSDEC and resulted in the closure of the spill number for the Site.
- Principal Engineer for the investigation, design, and implementation of a soil remediation project at a portion of a former oil terminal in Sag Harbor, New York. The remedy completed included excavation and offsite disposal of approximately 2,000 tons of petroleum contaminated soil from beneath an active public roadway under the NYSDEC spills program. The remedy included extensive traffic control and coordination with Village of Sag Harbor officials, dewatering, water treatment, temporary water discharge of treated water to Sag Harbor and restoration of the public roadway in accordance with the Village of Sag Harbor Department of Public Works requirements. Roux prepared a Final Engineering Report, which was accepted by NYSDEC and resulted in the closure of the spill number for the Site.
- Project Manager for preparation of a work plan, direction the field activities and preparation of a summary report for investigation of the storm-water collection system at a petroleum terminal in Buffalo, New York. The objectives of the storm sewer investigation were to: prepare a detailed map of the Site's sewer system; re-establish connections that may have become blocked by debris; investigate the structural integrity of the storm sewers; locate areas of groundwater infiltration and assess infiltration rate and quality; assess wet and dry-weather flow and quality; and identify areas contributing surface water to the collection system, including hydrologic modeling using TR-55. Based on the results of the investigation, several improvements to the sewer system were recommended, including eliminating inlets to the system in areas of the site where no active operations currently take place and rehabilitation and/or installation of new sewers to restore flow by gravity to the treatment system.
- Principal Engineer for the investigation, remedial design, construction oversight and operation and maintenance of a bioventing and soil vapor extraction system at the Site of a diesel UST failure in Brooklyn. A free product recovery system was also designed, installed, and operated by Roux. Investigation activities included the use of the sonic drilling technique to advance twelve wells to 85 feet below grade through cobbles and boulders for delineation of separate phase product, soil, and groundwater impacts. Eight wells were converted to combination biovent/SVE wells. Design included specification of SVE and biovent blowers, piping, valves, and an automatic control system. Product only pumps were also designed and installed in three wells. Approximately 2,000 gallons of product were recovered by the two systems and the spill was closed by NYSDEC in 2011.
- Principal Engineer for a Brownfield redevelopment in Staten Island, New York of a former retail service station site under the NYSDEC BCP. There is soil, groundwater, and vapor contamination from petroleum-related constituents in the vicinity of the former gasoline piping and pump island (the petroleum source area), as well as historic fill across the entire site. The remedy, described in the Remedial Action Work Plan prepared by Roux, consisted of a sealed sheet pile containment wall around the petroleum source area, a Site Cover System across the entire site, comprised of concrete building slab/walkways, asphalt parking areas and limited landscaped areas and a sub-slab depressurization system to prevent vapor intrusion into the proposed retail building. A certificate of completion from NYSDEC was obtained in 2020.

- Project Manager for the remedial design at a Superfund Site in Nanuet, New York for the New York State Department of Environmental Conservation. The work included preparation of a preliminary design report, which evaluated two alternatives for handling hazardous soils and sediments at the site contaminated with volatile organic compounds. Each alternative was evaluated on the basis of technical feasibility, cost, and schedule for implementation. Based upon this evaluation, off-site disposal was recommended over on-site treatment. The report presented a site-wide conceptual plan for remediation, including soil/sediment excavation, staging and sampling; stream diversion; excavation dewatering; temporary on-site groundwater treatment; and long term monitoring. Duties also included managing and tracking all project budgets and serving as the main client contact.
- Principal Engineer for the design and specification of a large-scale (750 scfm) soil vapor extraction (SVE) pilot system with thermal oxidation off-gas treatment for a client in Brazil. Responsibilities included equipment sizing and specification, selection of materials of construction, SVE well and equipment layout, description of general startup procedures and preparation of a pilot test work plan. The pilot test work plan included a description of the pilot test operating procedures to be followed, operating parameters to be monitored and data to be collected and analyzed. The work also included conducting the pilot test activities and generating a report that included plans for expanding the SVE system across the Site. The work also included technical support for evaluating and optimizing system performance.
- Project Manager for a storm sewer study at the former metals manufacturing facility in Staten Island, New York as part of the Voluntary Cleanup Program for the Site to identify contaminated infiltration sources, provide an accurate site drainage map, and verify contributing areas to each outfall. The investigation included field inspections, surveying, dye testing, and sampling during varying tidal conditions. The storm sewer map prepared was used for future sewer closure and site redevelopment planning.
- Principal engineer for the design of a new storm water collection system for a metals manufacturing site in Staten Island, New York under the NYSDEC VCP. The design included evaluation and hydrologic modeling of the system using the USG Soil Conservation Service TR-55 hydrologic analysis model, inlet structure and pipe sizing and layout, outfall design and specification of materials and methods of construction for all system components.
- Principal-in-Charge of the operation, maintenance, monitoring and reporting activities at multiple active and former petroleum storage and distribution terminals located in New York for a large petroleum company. The work includes operation, maintenance, and performance/compliance monitoring services at the sites that currently have active remediation systems installed and monitoring, sampling, and reporting services at sites without systems. The remediation systems include groundwater extraction and treatment, free product recovery, bio-sparging, and soil vapor extraction/air sparging. At these sites, Roux is responsible for: maintaining and troubleshooting the various system components to reduce downtime to the extent possible; repairing and/or replacing equipment as needed; coordinating the upgrading of the electrical systems, as needed, to meet current building code requirements; expanding systems to meet regulatory requirements, as needed; optimizing system performance; collecting performance monitoring samples and data to track the efficiency of the treatment systems; and collecting compliance monitoring data.
- Principal Engineer for at multiple petroleum terminals in New York State for groundwater quality and surface water quality sampling and monitoring well gauging as required by the New York State Department of Environmental Conservation, as well as quarterly reporting for all sites. The work has also included collection of soil quality data at several sites and performance of an electromagnetic survey to support the divestiture and redevelopment of one of these sites. Based on these results, soil removal activities were performed at one of the former terminals in order to obtain regulatory closure of the site. Roux successfully completed the remedial activities to the satisfaction of the regulator and received closure for the client of the open spill number. Regulatory closure of another of these former terminals was obtained based upon the results of ongoing groundwater monitoring and reporting.
- Project Engineer for design of a 2.6-mgd groundwater treatment system at the Fireman's Training Center for Nassau County Department of Public Works on Long Island. The work included design of air strippers, exhaust stacks, liquid-phase GAC treatment units, and all chemical feed and storage facilities, including unit sizing, selection of materials of construction, equipment layout, and coordination with other disciplines. The work also included development of the "mass balance" for the facility.
- Task leader in charge of overseeing a bioventing pilot study conducted by a subconsultant, to treat contaminated vadose zone soils at the Fireman’s Training Center site in Nassau County, New York. The work included development of a preliminary design report for the full-scale implementation of bioventing at the site based upon the results of the pilot study.
- Project Engineer for the design, specification, construction, and operation of an air sparging and soil vapor extraction pilot at

the Long Island terminal of a large petrochemical distributor. The pilot was designed to treat contaminated ground water and vadose zone soils resulting from a one-million-gallon gasoline spill at the site. The work included development of the field sampling program and sampling and evaluation of various parameters to determine the pilot's radius of influence and effectiveness. The work also included performing data analysis and preparation of the pilot study report, which recommended full scale implementation of air sparging at the site. The site-wide implementation of air sparging and expansion of the site's existing vapor extraction system at the same Long Island petrochemical terminal was also part of the work. Responsibilities included design, specification, and layout of all mechanical equipment, vapor extraction, and air sparging wells and new vapor extraction/air sparging piping.

- Task leader responsible for investigating alternatives for the treatment of gasoline contaminated off-gas from air stripping operations a Long Island petrochemical terminal. Based on this evaluation, biofiltration was selected for piloting. Responsibilities included design of a pilot unit; development of sampling and data collection procedures; construction oversight and "troubleshooting" for the unit; coordination of data collection activities; and compilation and analysis of the pilot data.
- Project Engineer for the design of a 0.50-mgd groundwater treatment facility at a Long Island petrochemical terminal. Responsibilities included the design, specification, and layout of mechanical equipment, including the air stripping tower, vapor phase granular activated carbon off-gas treatment, centrifugal blowers, ductwork, influent pump, and concrete wet well. Responsible for shop drawing review during the construction phase.
- Project Manager for an investigation at a gasoline service station with soil and groundwater contamination. Responsible for reviewing and evaluating the work of another consultant that performed the soil and groundwater sampling and conducted remedial activities at the site including investigation summary reports; remedial designs; remediation progress reports; correspondence with regulators; and plans for future work at the Site. The work also included mapping the groundwater flow patterns in the area of the service station and mapping the areal and vertical extent of the groundwater contamination. Responsible for project coordination and budget management and tracking.
- Project Manager for the field investigation, feasibility evaluation, and remedial design at Superfund Site in Spring Valley, New York for the New York State Department of Environmental Conservation. The work included development of a work plan and site operations plan. The field investigations included Geoprobe soil borings; groundwater monitoring well installation; groundwater sampling; aquifer pump testing; and vapor extraction pilot testing. Work also included conducting the field operations for the vapor extraction pilot and producing a summary report of the field investigation results. The report presented an evaluation of the cost and feasibility of several alternatives for remediation of the site. It recommended reducing the level of effort of the remediation presented in the Record of Decision, based on lower levels of contamination encountered during the investigation. Duties also included project coordination, budget management and tracking, and development of subcontract agreements.
- Project Engineer for upgrades to the Spring Creek Auxiliary Water Pollution Control Plant for the City of New York. The work included the evaluation, design, and specification of a two-stage odor control system, chemical storage and feed facilities and new effluent disinfection system.
- Project Engineer responsible for preparation of design documents for the replacement of the sodium hypochlorite pumps and piping at the Mamaroneck Wastewater Treatment Plant for Westchester County Department of Environmental Facilities in New York.
- Project Engineer for design of upgrades to the New Rochelle Wastewater Treatment Facility for Westchester County Department of Environmental Facilities in New York. Designed upgrades to the main influent pump station, including rehabilitation of the existing influent pumps and replacement of the magnetic drives with new variable frequency drives. Responsibilities also included design of a submersible automatic duplex sump pump system, new primary sludge pumps and piping and new primary and secondary settling tank equipment. The work also included assisting the County during the bidding and contractor selection phase and preparing addenda to the contract documents.
- Project Manager for the construction of upgrades to the New Rochelle Wastewater Treatment Facility. Responsibilities included overseeing the shop drawing logging and distribution process; reviewing mechanical equipment shop drawings; addressing contractor questions regarding the contract documents; and coordinating with the resident engineer in the field and the electrical and general contractors.
- Project Engineer for the performance evaluation of the Harriman Wastewater Treatment Plant for the Orange County Department of Environmental Facilities and Services. Responsibilities included documentation of the existing conditions at the plant and evaluation of the historical and current performance of the plant with respect to its potential for expansion. A summary report was prepared, which included evaluations of the existing plant processes with respect to

standard design criteria, typical design practices and receiving water considerations. This summary report served as the basis for the facilities plan prepared as the next phase of the project.

- Project Engineer for the facilities plan for the upgrade of the Harriman Wastewater Treatment Plant. Responsibilities included evaluation of alternatives for expanding the plant's treatment capacity. A report was prepared, which recommended the conversion of the existing oxidation ditches to sequencing batch reactors (SBR) in order to increase the plant's treatment capacity to 6.0 mgd within the limited space available on the site.
- Project Engineer for the Gates-Chili-Ogden Pump Station and Force main design for Monroe County, New York. The design consisted of a new 36 mgd wet pit/dry pit pump station, influent sewer, and force main. Responsibilities included evaluating influent pumping conditions, and design of the influent sewer, manual influent bar racks and a duplex automatic submersible sump pump system for the station.
- Project Manager for the Flow Augmentation Needs Study (FANS) for Suffolk County Department of Public Works, New York. Responsibilities included coordinating and implementing the annual wetland monitoring effort for collection of data to characterize the vegetation communities and surface water and groundwater conditions at four freshwater wetland sites in Suffolk County. Duties also included maintaining a database of all vegetation data collected; developing and refining equations to characterize the groundwater table and wetlands vegetation in all monitoring areas; evaluating potential impacts of sewering on sensitive wetlands; and evaluating the need for any mitigation of these sites as triggered by vegetation changes correlated to groundwater drawdown. Responsibilities also included coordinating the production of a draft and final annual monitoring report summarizing the findings of the program.

PRESENTATIONS

Sparging Targets Submerged Residual Saturation Contamination, written with D. Bennett and L. Buchanan. Presented at the 66th New York Water Environment Federation Association Annual Meeting, New York, New York, February 1994.

Suffolk County Wetlands – Flow Augmentation Needs Study, written with M. A. Taylor and R. Southard. In Proceedings of the Annual Meeting, Hydrology and Hydrogeology of Urban and Urbanizing Areas. American Institute of Hydrology, April 1996.

ATTACHMENT 2

NYSDEC PFAS Sampling Guidance

NEW YORK STATE OF OPPORTUNITY.

Department of Environmental Conservation

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Under NYSDEC's Part 375 Remedial Programs

April 2023



www.dec.ny.gov

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ERRATA SHEET for

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs Issued January 17, 2020

Citation and Page Number	Current Text	Corrected Text	Date
Title of Appendix I, page 32	Appendix H	Appendix I	2/25/2020
Document Cover, page 1	Guidelines for Sampling and Analysis of PFAS	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs	9/15/2020
Data Assessment and Application to Site Cleanup Page 3	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published	3/28/2023
Water Sample Results Page 3	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water if PFOA or PFOS is detected in any water sample at or above 10 ng/L (ppt) and is determined to be attributable to the site, either by a comparison of upgradient and downgradient levels, or the presence of soil source areas, as defined below.	NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These guidance values also include criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt).Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.	3/28/2023
Soil Sample Results Page 3	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values:	NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:	3/28/2023
Protection of Groundwater Page 3	PFOA (ppb) 1.1 PFOS (ppb) 3.7	PFOA (ppb) 0.8 PFOS (ppb) 1.0	3/28/2023

Citation and Page Number	Current Text	Corrected Text	Date
Footnote 2 Page 3	The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	3/28/2023
Testing for Imported Soil Page 4	If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable.	If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.	3/28/2023
Routine Analysis, page 9	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1 or ISO 25101."	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1, ISO 25101, or Method 533."	9/15/2020
Additional Analysis, page 9, new paragraph regarding soil parameters	None	"In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (EPA Method 9060), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils."	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Data Assessment and Application to Site Cleanup Page 10	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFAS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Target levels for cleanup of PFAS in other media, including biota and sediment, have not yet been established by the DEC.	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.	9/15/2020
Water Sample Results Page 10	PFAS should be further assessed and considered as a potential contaminant of concern in groundwater or surface water (…) If PFAS are identified as a contaminant of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water (…) If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Soil Sample Results, page 10	"The extent of soil contamination for purposes of delineation and remedy selection should be determined by having certain soil samples tested by Synthetic Precipitation Leaching Procedure (SPLP) and the leachate analyzed for PFAS. Soil exhibiting SPLP results above 70 ppt for either PFOA or PFOS (individually or combined) are to be evaluated during the cleanup phase."	"Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values. " [Interim SCO Table] "PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP. As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf. "	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Testing for Imported Soil Page 11	Soil imported to a site for use in a soil cap, soil cover, or as backfill is to be tested for PFAS in general conformance with DER-10, Section 5.4(e) for the PFAS Analyte List (Appendix F) using the analytical procedures discussed below and the criteria in DER-10 associated with SVOCs. If PFOA or PFOS is detected in any sample at or above 1 µg/kg, then soil should be tested by SPLP and the leachate analyzed for PFAS. If the SPLP results exceed 10 ppt for either PFOA or PFOS (individually) then the source of backfill should be rejected, unless a site-specific exemption is provided by DER. SPLP leachate criteria is based on the Maximum Contaminant Levels proposed for drinking water by New York State's Department of Health, this value may be updated based on future Federal or State promulgated regulatory standards. Remedial parties have the option of analyzing samples concurrently for both PFAS in soil and in the SPLP leachate to minimize project delays. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable. PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Footnotes	None	[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances. [2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the soil cleanup objective for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	9/15/2020
Additional Analysis, page 9	In cases… soil parameters, such as Total Organic Carbon (EPA Method 9060), soil…	In cases… soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil…	1/8/2021
Appendix A, General Guidelines, fourth bullet	List the ELAP-approved lab(s) to be used for analysis of samples	List the ELAP- certified lab(s) to be used for analysis of samples	1/8/2021
Appendix E, Laboratory Analysis and Containers	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by ISO Method 25101.	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101	1/8/2021
Water Sample Results Page 9	"In addition, further assessment of water may be warranted if either of the following screening levels are met: a. any other individual PFAS (not PFOA or PFOS) is detected in water at or above 100 ng/L; or b. total concentration of PFAS (including PFOA and PFOS) is detected in water at or above 500 ng/L"	Deleted	6/15/2021

Citation and Page Number	Current Text	Corrected Text	Date
Routine Analysis, Page XX	Currently, New York State Department of Health's Environmental Laboratory Approval Program (ELAP)… criteria set forth in the DER's laboratory guidelines for PFAS in non-potable water and solids (Appendix H - Laboratory Guidelines for Analysis of PFAS in Non-Potable Water and Solids).	Deleted	5/31/2022
Analysis and Reporting, Page XX	As of October 2020, the United States Environmental Protection Agency (EPA) does not have a validated method for analysis of PFAS for media commonly analyzed under DER remedial programs (non-potable waters, solids). DER has developed the following guidelines to ensure consistency in analysis and reporting of PFAS.	Deleted	5/31/2022
Routine Analysis, Page XX	LC-MS/MS analysis for PFAS using methodologies based on EPA Method 537.1 is the procedure to use for environmental samples. Isotope dilution techniques should be utilized for the analysis of PFAS in all media.	EPA Method 1633 is the procedure to use for environmental samples.	
Soil Sample Results, Page XX	Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6	
Appendix A	"Include in the text… LC-MS/MS for PFAS using methodologies based on EPA Method 537.1"	"Include in the text ….EPA Method 1633"	
Appendix A	"Laboratory should have ELAP certification for PFOA and PFOS in drinking water by EPA Method 537, 537.1, EPA Method 533, or ISO 25101"	Deleted	
Appendix B	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	

Citation and Page Number	Current Text	Corrected Text	Date
Appendix C	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix D	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix G		Updated to include all forty PFAS analytes in EPA Method 533	
Appendix H		Deleted	
Appendix I	Appendix I	Appendix H	
Appendix H	"These guidelines are intended to be used for the validation of PFAS analytical results for projects within the Division of Environmental Remediation (DER) as well as aid in the preparation of a data usability summary report."	"These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER)."	
Appendix H	"The holding time is 14 days…"	"The holding time is 28 days…"	
Appendix H, Initial Calibration	"The initial calibration should contain a minimum of five standards for linear fit…"	"The initial calibration should contain a minimum of six standards for linear fit…"	
Appendix H, Initial Calibration	Linear fit calibration curves should have an R^2 value greater than 0.990.	Deleted	
Appendix H, Initial Calibration Verification	Initial Calibration Verification Section	Deleted	
Appendix H	secondary Ion Monitoring Section	Deleted	
Appendix H	Branched and Linear Isomers Section	Deleted	

Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs

Objective

New York State Department of Environmental Conservation's Division of Environmental Remediation (DER) performs or oversees sampling of environmental media and subsequent analysis of PFAS as part of remedial programs implemented under 6 NYCRR Part 375. To ensure consistency in sampling, analysis, reporting, and assessment of PFAS, DER has developed this document which summarizes currently accepted procedures and updates previous DER technical guidance pertaining to PFAS.

Applicability

All work plans submitted to DEC pursuant to one of the remedial programs under Part 375 shall include PFAS sampling and analysis procedures that conform to the guidelines provided herein.

As part of a site investigation or remedial action compliance program, whenever samples of potentially affected media are collected and analyzed for the standard Target Analyte List/Target Compound List (TAL/TCL), PFAS analysis should also be performed. Potentially affected media can include soil, groundwater, surface water, and sediment. Based upon the potential for biota to be affected, biota sampling and analysis for PFAS may also be warranted as determined pursuant to a Fish and Wildlife Impact Analysis. Soil vapor sampling for PFAS is not required.

Field Sampling Procedures

DER-10 specifies technical guidance applicable to DER's remedial programs. Given the prevalence and use of PFAS, DER has developed "best management practices" specific to sampling for PFAS. As specified in DER-10 Chapter 2, quality assurance procedures are to be submitted with investigation work plans. Typically, these procedures are incorporated into a work plan, or submitted as a stand-alone document (e.g., a Quality Assurance Project Plan). Quality assurance guidelines for PFAS are listed in Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS.

Field sampling for PFAS performed under DER remedial programs should follow the appropriate procedures outlined for soils, sediments, or other solids (Appendix B), non-potable groundwater (Appendix C), surface water (Appendix D), public or private water supply wells (Appendix E), and fish tissue (Appendix F).

QA/QC samples (e.g. duplicates, MS/MSD) should be collected as specified in DER-10, Section 2.3(c). For sampling equipment coming in contact with aqueous samples only, rinsate or equipment blanks should be collected. Equipment blanks should be collected at a minimum frequency of one per day per site or one per twenty samples, whichever is more frequent.

Analysis and Reporting

The investigation work plan should describe analysis and reporting procedures, including laboratory analytical procedures for the methods discussed below. As specified in DER-10 Section 2.2, laboratories should provide a full Category B deliverable. In addition, a Data Usability Summary Report (DUSR) should be prepared by an independent, third-party data validator. Electronic data submissions should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

DER has developed a *PFAS Analyte List* (Appendix G) for remedial programs to understand the nature of contamination at sites. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. If lab and/or matrix specific issues are encountered for any analytes, the DER project manager, in consultation with the DER chemist, will make case-by-case decisions as to whether certain analytes may be temporarily or permanently discontinued from analysis at each site. As with other contaminants that are analyzed for at a site, the *PFAS Analyte List* may be refined for future sampling events based on investigative findings.

Routine Analysis

EPA Method 1633 is the procedure to use for environmental samples. Reporting limits for PFOA and PFOS in aqueous samples should not exceed 2 ng/L. Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 µg/kg. Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire *PFAS Analyte List*, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. Data review guidelines were developed by DER to ensure data comparability and usability (Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids).

Additional Analysis

Additional laboratory methods for analysis of PFAS may be warranted at a site, such as the Synthetic Precipitation Leaching Procedure (SPLP) and Total Oxidizable Precursor Assay (TOP Assay).

In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils.

SPLP is a technique used to determine the mobility of chemicals in liquids, soils and wastes, and may be useful in determining the need for addressing PFAS-containing material as part of the remedy. SPLP by EPA Method 1312 should be used unless otherwise specified by the DER project manager in consultation with the DER chemist.

Impacted materials can be made up of PFAS that are not analyzable by routine analytical methodology. A TOP Assay can be utilized to conceptualize the amount and type of oxidizable PFAS which could be liberated in the environment, which approximates the maximum concentration of perfluoroalkyl substances that could be generated if all polyfluoroalkyl substances were oxidized. For example, some polyfluoroalkyl substances may degrade or transform to form perfluoroalkyl substances (such as PFOA or PFOS), resulting in an increase in perfluoroalkyl substance concentrations as contaminated groundwater moves away from a source. The TOP Assay converts, through oxidation, polyfluoroalkyl substances (precursors) into perfluoroalkyl substances that can be detected by routine analytical methodology.[1]

[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances.

Commercial laboratories have adopted methods which allow for the quantification of targeted PFAS in air and biota. The EPA's Office of Research and Development (ORD) is currently developing methods which allow for air emissions characterization of PFAS, including both targeted and non-targeted analysis of PFAS. Consult with the DER project manager and the DER chemist for assistance on analyzing biota/tissue and air samples.

Data Assessment and Application to Site Cleanup

Until such time as Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.

Water Sample Results

NYSDEC has adopted ambient water quality guidance values for PFOA and PFOS. Groundwater samples should be compared to the human health criteria of 6.7 ng/l (ppt) for PFOA and 2.7 ng/l (ppt) for PFOS. These human health criteria should also be applied to surface water that is used as a water supply. This guidance also includes criteria for surface water for PFOS applicable for aquatic life, which may be applicable at some sites. Drinking water sample results should be compared to the NYS maximum contaminant level (MCL) of 10 ng/l (ppt). Analysis to determine if PFOA and PFOS concentrations are attributable to the site should include a comparison between upgradient and downgradient levels, and the presence of soil source areas, as defined below.

If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.

Soil Sample Results

NYSDEC will delay adding soil cleanup objectives for PFOA and PFOS to 6 NYCRR Part 375-6 until the PFAS rural soil background study has been completed. Until SCOs are in effect, the following are to be used as guidance values:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	0.8	1.0

PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These

[2] The Protection of Groundwater values are based on the above referenced ambient groundwater guidance values. Details on that calculation are available in the following document, prepared for the February 2022 proposed changes to Part 375 (https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375techsupport.pdf). The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).

additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP.

As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf.

Testing for Imported Soil

Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above the ambient water quality guidance values for groundwater, then the soil is not acceptable.

PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.

Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS

The following guidelines (general and PFAS-specific) can be used to assist with the development of a QAPP for projects within DER involving sampling and analysis of PFAS.

General Guidelines in Accordance with DER-10

- Document/work plan section title – Quality Assurance Project Plan
- Summarize project scope, goals, and objectives
- Provide project organization including names and resumes of the project manager, Quality Assurance Officer (QAO), field staff, and Data Validator
    - The QAO should not have another position on the project, such as project or task manager, that involves project productivity or profitability as a job performance criterion
- List the ELAP certified lab(s) to be used for analysis of samples
- Include a site map showing sample locations
- Provide detailed sampling procedures for each matrix
- Include Data Quality Usability Objectives
- List equipment decontamination procedures
- Include an "Analytical Methods/Quality Assurance Summary Table" specifying:
    - Matrix type
    - Number or frequency of samples to be collected per matrix
    - Number of field and trip blanks per matrix
    - Analytical parameters to be measured per matrix
    - Analytical methods to be used per matrix with minimum reporting limits
    - Number and type of matrix spike and matrix spike duplicate samples to be collected
    - Number and type of duplicate samples to be collected
    - Sample preservation to be used per analytical method and sample matrix
    - Sample container volume and type to be used per analytical method and sample matrix
    - Sample holding time to be used per analytical method and sample matrix
- Specify Category B laboratory data deliverables and preparation of a DUSR

Specific Guidelines for PFAS

- Include in the text that sampling for PFAS will take place
- Include in the text that PFAS will be analyzed by EPA Method 1633
- Include the list of PFAS compounds to be analyzed (*PFAS Analyte List*)
- Include the laboratory SOP for PFAS analysis
- List the minimum method-achievable Reporting Limits for PFAS
    - Reporting Limits should be less than or equal to:
        - Aqueous – 2 ng/L (ppt)
        - Solids – 0.5 µg/kg (ppb)
- Include the laboratory Method Detection Limits for the PFAS compounds to be analyzed
-
- Include detailed sampling procedures
    - Precautions to be taken
    - Pump and equipment types
    - Decontamination procedures
    - Approved materials only to be used
- Specify that regular ice only will be used for sample shipment
- Specify that equipment blanks should be collected at a minimum frequency of 1 per day per site for each matrix

Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids

General

The objective of this protocol is to give general guidelines for the collection of soil, sediment and other solid samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Containers

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in to contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel spoon
- stainless steel bowl
- steel hand auger or shovel without any coatings

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a pre-cleaned trowel or shovel should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g. 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless steel spoon. Shallow subsurface soil samples (e.g. 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.

When the sample is obtained, it should be deposited into a stainless steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A soil log or sample log shall document the location of the sample/borehole, depth of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix C - Sampling Protocols for PFAS in Monitoring Wells

General

The objective of this protocol is to give general guidelines for the collection of groundwater samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers tape and sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel inertia pump with HDPE tubing
- peristaltic pump equipped with HDPE tubing and silicone tubing
- stainless steel bailer with stainless steel ball
- bladder pump (identified as PFAS-free) with HDPE tubing

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Monitoring wells should be purged in accordance with the sampling procedure (standard/volume purge or low flow purge) identified in the site work plan, which will determine the appropriate time to collect the sample. If sampling using standard purge techniques, additional purging may be needed to reduce turbidity levels, so samples contain a limited amount of sediment within the sample containers. Sample containers that contain sediment may cause issues at the laboratory, which may result in elevated reporting limits and other issues during the sample preparation that can compromise data usability. Sampling personnel should don new nitrile gloves prior to sample collection due to the potential to contact PFAS containing items (not related to the sampling equipment) during the purging activities.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Additional equipment blank samples may be collected to assess other equipment that is utilized at the monitoring well
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A purge log shall document the location of the sample, sampling equipment, groundwater parameters, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix D - Sampling Protocols for PFAS in Surface Water

General

The objective of this protocol is to give general guidelines for the collection of surface water samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel cup

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Where conditions permit, (e.g. creek or pond) sampling devices (e.g. stainless steel cup) should be rinsed with site medium to be sampled prior to collection of the sample. At this point the sample can be collected and poured into the sample container.

If site conditions permit, samples can be collected directly into the laboratory container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A sample log shall document the location of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells

General

The objective of this protocol is to give general guidelines for the collection of water samples from private water supply wells (with a functioning pump) for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials (e.g. plumbers tape), including sample bottle cap liners with a PTFE layer.

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Locate and assess the pressure tank and determine if any filter units are present within the building. Establish the sample location as close to the well pump as possible, which is typically the spigot at the pressure tank. Ensure sampling equipment is kept clean during sampling as access to the pressure tank spigot, which is likely located close to the ground, may be obstructed and may hinder sample collection.

Prior to sampling, a faucet downstream of the pressure tank (e.g., washroom sink) should be run until the well pump comes on and a decrease in water temperature is noted which indicates that the water is coming from the well. If the homeowner is amenable, staff should run the water longer to purge the well (15+ minutes) to provide a sample representative of the water in the formation rather than standing water in the well and piping system including the pressure tank. At this point a new pair of nitrile gloves should be donned and the sample can be collected from the sample point at the pressure tank.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- If equipment was used, collect one equipment blank per day per site and a minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers.
- A field reagent blank (FRB) should be collected at a rate of one per 20 samples. The lab will provide a FRB bottle containing PFAS free water and one empty FRB bottle. In the field, pour the water from the one bottle into the empty FRB bottle and label appropriately.
- Request appropriate data deliverable (Category B) and an electronic data deliverable
- For sampling events where multiple private wells (homes or sites) are to be sampled per day, it is acceptable to collect QC samples at a rate of one per 20 across multiple sites or days.

Documentation

A sample log shall document the location of the private well, sample point location, owner contact information, sampling equipment, purge duration, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate and available (e.g. well construction, pump type and location, yield, installation date). Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appendix F - Sampling Protocols for PFAS in Fish

This appendix contains a copy of the current SOP developed by the Division of Fish and Wildlife (DFW) entitled "General Fish Handling Procedures for Contaminant Analysis" (Ver. 8). This SOP should be followed when collecting fish for contaminant analysis. Note, however, that the Bureau of Ecosystem Health will not be supplying bags or tags. All supplies are the responsibility of the collector

Procedure Name: General Fish Handling Procedures for Contaminant Analysis

Number: FW-005

Purpose: This procedure describes data collection, fish processing and delivery of fish collected for contaminant monitoring. It contains the chain of custody and collection record forms that should be used for the collections.

Organization: Environmental Monitoring Section
Bureau of Ecosystem Health
Division of Fish and Wildlife (DFW)
New York State Department of Environmental Conservation (NYSDEC)
625 Broadway
Albany, New York 12233-4756

Version: 8

Previous Version Date: 21 March 2018

Summary of Changes to this Version: Updated bureau name to Bureau of Ecosystem Health. Added direction to list the names of all field crew on the collection record. Minor formatting changes on chain of custody and collection records.

Originator or Revised by: Wayne Richter, Jesse Becker

Date: 26 April 2019

Quality Assurance Officer and Approval Date: Jesse Becker, 26 April 2019

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH HANDLING PROCEDURES FOR CONTAMINANT ANALYSES

A. Original copies of all continuity of evidence (i.e., Chain of Custody) and collection record forms must accompany delivery of fish to the lab. A copy shall be directed to the Project Leader or as appropriate, Wayne Richter. All necessary forms will be supplied by the Bureau of Ecosystem Health. Because some samples may be used in legal cases, it is critical that each section is filled out completely. Each Chain of Custody form has three main sections:

   1. The top box is to be filled out **and signed** by the person responsible for the fish collection (e.g., crew leader, field biologist, researcher). This person is responsible for delivery of the samples to DEC facilities or personnel (e.g., regional office or biologist).

   2. The second section is to be filled out **and signed** by the person responsible for the collections while being stored at DEC, before delivery to the analytical lab. This may be the same person as in (1), but it is still required that they complete the section. Also important is the **range of identification numbers** (i.e., tag numbers) included in the sample batch.

   3. Finally, the bottom box is to record any transfers between DEC personnel and facilities. Each subsequent transfer should be **identified, signed, and dated**, until laboratory personnel take possession of the fish.

B. The following data are required on each **Fish Collection Record** form:

   1. Project and Site Name.

   2. DEC Region.

   3. All personnel (and affiliation) involved in the collection.

   4. Method of collection (gill net, hook and line, etc.)

   5. Preservation Method.

C. The following data are to be taken on each fish collected and recorded on the **Fish Collection Record** form:

   1. Tag number - Each specimen is to be individually jaw tagged at time of collection with a unique number. Make sure the tag is turned out so that the number can be read without opening the bag. Use tags in sequential order. For small fish or composite samples place the tag inside the bag with the samples. The Bureau of Ecosystem Health can supply the tags.

   2. Species identification (please be explicit enough to enable assigning genus and species). Group fish by species when processing.

   3. Date collected.

   4. Sample location (waterway and nearest prominent identifiable landmark).

   5. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or

smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

6. Sex - fish may be cut enough to allow sexing or other internal investigation, but do not eviscerate. Make any incision on the right side of the belly flap or exactly down the midline so that a left-side fillet can be removed.

D. General data collection recommendations:

1. It is helpful to use an ID or tag number that will be unique. It is best to use metal striped bass or other uniquely numbered metal tags. If uniquely numbered tags are unavailable, values based on the region, water body and year are likely to be unique: for example, R7CAY11001 for Region 7, Cayuga Lake, 2011, fish 1. If the fish are just numbered 1 through 20, we have to give them new numbers for our database, making it more difficult to trace your fish to their analytical results and creating an additional possibility for errors.

2. Process and record fish of the same species sequentially. Recording mistakes are less likely when all fish from a species are processed together. Starting with the bigger fish species helps avoid missing an individual.

3. If using Bureau of Ecosystem Health supplied tags or other numbered tags, use tags in sequence so that fish are recorded with sequential Tag Numbers. This makes data entry and login at the lab and use of the data in the future easier and reduces keypunch errors.

4. Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, it is recorded in the appropriate “Age” column.

5. For composite samples of small fish, record the number of fish in the composite in the Remarks column. Record the length and weight of each individual in a composite. All fish in a composite sample should be of the same species and members of a composite should be visually matched for size.

6. Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. GPS coordinates can be entered in the Location column of the collection record form in addition to or instead for providing a map. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and remediation/control efforts of the Department.

7. When recording data on fish measurements, it will help to ensure correct data recording for the data recorder to call back the numbers to the person making the measurements.

E. Each fish is to be placed in its own individual plastic bag. For small fish to be analyzed as a composite, put all of the fish for one composite in the same bag but use a separate bag for each composite. It is important to individually bag the fish to avoid difficulties or cross contamination when processing the fish for chemical analysis. Be sure to include the fish’s tag number inside the bag, preferably attached to the fish with the tag number turned out so it can be read. Tie or otherwise secure the bag closed. **The Bureau of Ecosystem Health will supply the bags.** If necessary, food grade bags may be procured from a suitable vendor (e.g., grocery store). It is preferable to redundantly label each bag with a manila tag tied between the knot and the body of the bag. This tag should be labeled with the project name, collection location, tag number, collection date, and fish species. If scales are collected, the scale envelope should be labeled with

the same information.

F. Groups of fish, by species, are to be placed in one large plastic bag per sampling location. **The Bureau of Ecosystem Health will supply the larger bags.** Tie or otherwise secure the bag closed. Label the site bag with a manila tag tied between the knot and the body of the bag. The tag should contain: project, collection location, collection date, species and **tag number ranges**. Having this information on the manila tag enables lab staff to know what is in the bag without opening it.

G. Do not eviscerate, fillet or otherwise dissect the fish unless specifically asked to. If evisceration or dissection is specified, the fish must be cut along the exact midline or on the right side so that the left side fillet can be removed intact at the laboratory. If filleting is specified, the procedure for taking a standard fillet (SOP PREPLAB 4) must be followed, including removing scales.

H. Special procedures for PFAS: Unlike legacy contaminants such as PCBs, which are rarely found in day to day life, PFAS are widely used and frequently encountered. Practices that avoid sample contamination are therefore necessary. While no standard practices have been established for fish, procedures for water quality sampling can provide guidance. The following practices should be used for collections when fish are to be analyzed for PFAS:

No materials containing Teflon.
No Post-it notes.
No ice packs; only water ice or dry ice.
Any gloves worn must be powder free nitrile.
No Gore-Tex or similar materials (Gore-Tex is a PFC with PFOA used in its manufacture).
No stain repellent or waterproof treated clothing; these are likely to contain PFCs.
Avoid plastic materials, other than HDPE, including clipboards and waterproof notebooks.
Wash hands after handling any food containers or packages as these may contain PFCs.
Keep pre-wrapped food containers and wrappers isolated from fish handling.
Wear clothing washed at least six times since purchase.
Wear clothing washed without fabric softener.
Staff should avoid cosmetics, moisturizers, hand creams and similar products on the day of sampling as many of these products contain PFCs (Fujii et al. 2013). Sunscreen or insect repellent should not contain ingredients with “fluor” in their name. Apply any sunscreen or insect repellent well downwind from all materials. Hands must be washed after touching any of these products.

I. All fish must be kept at a temperature <45° F (<8° C) immediately following data processing. As soon as possible, freeze at -20° C ± 5° C. Due to occasional freezer failures, daily freezer temperature logs are required. The freezer should be locked or otherwise secured to maintain chain of custody.

J. In most cases, samples should be delivered to the Analytical Services Unit at the Hale Creek field station. Coordinate delivery with field station staff and send copies of the collection records, continuity of evidence forms and freezer temperature logs to the field station. For samples to be analyzed elsewhere, non-routine collections or other questions, contact Wayne Richter, Bureau of Ecosystem Health, NYSDEC, 625 Broadway, Albany, New York 12233-4756, 518-402-8974, or the project leader about sample transfer. Samples will then be directed to the analytical facility and personnel noted on specific project descriptions.

K. A recommended equipment list is at the end of this document.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE
FISH COLLECTION RECORD

Project and Site Name _____ DEC Region _____

Collections made by (include all crew) _____

Sampling Method: □Electrofishing □Gill netting □Trap netting □Trawling □Seining □Angling □Other _____

Preservation Method: □Freezing □Other _____ Notes (SWFDB survey number): _____

FOR LAB USE ONLY- LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT	LENGTH ( )	WEIGHT ( )	REMARKS

richter: revised 2011, 5/7/15, 10/4/16, 3/20/17; becker: 3/23/17, 4/26/19

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY

I, _____, of _____ collected the
(Print Name) (Print Business Address)

following on _____, 20____ from _____
(Date) (Water Body)

in the vicinity of _____
(Landmark, Village, Road, etc.)

Town of _____, in _____ County.

Item(s) _____

_____

Said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on _____, 20_____.

_____ _____
Signature Date

I, _____, received the above mentioned sample(s) on the date specified and assigned identification number(s) _____ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and on dates as attested to below.

_____ _____
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)	TIME & DATE	REMARKS
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

richter: revised 21 April 2014; becker: 23 March 2017, 26 April, 2019

NOTICE OF WARRANTY

By signature to the chain of custody (reverse), the signatory warrants that the information provided is truthful and accurate to the best of his/her ability. The signatory affirms that he/she is willing to testify to those facts provided and the circumstances surrounding the same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signatories for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, the time and the date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time, and date) in the purpose of transfer block. Container then is resealed using new tape and rewriting signature, with time and date.

EQUIPMENT LIST

Scale or balance of appropriate capacity for the fish to be collected.

Fish measuring board.

Plastic bags of an appropriate size for the fish to be collected and for site bags.

Individually numbered metal tags for fish.

Manila tags to label bags.

Small envelops, approximately 2” x 3.5”, if fish scales are to be collected.

Knife for removing scales.

Chain of custody and fish collection forms.

Clipboard.

Pens or markers.

Paper towels.

Dish soap and brush.

Bucket.

Cooler.

Ice.

Duct tape.

Appendix G – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids

General

These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER). Data reviewers should understand the methodology and techniques utilized in the analysis. Consultation with the end user of the data may be necessary to assist in determining data usability based on the data quality objectives in the Quality Assurance Project Plan. A familiarity with the laboratory's Standard Operating Procedure may also be needed to fully evaluate the data. If you have any questions, please contact DER's Quality Assurance Officer, Dana Barbarossa, at dana.barbarossa@dec.ny.gov.

Preservation and Holding Time

Samples should be preserved with ice to a temperature of less than 6°C upon arrival at the lab. The holding time is 28 days to extraction for aqueous and solid samples. The time from extraction to analysis for aqueous samples is 28 days and 40 days for solids.

Temperature greatly exceeds 6ºC upon arrival at the lab*	Use professional judgement to qualify detects and non-detects as estimated or rejected
Holding time exceeding 28 days to extraction	Use professional judgement to qualify detects and non-detects as estimated or rejected if holding time is grossly exceeded

*Samples that are delivered to the lab immediately after sampling may not meet the thermal preservation guidelines. Samples are considered acceptable if they arrive on ice or an attempt to chill the samples is observed.

Initial Calibration

The initial calibration should contain a minimum of six standards for linear fit and six standards for a quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20%.

The low-level calibration standard should be within 50% - 150% of the true value, and the mid-level calibration standard within 70% - 130% of the true value.

%RSD >20%	J flag detects and UJ non detects

Continuing Calibration Verification

Continuing calibration verification (CCV) checks should be analyzed at a frequency of one per ten field samples. If CCV recovery is very low, where detection of the analyte could be in question, ensure a low level CCV was analyzed and use to determine data quality.

CCV recovery <70 or >130%	J flag results

Blanks

There should be no detections in the method blanks above the reporting limits. Equipment blanks, field blanks, rinse blanks etc. should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate the sample results.

Blank Result	Sample Result	Qualification
Any detection	<Reporting limit	Qualify as ND at reporting limit
Any detection	>Reporting Limit and >10x the blank result	No qualification
>Reporting limit	>Reporting limit and <10x blank result	J+ biased high

Field Duplicates

A blind field duplicate should be collected at rate of one per twenty samples. The relative percent difference (RPD) should be less than 30% for analyte concentrations greater than two times the reporting limit. Use the higher result for final reporting.

RPD >30%	Apply J qualifier to parent sample

Lab Control Spike

Lab control spikes should be analyzed with each extraction batch or one for every twenty samples. In the absence of lab derived criteria, use 70% - 130% recovery criteria to evaluate the data.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects

Matrix Spike/Matrix Spike Duplicate

One matrix spike and matrix spike duplicate should be collected at a rate of one per twenty samples. Use professional judgement to reject results based on out of control MS/MSD recoveries.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only
RPD >30%	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only

Extracted Internal Standards (Isotope Dilution Analytes)

Problematic analytes (e.g. PFBA, PFPeA, fluorotelomer sulfonates) can have wider recoveries without qualification. Qualify corresponding native compounds with a J flag if outside of the range.

Recovery <50% or >150%	Apply J qualifier
Recovery <25% or >150% for poor responding analytes	Apply J qualifier
Isotope Dilution Analyte (IDA) Recovery <10%	Reject results

Signal to Noise Ratio

The signal to noise ratio for the quantifier ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.

Reporting Limits

If project-specific reporting limits were not met, please indicate that in the report along with the reason (e.g. over dilution, dilution for non-target analytes, high sediment in aqueous samples).

Peak Integrations

Target analyte peaks should be integrated properly and consistently when compared to standards. Ensure branched isomer peaks are included for PFAS where standards are available. Inconsistencies should be brought to the attention of the laboratory or identified in the data review summary report.

ATTACHMENT 3

Roux's Standard Operating Procedures

Date: May 5, 2000

1.0 PURPOSE

The purpose for this standard operating procedure (SOP) is to establish the guidelines for decontamination of all field equipment potentially exposed to contamination during drilling, and soil and water sampling. The objective of decontamination is to ensure that all drilling, and soil-sampling and water-sampling equipment is decontaminated (free of potential contaminants): 1) prior to being brought onsite to avoid the introduction of potential contaminants to the site; 2) between drilling and sampling events/activities onsite to eliminate the potential for cross-contamination between boreholes and/or wells; and 3) prior to the removal of equipment from the site to prevent the transportation of potentially contaminated equipment offsite.

In considering decontamination procedures, state and federal regulatory agency requirements must be considered because of potential variability between state and federal requirements and because of variability in the requirements of individual states. Decontamination procedures must be in compliance with state and/or federal protocols in order that regulatory agency(ies) scrutiny of the procedures and data collected do not result in non-acceptance (invalidation) of the work undertaken and data collected.

2.0 PROCEDURE FOR DRILLING EQUIPMENT

The following is a minimum decontamination procedure for drilling equipment. Drilling equipment decontamination procedures, especially any variation from the method itemized below, will be documented on an appropriate field form or in the field notebook.

2.1 The rig and all associated equipment should be properly decontaminated by the contractor before arriving at the test site.

2.2 The augers, drilling casings, rods, samplers, tools, rig, and any piece of equipment that can come in contact (directly or indirectly) with the soil, will be steam cleaned onsite prior to set up for drilling to ensure proper decontamination.

2.3 The same steam cleaning procedures will be followed between boreholes (at a fixed on-site location[s], if appropriate) and before leaving the site at the end of the study.

2.4 All on-site steam cleaning (decontamination) activities will be monitored and documented by a member(s) of the staff of Roux Associates, Inc.

2.5 If drilling activities are conducted in the presence of thick, sticky oils (e.g., PCBs) which coat drilling equipment, then special decontamination procedures may have to be utilized before steam cleaning (e.g., hexane scrub and wash).

2.6 Containment of decontamination fluids may be necessary (e.g., rinseate from steam cleaning) or will be required (e.g., hexane), and disposal must be in accordance with state and/or federal procedures.

3.0 PROCEDURE FOR SOIL-SAMPLING EQUIPMENT

The following is a minimum decontamination procedure for soil-sampling equipment (e.g., split spoons, stainless-steel spatulas). Soil-sampling equipment decontamination procedures, especially any variation from the method itemized below, will be documented on an appropriate field form or in the field notebook.

3.1 Wear disposable gloves while cleaning equipment to avoid cross-contamination and change gloves as needed.

3.2 Steam clean the sampler or rinse with potable water. If soil-sampling activities are conducted in the presence of thick, sticky oils (e.g., PCBs) which coat sampling equipment, then special decontamination procedures may have to be utilized before steam cleaning and washing in detergent solution (e.g., hexane scrub and wash).

3.3 Prepare a non-phosphate, laboratory-grade detergent solution and distilled or potable water in a clean bucket.

3.4 Disassemble the sampler, as necessary and immerse all parts and other sampling equipment in the solution.

3.5 Scrub all equipment in the bucket with a brush to remove any adhering particles.

3.6 Rinse all equipment with copious amounts of potable water followed by distilled or deionized water.

3.7 Place clean equipment on a clean plastic sheet (e.g., polyethylene)

3.8 Reassemble the cleaned sampler, as necessary.

3.9 Transfer the sampler to the driller (or helper) making sure that this individual is also wearing clean gloves or wrap the equipment with a suitable material (e.g., plastic bag, aluminum foil.

As part of the decontamination procedure for soil-sampling equipment, state and/or federal protocols must be considered. These may require procedures above those specified as minimum for Roux Associates, Inc., such as the use of nitric acid, acetone, etc. Furthermore, the containment and proper disposal of decontamination fluids must be considered with respect to regulatory agency(ies) requirements.

4.0 PROCEDURE FOR WATER-SAMPLING EQUIPMENT

The following is a decontamination procedure for water-sampling equipment (e.g., bailers, pumps). Water-sampling equipment decontamination procedures, especially any variation from the method itemized below, will be documented on an appropriate field form or in the field notebook.

4.1 Decontamination procedures for bailers follow:

a. Wear disposable gloves while cleaning bailer to avoid cross-contamination and change gloves as needed.

b. Prepare a non-phosphate, laboratory-grade detergent solution and potable water in a bucket.

c. Disassemble bailer (if applicable) and discard cord in an appropriate manner and scrub each part of the bailer with a brush and solution.

d. Rinse with potable water and reassemble bailer.

e. Rinse with copious amounts of distilled or deionized water.

f. Air dry.

g. Wrap equipment with a suitable material (e.g., clean plastic bag, aluminum foil).

h. Rinse bailer at least three times with distilled or deionized water before use.

4.2 Decontamination procedures for pumps follow:

a. Wear disposable gloves while cleaning pump to avoid cross-contamination and change gloves as needed.

b. Prepare a non-phosphate, laboratory-grade detergent solution and potable water in a clean bucket, clean garbage can, or clean 55-gallon drum.

c. Flush the pump and discharge hose (if not disposable) with the detergent solution and discard disposable tubing and/or cord in an appropriate manner.

d. Flush the pump and discharge hose (if not disposable) with potable water.

e. Place the pump on clear plastic sheeting.

f. Wipe any pump-related equipment (e.g., electrical lines, cables, discharge hose) that entered the well with a clean cloth and detergent solution, and rinse or wipe with a clean cloth and potable water.

g. Air dry.

h. Wrap equipment with a suitable material (e.g., clean plastic bag).

As part of the decontamination procedure for water-sampling equipment, state and/or federal protocols must be considered. These may require procedures above those specified as minimum for Roux Associates, Inc., such as the use of nitric acid, acetone, etc. Furthermore, the containment and proper disposal of decontamination fluids must be considered with respect to regulatory agency(ies) requirements.

Date: May 5, 2000

1.0 PURPOSE

The purpose of this Standard Operating Procedure (SOP) is to establish guidelines for the collection of soil samples for laboratory analysis. This SOP is applicable to soil samples collected from split-spoon samplers during drilling, hand auger samples, grab samples from stockpiled soils, surface samples, test pit samples, etc.

2.0 CONSIDERATIONS

Soil samples may be collected in either a random or biased manner. Random samples can be based on a grid system or statistical methodology. Biased samples can be collected in areas of visible impact or suspected source areas. Soil samples can be collected at the surface, shallow subsurface, or at depth. When samples are collected at depth the water content should be noted, since generally "soil sampling" is restricted to the unsaturated zone. Equipment selection will be determined by the depth of the sample to be collected. A thorough description of the sampling locations and proposed methods of sample collection should be included in the work plan.

Commonly, surface sampling refers to the collection of samples at a 0 to 6-inch depth interval. Certain regulatory agencies may define the depth interval of a surface sample differently, and this must be defined in the work plan. Collection of surface soil samples is most efficiently accomplished with the use of a stainless-steel trowel or scoop. For samples at greater depths a decontaminated bucket auger or power auger may be needed to advance the hole to the point of sample collection. Another clean bucket auger should then be used to collect the sample. To collect samples at depths of greater than approximately six feet the use of a drill rig and split spoon samples will usually be necessary. In some situations, sample locations are accessed with the use of a backhoe.

3.0 MATERIALS/EQUIPMENT

a. A work plan which outlines soil sampling requirements.

b. Field notebook, field form(s), maps, chain-of-custody forms, and custody seals.

c. Decontamination supplies (including: non-phosphate, laboratory grade detergent, buckets, brushes, potable water, distilled water, regulatory-required reagents, aluminum foil, plastic sheeting, etc.).

d. Sampling device (split-spoon sampler, stainless steel hand auger, stainless steel trowel, etc.).

e. Stainless steel spoons or spatulas.

f. Disposable sampling gloves.

g. Laboratory-supplied sample containers with labels.

h. Cooler with blue or wet ice.

i. Plastic sheeting.

j. Black pen and indelible marker.

k. Zip-lock bags and packing material.

l. Tape measure.

m. Paper towels or clean rags.

n. Masking and packing tape.

o. Overnight (express) mail forms.

4.0 DECONTAMINATION

All reusable sampling equipment will be thoroughly cleaned according to the decontamination SOP. Where possible, thoroughly pre-cleaned and wrapped sampling equipment should be used and dedicated to individual sampling locations. Disposable items such as sampling gloves, aluminum foil, and plastic sheeting will be changed after each use and discarded in an appropriate manner.

5.0 PROCEDURE

5.1 Prior to collecting soil samples, ensure that all sampling equipment has been thoroughly cleaned according to the decontamination SOP. If samples are to be collected at depth, then the boring must be advanced with thoroughly cleaned equipment to the desired sampling horizon and a different thoroughly cleaned sampler must be used to collect the sample.

5.2 Using disposable gloves and a pre-cleaned, stainless steel spatula or spoon, extract the soil sample from the sampler, measure the recovery, and separate the wash from the true sample. Where allowed by regulatory agency(ies), disposable plastic spoons may be used.

5.3 Place the sample in a laboratory-supplied, pre-cleaned sample container. This should be done as quickly as possible and this is especially important when sampling for volatile organic compounds (VOCs). Samples to be analyzed for VOCs must be collected prior to other constituents.

5.4 The sample container will be labeled with appropriate information such as, client name, site location, sample identification (location, depth, etc.), date and time of collection, and sampler's initials.

5.5 Using the remaining portion of soil from the sampler, log the sample in detail and record sediment characteristics (color, odor, moisture, texture, density, consistency, organic content, layering, grain size, etc.).

5.6 If soil samples are to be composited in the field, then equal portions from selected locations will be placed on a clean plastic sheet and homogenized. Alternately, several samples may be submitted to the laboratory for compositing by weight. The method used is dependent upon regulatory requirements. Specific compositing procedures shall be approved by the appropriate regulatory agency and described in the work plan. Samples to be analyzed for VOCs will not be composited unless required by a regulatory agency.

5.7 After the sample has been collected, labeled, and logged in detail, it is placed in a zip-lock bag and stored in a cooler at 4°C.

5.8 A chain-of-custody form is completed for all samples collected. One copy is retained and two are sent with the samples in a zip-lock bag to the laboratory. A custody seal is placed on the cooler prior to shipment.

5.9 Samples collected from Monday to Friday are to be delivered to the laboratory within 24 hours of collection. If Saturday delivery is unavailable, samples collected on Friday must be delivered by Monday morning. Check the work plan to determine if any analytes require a shorter delivery time.

5.10 The field notebook and appropriate forms should include, but not be limited to the following: client name, site location, sample location, sample depth, sample identification, date and time collected, sampler's name, method of sample collection, number and type of containers, geologic description of material, description of decontamination procedures, etc. A site map should be prepared with exact measurements to each sample location in case follow-up sampling is necessary.

5.11 All reusable sampling equipment must be thoroughly cleaned in accordance with the decontamination SOP. Following the final decontamination (after all samples are collected) the sampling equipment is wrapped in aluminum foil. Discard any gloves, foil, plastic, etc. in an appropriate manner that is consistent with site conditions.

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to establish guidelines for sample handling which will allow consistent and accurate results. Valid chemistry data are integral to investigations that characterize media-quality conditions. Thus, this SOP is designed to ensure that once samples are collected, they are preserved, packed and delivered in a manner which will maintain sample integrity to as great an extent as possible. The procedures outlined are applicable to most sampling events and any required modifications must be clearly described in the work plan.

2.0 CONSIDERATIONS

Sample containers, sampling equipment decontamination, quality assurance/quality control (QA/QC), sample preservation, and sample handling are all components of this SOP.

2.1 Sample Containers

Prior to collection of a sample, considerations must be given to the type of container that will be used to store and transport the sample. The type and number of containers selected is usually based on factors such as sample matrix, potential contaminants to be encountered, analytical methods requested, and the laboratory's internal quality assurance requirements. In most cases, the overriding considerations will be the analytical methodology, or the state or federal regulatory requirements because these regulations generally encompass the other factors. The sample container selected is usually based on some combination of the following criteria:

a. Reactivity of Container Material with Sample

Choosing the proper composition of sample containers will help to ensure that the chemical and physical integrity of the sample is maintained. For sampling potentially hazardous material, glass is the recommended container type because it is chemically inert to most substances. Plastic containers are not recommended for most hazardous wastes because the potential exists for contaminants to adsorb to the surface of the plastic or for the plasticizer to leach into the sample.

In some instances, however, the sample characteristics or analytes of interest may dictate that plastic containers be used instead of glass. Because some metals species will adhere to the sides of the glass containers in an aqueous matrix, plastic bottles (e.g., nalgene) must be used for samples collected for metals analysis. A separate, plastic

container should accompany glass containers if metals analysis is to be performed along with other analyses. Likewise, other sample characteristics may dictate that glass cannot be used. For example, in the case of a strong alkali waste or hydrofluoric solution, plastic containers may be more suitable because glass containers may be etched by these compounds and create adsorptive sites on the container's surface.

b. Volume of the Container

The volume of sample to be collected will be dictated by the analysis being performed and the sample matrix. The laboratory must supply bottles of sufficient volume to perform the required analysis. In most cases, the methodology dictates the volume of sample material required to complete the analysis. However, individual laboratories may provide larger volume containers for various analytes to ensure sufficient quantities for duplicates or other QC checks.

To facilitate transfer of the sample from the sampler into the container and to minimize spillage and sample disturbance, wide-mouth containers are recommended. Aqueous volatile organic samples must be placed into 40-milliliter (ml) glass vials with polytetrafluoroethylene (PTFE) (e.g., TeflonTM) septums. Non-aqueous volatile organic samples should be collected in the same type of vials or in 4-ounce (oz) wide-mouth jars provided by the laboratory. These jars should have PTFE-lined screw caps.

c. Color of Container

Whenever possible, amber glass containers should be used to prevent photodegradation of the sample, except when samples are being collected for metals analysis. If amber containers are not available, then containers holding samples should be protected from light (i.e., place in cooler with ice immediately after filling).

d. Container Closures

Container closures must screw on and off the containers and form a leak-proof seal. Container caps must not be removed until the container is ready to be filled with the sample, and the container cap must be replaced (securely) immediately after filling it. Closures should be constructed of a material which is inert with respect to the sampled material, such as PTFE (e.g., TeflonTM). Alternately, the closure may be separated from the sample by a closure liner that is inert to the sample material such as PTFE sheeting. If soil or sediment samples are being collected, the threads of the container must be wiped clean with a dedicated paper towel or cloth, so the cap can be threaded properly.

e. Decontamination of Sample Containers

Sample containers must be laboratory cleaned by the laboratory performing the analysis. The cleaning procedure is dictated by the specific analysis to be performed on the sample. Sample containers must be carefully examined to ensure that all containers appear clean. Do not mistake the preservative as unwanted residue. The bottles should not be field cleaned. If there is any question regarding the integrity of the bottle, then the laboratory must be contacted immediately and the bottle(s) replaced.

f. Sample Bottle Storage and Transport

No matter where the sample bottles are, whether at the laboratory waiting to be packed for shipment or in the field waiting to be filled with sample, care must be taken to avoid contamination. Sample shuttles or coolers, and sample bottles must be stored and transported in clean environments. Sample bottles and clean sampling equipment must never be stored near solvents, gasoline, or other equipment that is a potential source of cross-contamination. When under chain of custody, sample bottles must be secured in locked vehicles, and custody sealed in shuttles or in the presence of authorized personnel. Information which documents that proper storage and transport procedures have been followed must be included in the field notebook and on appropriate field forms.

2.2 Decontamination of Sampling Equipment

Proper decontamination of all re-usable sampling equipment is critical for all sampling episodes. The SOP for Decontamination of Field Equipment and SOPs for method-specific or instrument-specific tasks must also be referred to for guidance for decontamination of various types of equipment.

2.3 Quality Assurance/Quality Control Samples

QA/QC samples are intended to provide control over the proper collection and tracking of environmental measurements, and subsequent review, interpretation and validation of generated analytical data. The SOPs for Collection of Quality Control Samples, for Evaluation and Validation of Data, and for Field Record Keeping and Quality Assurance/Quality Control must be referred to for detailed guidance regarding these respective procedures. SOPs for method-specific or instrument-specific tasks must also be referred to for guidance for QA/QC procedures.

2.4 Sample Preservation Requirements

Certain analytical methodologies for specific analytes require chemical additives in order to stabilize and maintain sample integrity. Generally, this is accomplished under the following two scenarios:

a. Sample bottles are preserved at the laboratory prior to shipment into the field.

b. Preservatives are added in the field immediately after the samples are collected.

Many laboratories provide pre-preserved bottles as a matter of convenience and to help ensure that samples will be preserved immediately upon collection. A problem associated with this method arises if not enough sample could be collected, resulting in too much preservative in the sample. More commonly encountered problems with this method include the possibility of insufficient preservative provided to achieve the desired pH level or the need for additional preservation due to chemical reactions caused by the addition of sample liquids to pre-preserved bottles. The use of pre-preserved bottles is acceptable; however, field sampling teams must always be prepared to add additional preservatives to samples if the aforementioned situations occur. Furthermore, care must be exercised not to overfill sample bottles containing preservatives to prevent the sample and preservative from spilling and therefore diluting the preservative (i.e., not having enough preservative for the volume of sample).

When samples are preserved after collection, special care must be taken. The transportation and handling of concentrated acids in the field requires additional preparation and adherence to appropriate preservation procedures. All preservation acids used in the field should be trace-metal or higher-grade.

2.5 Sample Handling

After the proper sample bottles have been received under chain-of-custody, properly decontaminated equipment has been used to collect the sample, and appropriate preservatives have been added to maintain sample integrity, the final step for the field personnel is checking the sample bottles prior to proper packing and delivery of the samples to the laboratory.

All samples should be organized and the labels checked for accuracy. The caps should be checked for tightness and any 40-ml volatile organic compound (VOC) bottles must be checked for bubbles. Each sample bottle must be placed in an individual Ziploc® bag to protect the label, and placed on ice. The bottles must be carefully packed to prevent breakage during transport. When several bottles have been collected for an individual sample, they should not be placed adjacent to each other in the cooler to prevent possible breakage of all bottles for a given sample. If there are any samples which are known or suspected to be highly

contaminated, these should be placed in an individual cooler under separate chain-of-custody to prevent possible cross contamination. Sufficient ice (wet or blue packs) should be placed in the cooler to maintain the temperature at 4 degrees Celsius (°C) until delivery at the laboratory. Consult the work plan to determine if a particular ice is specified as the preservation for transportation (e.g., the United States Environmental Protection Agency does not like the use of blue packs because they claim that the samples will not hold at 4°C). If additional coolers are required, then they should be purchased. The chain-of-custody form should be properly completed, placed in a "zip-lock" bag, and placed in the cooler. One copy must be maintained for the project files. The cooler should be sealed with packing tape and a custody seal. The custody seal number should be noted in the field book. Samples collected from Monday through Friday will be delivered to the laboratory within 24 hours of collection. If Saturday delivery is not available, samples collected on Friday must be delivered by Monday morning. Check the work plan to determine if certain analytes require a shorter delivery time. If overnight mail is utilized, then the shipping bill must be maintained for the files and the laboratory must be called the following day to confirm receipt.

3.0 EQUIPMENT AND MATERIALS

3.1 General equipment and materials may include, but not necessarily be limited to, the following:

a. Sample bottles of proper size and type with labels.

b. Cooler with ice (wet or blue pack).

c. Field notebook, appropriate field form(s), chain-of-custody form(s), custody seals.

d. Black pen and indelible marker.

e. Packing tape, "bubble wrap," and "zip-lock" bags.

f. Overnight (express) mail forms and laboratory address.

g. Health and safety plan (HASP).

h. Work plan/scope of work.

i. Pertinent SOPs for specified tasks and their respective equipment and materials.

3.2 Preservatives for specific samples/analytes as specified by the laboratory. Preservatives must be stored in secure, spillproof glass containers with their content, concentration, and date of preparation and expiration clearly labeled.

3.3 Miscellaneous equipment and materials including, but not necessarily limited to, the following:

a. Graduated pipettes.

b. Pipette bulbs.

c. Litmus paper.

d. Glass stirring rods.

e. Protective goggles.

f. Disposable gloves.

g. Lab apron.

h. First aid kit.

i. Portable eye wash station.

j. Water supply for immediate flushing of spillage, if appropriate.

k. Shovel and container for immediate containerization of spillage-impacted soils, if appropriate.

4.0 PROCEDURE

4.1 Examine all bottles and verify that they are clean and of the proper type, number, and volume for the sampling to be conducted.

4.2 Label bottles carefully and clearly with project name and number, site location, sample identification, date, time, and the sampler's initials using an indelible marker.

4.3 Collect samples in the proper manner (refer to specific sampling SOPs).

4.4 Conduct preservation activities as required after each sample has been collected. Field preservation must be done immediately and must not be done later than 30 minutes after sample collection.

4.5 Conduct QC sampling, as required.

4.6 Seal each container carefully and place in an individual "zip lock" bag.

4.7 Organize and carefully pack all samples in the cooler immediately after collection (e.g., bubble wrap). Insulate samples so that breakage will not occur.

4.8 Complete and place the chain-of-custody form in the cooler after all samples have been collected. Maintain one copy for the project file. If the cooler is to be transferred several times prior to shipment or delivery to the laboratory, it may be easier to tape the chain-of-custody to the exterior of the sealed cooler. When exceptionally hazardous samples are known or suspected to be present, this should be identified on the chain-of-custody as a courtesy to the laboratory personnel.

4.9 Add additional ice as necessary to ensure that it will last until receipt by the laboratory.

4.10 Seal the cooler with packing tape and a custody seal. Record the number of the custody seal in the field notebook and on the field form. If there are any exceptionally hazardous samples, then shipping regulations should be examined to ensure the sample containers and coolers are in compliance and properly labeled.

4.11 Samples collected from Monday through Friday will be delivered to the laboratory within 24 hours of collection. If Saturday delivery is not available, samples collected on Friday must be delivered by Monday morning. Check the work plan to determine if certain analytes require a shorter delivery time.

4.12 Maintain the shipping bill for the project files if overnight mail is utilized and call the laboratory the following day to confirm receipt.

END OF PROCEDURE

Date: May 5, 2000

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to establish guidelines for screening soil samples for volatile organic vapors using a portable photoionization detector (PID). This SOP is applicable to soil samples collected from split-spoon samplers during drilling, hand auger samples, and grab samples from stockpiled soils.

2.0 CONSIDERATIONS

The primary objective of photoionization screening of soil samples is to obtain a qualitative understanding of the distribution of volatile organic compounds (VOCs) in soil. The proper design of an organic vapor screening program requires an understanding of site hydrogeology, potential source areas, and potential constituents of concern. Sample locations and frequency must be fully defined in the work plan. The work plan should outline the type of lamp to be utilized in the PID based on the ionization potentials and response factors of the constituents of concern. The work plan must also clearly describe the heating or equilibration procedures to be employed if they differ from those described in this SOP. Regardless of the specific equilibration procedure employed, it is imperative that each sample be treated identically to allow the photoionization results from different locations to be compared. Observations such as water, clay, and organic content should be noted to facilitate interpretation of the data. Every effort should be made to collect a representative portion of soil from the sampling device.

3.0 MATERIALS/EQUIPMENT

a. A work plan which outlines photoionization screening requirements.

b. Decontamination supplies (including: non-phosphate, laboratory grade detergent, buckets, brushes, potable water, distilled water, regulatory-required reagents [e.g., acetone, nitric acid, hexane, etc.], aluminum foil, plastic sheeting, etc.).

c. Field notebook, field form(s), maps, chain-of-custody forms.

d. Sampling device (split-spoon sampler, stainless steel hand auger, stainless steel trowel, etc.).

e. Stainless steel spoons or spatulas.

f. Disposable plastic spoons.

g. Plastic sheeting.

h. Aluminum foil.

i. Mason jars or driller's jars.

j. Water bath (hot plate, extension cord, water tray, thermometer).

k. Photoionization detector with charging unit.

l. Calibration gases with regulator.

m. Indelible marker.

n. Masking tape.

o. Disposable sampling gloves.

4.0 DECONTAMINATION

Where possible, thoroughly pre-cleaned and wrapped sampling equipment must be used and dedicated to individual sampling locations. Disposable items such as sampling gloves, aluminum foil, and sample jars will be changed after each use and discarded in an appropriate manner. If only photoionization results are to be obtained, then split-spoon samples and hand augers may be cleaned with a soap and water wash and potable water rinse or steam cleaning, and a final distilled water rinse. However, if samples are to be collected concurrently for laboratory analytical results, then all reusable sampling equipment must be thoroughly decontaminated according to the SOP for decontamination of field equipment.

5.0 CALIBRATION

The PID must be calibrated according to the manufacturer's specifications at a minimum frequency of once per day prior to collecting photoionization readings. In addition, periodic checks (e.g., every 2 hours or every ten samples) with the standard gas will be conducted to confirm that the calibration has not drifted. The time, date, and calibration procedure must be clearly documented in the field notebook and the calibration log. If at any time the photoionization results appear erratic or inconsistent with field observations, then the unit must be recalibrated. If calibration is difficult to achieve, then the unit's lamp should be checked for dirt or moisture and cleaned, as necessary. During humid or wet conditions, the unit should be calibrated on a more frequent basis as determined by field personnel.

6.0 PROCEDURE

6.1 Extract the soil sample from the sampler, quickly measure the recovery, and separate the wash from the true sample by using a dedicated, stainless steel spatula. Where allowed by regulatory agency(ies), disposable plastic spoons may be used.

6.2 Place the sample in a pre-cleaned glass jar (as quickly as possible to avoid loss of VOCs) filling the jar half full. Place an aluminum foil seal between the glass and metal cap and screw tight.

6.3 Label jars with the boring number, depth of sample, date of collection and blow counts. In addition, the field personnel will ensure the following: samples are taken at appropriate depths; unrepresentative portions of the sample are discarded properly; that the sampler is decontaminated properly between use; and the driller uses proper methods during sample collection and does not use oil or grease on tools entering the borehole.

6.4 Log the sample in detail and record sediment characteristics (color, odor, moisture, texture, density, consistency, organic content, and layering).

6.5 After the sample has been collected, heat the sample under controlled conditions in a water bath for a 2 minute period.

6.6 Ensure that the PID has been calibrated and that the calibration information is documented in the field book. Pierce the aluminum foil seal with the probe from the PID and measure the relative concentration of VOCs in the headspace of the soil sample. The initial (peak) reading must be recorded.

6.7 Record the PID reading in the field notebook, on an appropriate field form, and on the base map, if appropriate.

6.8 Place any material not representative of the interval sampled in a pile with the other cuttings from the borehole.

6.9 If only photoionization results are to be obtained, then reusable sampling devices may be cleaned with a soap and water wash and a potable water rinse. The sampler will then be rinsed with distilled water, assembled and placed on plastic sheeting for reuse. A more rigorous decontamination procedure is required when samples are also being collected for laboratory analysis. Refer to the SOP for collection of soil samples for laboratory analysis for additional information.

END OF PROCEDURE

ATTACHMENT 4

Laboratory's Standard Operating Procedures

Pace ANALYTICAL SERVICES	**ENV-SOP-MANS-0111 v01 Preparation and Analysis of PFAS in Aqueous, Solid, and Tissue by EPA Method 1633**
	Effective Date: 08/07/2024

Management Approval:
John Trimble Approved on 8/7/2024 11:55:41 AM
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1.0 SCOPE & APPLICATION

This standard operating procedure (SOP) describes the laboratory procedure used by Alpha, a Pace Analytical Laboratory for the determination of the per- and polyfluoroalkyl substances (PFAS) by liquid chromatography/mass spectrometry (LC-MS/MS) following EPA 1633, published January 2024. This SOP is applicable to aqueous (all non-potable water and leachate), solid (soil, biosolids, sediment), and tissue matrices.

The instrumental portion of this method is for use only by analysts experienced with LC-MS/MS or under the close supervision of such qualified persons. The laboratory must demonstrate the ability to generate acceptable results using the procedures in Sections 11.3.1 and 11.3.2.

By their very nature, many components of PFAS present analytical challenges unique to this class of analytes. For example, PFAS analytes readily adhere to the walls of the sample containers and may also stratify in the container.

1.1 Target Analyte List, Limits of Detection & Quantitation (LOD & LOQ)

The target analytes that can be determined by this SOP and the associated LODs and LOQs are provided in Appendix A, Tables 1, 2, and 3.

LOQs are established in accordance with PAS policies and procedures for method validation, determination of detection limits (LOD), and quantitation limits (LOQ). Refer to laboratory SOP ID 1732 (Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ)) for additional information. DL and LOQ are routinely verified and updated when needed. DL and LOQ are always adjusted to account for actual sample amounts used and for dilution.

The reporting limit (RL) is the value to which analytes are reported as detected or non-detect in the final report. When the RL is less than the lower limit of quantitation (LLOQ), all detections and non-detects at the RL are qualitative. The LLOQ is the lowest point of the calibration curve used for each target analyte.

1.2 Reference Methods & Documents

This SOP is based on reference method EPA 1633 (2024). If the laboratory procedure is modified from the reference method, a list of modifications and rationale for the modifications is provided in Section 14.0. Modifications are permitted when allowed by the regulatory program for which test results will be used and when the modification has been validated comparable and equivalent to the reference method.

1.3 Quantitation Range

The quantitation range for each target analyte in this procedure is defined in Appendix A, Table 5: Calibration Standard Concentrations.

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1.4 Program Specific Requirements

Not Applicable.

2.0 SUMMARY OF METHOD

Environmental samples are prepared and extracted using method-specific procedures. Sample extracts are subjected to cleanup procedures designed to remove interferences. Analyses of the sample extracts are conducted by LC-MS/MS in the multiple reaction monitoring (MRM) mode. Sample concentrations are determined by isotope dilution or extracted internal standard quantification (see Section 9.2.1) using isotopically labeled compounds added to the samples before extraction.

Individual PFAS analytes are identified through peak analysis of the quantification and confirmation ions, where applicable. Where linear and branched isomers are present in the sample and either qualitative or quantitative standards containing branched and linear isomers are commercially available, the PFAS analyte is reported as a single analyte consisting of the sum of the linear and branched isomer concentrations.

Quantitative determination of target analyte concentrations is made with respect to an isotopically labeled PFAS standard; the concentrations are then used to convert raw peak areas in sample chromatograms to final concentrations.

Results for target analytes are recovery corrected by the method of quantification (i.e., either isotope dilution or extracted internal standard quantification, see Section 9.2.1). Recoveries of isotopically labeled extracted internal standards (EIS) are determined by comparison to the responses of one of seven non-extracted internal standards (NIS) and are used as general indicators of overall analytical quality.

The quality of the analysis is assured through reproducible calibration and testing of the extraction, cleanup, and LC-MS/MS systems.

- Aqueous samples are spiked with isotopically labeled standards (EIS), extracted using solid-phase extraction (SPE) cartridges and undergo cleanup using carbon before analysis.

- Solid samples are spiked with EIS, extracted into basic methanol, and cleaned up by carbon and SPE cartridges before analysis.

- Tissue samples are spiked with EIS, extracted in methanol with potassium hydroxide followed by acetonitrile, and cleaned up by carbon and SPE cartridges before analysis.

3.0 INTERFERENCES

Solvents, reagents, glassware, and other sample processing hardware may yield artifacts and elevated baselines causing misinterpretation of chromatograms. Specific selection of reagents and solvents is required.

Clean all equipment prior to, and after, each use to avoid PFAS cross-contamination. Typical cleaning solvents include water, methanol, and methanolic ammonium hydroxide. The residual PFAS content of disposable plasticware and filters must be verified by batch/lot number and may be used without cleaning if PFAS levels are less than the Method Detection Limit (MDL).

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Prior to use, glassware must be solvent rinsed and then air dried. A solvent rinse procedure using methanolic ammonium hydroxide (1%) and methanol is recommended.

Sample manifold ports and transfer tubing should be inspected regularly for signs of wear and/or discoloration. When such observations are made, the associated components should be replaced.

All parts of the SPE manifold must be cleaned between samples by rinsing with methanolic ammonium hydroxide (1%) and air drying prior to use. Smaller parts, like the needles, adapters, reservoirs, transfer lines, and stopcocks associated with the manifold should be rinsed with tap water prior to rinsing with methanolic ammonium hydroxide (1%) and air drying. After loading the samples but prior to elution procedures, the chamber should be rinsed with methanolic ammonium hydroxide (1%).

All materials used in the analysis must be demonstrated to be free from interferences by running method blanks (Section 11.1.1) at the beginning and with each extraction batch (samples started through the extraction process on a given batch to a maximum of 20 field samples).

Reagent water (Section 8.1) can be used to simulate water samples and Ottawa sand and/or reagent-grade sand (Section 7.3) can be used to simulate soils. Fish fillets (tilapia/ cod), chicken breast or other similar animal tissue (see Section 7.3) may be used as the reference matrix for tissue. The laboratory must verify that the source product used does not contain PFAS in detectable amounts.

Interferences co-extracted from samples will vary considerably from source to source, depending on the diversity of the site being sampled. Interfering compounds may be present at concentrations several orders of magnitude higher than the native PFAS. Because low levels of PFAS are measured by this method, elimination of interferences is essential. The cleanup steps given in Section 9.3 can be used to reduce or eliminate these interferences and thereby permit reliable determination of the PFAS at the levels shown in Tables 1, 2 and 3. The most frequently encountered interferences are fluoropolymers; however, bile salts (e.g., Taurodeoxycholic Acid [TDCA]) may be present in various matrices, including fish and wastewaters, and can interfere in the chromatography. For this reason, analysis of a standard containing TDCA is required as part of establishing the initial chromatographic conditions (see Sections 8.3.2 and 8.3.3) and each analytical sequence (see Section 9.4).

4.0 DEFINITIONS

Refer to the Laboratory Quality Manual for a glossary of common lab terms and definitions.

- **Extracted Internal Standard (EIS) quantification:** The response of the target compound is compared to the response of the isotopically labeled analog of another compound with chemical and retention time similarities.
- **Isotope dilution (ID) quantitation:** A means of determining a naturally occurring (native) compound by reference to the same compound in which one or more atoms has been isotopically enriched. The labeled PFAS are spiked into each sample and allow identification and correction of the concentration of the native compounds in the analytical process.
- **Isotopically labeled compound:** An analog of a target analyte in the method which has been synthesized with one or more atoms in the structure replaced by a stable (non-radioactive) isotope of that atom. Common stable isotopes used are 13C (Carbon-13) or Deuterium (D or 2H). These labeled compounds do not occur in nature, so they can be used for isotope dilution quantitation or other method-specific purposes.

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- **Minimum Level of quantitation (ML):** The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. It may be equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.
- **PAS:** Acronym for Pace® Analytical Services, LLC

5.0 HEALTH & SAFETY

The following sections provide general health and safety information about chemicals and materials that may be present in the laboratory.

- The toxicity or carcinogenicity of each chemical material used in the laboratory has not been fully established. Each chemical should be regarded as a potential health hazard and exposure to these compounds should be as low as reasonably achievable.
- The laboratory maintains documentation of hazard assessments and OSHA regulations regarding the safe handling of the chemicals specified in each method. Safety data sheets for all hazardous chemicals are available to all personnel. Employees must abide by the health, safety and environmental (EHS) policies and procedures specified in this SOP and in the Pace® Chemical Hygiene / Safety Manual (COR-MAN-0001).
- Personal protective equipment (PPE) such as safety glasses, gloves, and a laboratory coat must be worn in designated areas and while handling samples and chemical materials to protect against physical contact with samples that contain potentially hazardous chemicals and exposure to chemical materials used in the procedure.
- Concentrated corrosives present additional hazards and are damaging to skin and mucus membranes. For procedures that require use of acids, use acids in a fume hood whenever possible with PPE designed for handing these materials. If eye or skin contact occurs, flush with large volumes of water. When working with acids, always add acid to water to prevent violent reactions. For procedures that that emit large volumes of solvents (evaporation/concentration processes), these activities must be performed in a fume hood or apparatus that reduces exposure.

6.0 SAMPLE COLLECTION, PRESERVATION, HOLDING TIME & STORAGE

PAS does not offer sample collection services for this test method. PAS advises customers to collect samples in accordance with a sampling plan and collection procedures appropriate to meet regulatory requirements and data quality objectives for the project. The minimum sample amounts required for the test are provided in this section.

PAS provides containers for the collection of samples upon client request. The routine container type and size is provided in the following table along with requirements for sample size, preservation and holding time. Refer to Bottle Order Preparation (ENV-SOP-WEST-0005), or however named, for procedures related to preparation of bottle kits.

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Container Type, Minimum Sample Amount, Preservation, and Holding Time

Matrix	Container Size & Type[1]	Minimum Sample Amount[2]	Preservation	Holding Time
Aqueous (non-potable water)	2 x 500 mL linerless HDPE 1 x 125 mL linerless HDPE[3]	500 mL	Thermal: 0-6°C (or ≤ -20°C)	Collection to Preparation: 28 Days (or 90 Days) Preparation to Analysis: 28 Days
Aqueous (leachate)	2 x 125 mL linerless HDPE	100 mL	Thermal: 0-6°C (or ≤ -20°C)	Collection to Preparation: 28 Days (or 90 Days) Preparation to Analysis: 28 Days
Solid (sediment and soil)	3 oz/ 90 mL linerless polypropylene wide mouth	5 g	Thermal: 0-6°C or ≤ -20°C	Collection to Preparation: 90 Days Preparation to Analysis: 28 Days
Solid (biosolid)	3 oz/ 90 mL linerless polypropylene wide mouth	0.5 g	Thermal: 0-6°C or ≤ -20°C	Collection to Preparation: 90 Days Preparation to Analysis: 28 Days
Tissue[4]	3 oz/ 90 mL linerless polypropylene wide mouth	2 g	Thermal: ≤ -20°C	Collection to Preparation: 90 Days Preparation to Analysis: 28 Days

[1] *Default container type provided in sample kit. To allow room for expansion during freezing (if necessary), aqueous sample containers should not be overfilled. Aqueous sample containers should be filled only to the appropriate gradation marked on the container, or to the shoulder of the container if no gradations are provided.*

[2] *Nominal amount of sample required for each discrete test. Solid and biosolid sample amounts reflect dry weight.*

[3] *Used for pre-screening analyses.*

[4] *Container listed here will be used for tissue homogenate; samples may be received at the laboratory as whole fish or filets wrapped in aluminum foil or food grade polyethylene wrap. Ideally fish should be frozen upon collection and shipped to the laboratory as soon as possible.*

Note: Project-specific requirements dictate which storage condition applies. The storage condition to be used for each project must be formally documented in written form (QAPP or otherwise) before samples are received. Without any prior indication from the client, the lab will store all aqueous and solid/biosolid samples at 0-6°C until extraction, with a 28-day holding time (collection to prep) for aqueous matrices and a 90-day holding time (collection to prep) for solid/biosolid matrices.

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Thermal preservation is checked and recorded on receipt in accordance with laboratory SOP (ENV-SOP-WEST-0003, Sample Receipt and Login), or however named.

After receipt, samples are stored as listed above until sample preparation. Prepared sample extracts of all matrices are stored at 0-6°C until sample analysis.

After analysis, samples are retained as stated in the Pace® standard terms and conditions, unless otherwise specified in the analytical services contract. Samples are then disposed of in accordance with Federal, State, and Local regulations.

7.0 EQUIPMENT & SUPPLIES

Use of equivalent instrumentation, support equipment, and supplies from alternative vendors is acceptable so long as they meet the specifications as stated in the reference method.

Due to the possibility of adsorption of analytes onto glass, plastic containers are used for all standard, sample, and extraction preparations. Any time a new lot of SPE cartridges, solvents, cryovials, or autosampler vials are used, it must be demonstrated that a MB is reasonably free of contamination and that the criteria in Section 11.1.1 are met.

7.1 Instrumentation

- High-performance liquid chromatograph (HPLC) equipped with tandem quadrupole mass spectrometer – Sciex 5500+ or equivalent
- Agilent Zorbax RRHD Eclipse Plus C18, 2.1 x 50 mm (1.8 µm) analytical column (Agilent Part # 959757-902), or equivalent
- Guard cartridge/column – Agilent Zorbax Eclipse Plus C18, 2.1 x 5 mm, 1.8 um (Agilent Part# 821725-901), or equivalent
- Trap/delay column – InfinityLab PFC Delay Column, 4.6 x 30 mm (Agilent Part# 5062-8100), or equivalent

7.2 Support Equipment

- Oven – Capable of maintaining a temperature of 105 ± 5 ºC
- Analytical balance – Capable of weighing 0.0001 g
- Top loading balance – Capable of weighing 0.01 g
- Calibrated mechanical variable volume pipettes with disposable HDPE or polypropylene tips (10 µL to 5 mL) – used for preparation of calibration standards and spiked samples
- Point of Use water preparation system – Thermo Scientific Barnstead E-Pure; model 7119 – Used for QC samples to verify the systems are PFAS free
- Ultrasonic mixer – Fisherbrand; Model CPX3800 – 5.7L, 40 kHZ, 120V, 2.9 Amp with timer
- Analog or digital vortex mixer, single or multi-tube (Fisher Scientific 02-215-452, or equivalent)
- Variable speed mixing table (VWR Model 3500 Orbital Shaker, or equivalent)

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- Centrifuge (Beckman Allegra 6, Hettich Rotanta 460, or equivalent), capable of reaching at least 3000 rpm (~2000 RCF)
- Vacuum Pump – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges. GAST model # DOA-P704-AA, Waters Cat# 725000417, 115V, 60Hz, 4.2A
- Vacuum manifold for SPE Cartridges – Waters Cat# WAT200609: SPE Vacuum manifold, or equivalentCat
- Vacuum tubing – 1/4” ID, 5/8” OD, 3/16” wall; Fisher Scientific part# 14-176-6B or equivalent
- PE Transfer tubing – 1/8” X .062 x 500ft, Freelin Wade part# 1C-109-10 or equivalent.

7.3 Supplies

- Solid Phase Extraction (SPE) cartridges – Phenomenex part# CS0-9216, 250 mg WAX/20mL, or equivalent
- Carbon Cleanup cartridges – Phenomenex part# 8B-S528-CAJ, 50 mg GCB, or equivalent
- SPE reservoirs – 60 mL, Phenomenex part# AH0-7189, or equivalent
- SPE adapter caps – Supelco part# 57267 (Adapter cap for 12, 20 & 60 mL SPE tubes)
- Disposable liners for Vacuum Manifold – Waters part# 20685 or equivalent
- Silanized glass wool (Pyrex 3950 or equivalent)
- Reference matrix: Aqueous – reagent water
- Reference matrix: Solid – Ottawa sand
- Reference matrix: Tissue – fish fillets, chicken breast or similar animal tissue. First preference will be frozen cod fillets.
- Bottles – HDPE or PP, with linerless HDPE or polypropylene caps. Various sizes. QEC item # 6212-Q016/BC-150-PACE (500 mL), 6212-Q008BC-P (250 mL), 6213-U004BC-P (125 mL), 6214-003PPGBC-P (90 mL)
- Screw top vials, Polypropylene 0.7-mL with polypropylene caps – used in sample analysis and pre-screening (Waters Cat # 186005219 and 186004169 or equivalent)
- 15- and 50-mL conical polypropylene tubes with polypropylene screw caps for preparing and storing extract solutions and for collection of eluents (Fisher Scientific 05-527-90 and 14-432-22, or equivalent)
- 500-mL conical polypropylene centrifuge bottles for sample centrifugation (Fisher Scientific 07-200-621 or equivalent)
- Extract/Standard storage containers – 15-mL, 8-mL, or 4-mL narrow-mouth HDPE container - Thermo Scientific item# 2002-9050, 2002-9025, 2002-9125; 2.0-mL screw-top polypropylene cryogenic vials – Grainger item# 6EMV1/ Wheaton item# W985872;1.5-mL snap-cap polypropylene microcentrifuge tubes - Fisher item# 05-408-129; or equivalent
- pH Paper, range 0-14 - (VWR Cat# BD3539.606 or equivalent), 0.5-unit readability

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- Disposable glass and plastic pipets

8.0 REAGENTS & STANDARDS

Refer to laboratory SOP (ENV-SOP-MANS-0112, Reagent, Solvent, and Standard Control), or however named, for information regarding standard and reagent tracking and traceability. All reagents and stock standards are commercially prepared, when available. Expiration and storage requirements are defined per manufacturer.

8.1 Reagents

Use of equivalent reagents from alternative vendors is acceptable so long as the substitution meets the performance specifications required by the reference method.

- Acetic acid – ACS grade or equivalent, store at room temperature; VWR cat# BDH3098-3.8LP or equivalent
- Acetonitrile – UV grade or equivalent, verified before use, store at room temperature; Honeywell Cat# 018-4 or equivalent (for extraction)
- Ammonium acetate – ACS or equivalent, store at 2-8° C, replace 2 years after opening date; VWR BDH9204-500G or equivalent.
- 1M aqueous ammonium acetate (Waters Cat# 186006693-1) used for mobile phase additive; store as indicated by manufacturer.
- Ammonium hydroxide – certified ACS+ grade or equivalent, 30% in water, store at room temperature; Fisher A470-500 or equivalent
- Formic acid – greater than 96% purity or equivalent, store at room temperature; Acros 147930010 or equivalent
- Methanol – HPLC grade or better, 99.9% purity, store at room temperature; Honeywell CAT# 230-4 or equivalent
- Mobile Phase A – 2 mM ammonium acetate in 95:5 water/acetonitrile. Aliquot 0.4 mL of aqueous 5M ammonium acetate in 949.6 mL of water and 50 mL of acetonitrile. Alternatively, dissolve 0.154 g of neat ammonium acetate into 950 mL of water and 50 mL of acetonitrile. Store at room temperature; shelf life is 2 months.
- Mobile Phase B – Acetonitrile, Ultra HPLC grade or equivalent; OmniSolv AX0142-1 or equivalent
- Potassium hydroxide – certified ACS or equivalent, store at room temperature, replace after 2 years; Fisher P250-500 or equivalent.
- Reagent water – Laboratory reagent water, test by lot/batch number for residual PFAS content.

8.2 Standards

Use of equivalent standards from alternative vendors is acceptable so long as they are traceable to a national standard, when commercially available. Follow manufacturer's recommended storage conditions and expiration dates.

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8.2.1 Primary PFAS Standard

- EPA Method 1633 Native PFAS Standard mix from Wellington Laboratories (item# EPA-1633STK) – used to prepare the calibration standards and to spike the reference QC samples prepared/analyzed with every batch of samples. Also used to prepare an intermediate standard for calibration standard preparation and low-level QC sample spiking, as described below.

8.2.2 Secondary PFAS Standard

- Method 1633-PFCs-Calibration Standard mix from Absolute Standards (item# 65735) – used to prepare the ICV standard as described below.

8.2.3 Extracted Internal Standard (EIS)

- Mass-labelled PFAS Extraction Standard mix from Wellington Laboratories (item# MPFAC-HIF-ES) – used to prepare analytical standards and spike each sample prior to extraction.

8.2.4 Non-extracted Internal Standard (NIS)

- Mass-labelled PFAS Injection Standard mix from Wellington Laboratories (item# MPFAC-HIF-IS) – used to prepare analytical standards and spike sample extracts prior to instrumental analysis.

8.2.5 Bile Salt (TDCA) Standard

- Neat Taurodeoxycholic acid from Cayman Chemical (item# 15935), or equivalent – used to prepare analytical standards for bile salt interference check.

8.3 Formulations

Prepare standard solutions from materials of known purity and composition or purchase as solutions or mixtures with certification to their purity, concentration, and authenticity. Observe the safety precautions in Section 5.

Purchase of commercial standard solutions or mixtures is highly recommended for this method; however, when these are not available, preparation of stock solutions from neat materials may be necessary. If the chemical purity is 98% or greater, the weight may be used without correction to calculate the concentration of the standard.

When not being used, store standard solutions in the dark at 4 °C, unless the vendor recommends otherwise, in tightly sealed screw-capped vials. Place a mark on the vial at the level of the solution so that solvent loss by evaporation can be detected. Replace the solution if solvent loss has occurred.

Note: 18O-mass labeled perfluoroalkyl sulfonates may undergo isotopic exchange with water under certain conditions, which lowers the isotopic purity of the standards over time.

The laboratory must maintain records of the certificates for all standards for traceability purposes. Copies of the certificates should be provided as part of the data packages in order to check that proper calculations were performed.

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8.3.1 Analytical and Preparation Reagents

Analytical and Preparation reagents are stored in plastic or glass containers under ambient conditions. Expiries are listed with each reagent.

- Instrument Blank Mix (IBLK Mix) – Methanol with 4% water, 1% ammonium hydroxide and 0.625% acetic acid – add ammonium hydroxide (3.3 mL, 30%), reagent water (1.67 mL) and acetic acid (0.625 mL) to methanol (94.4 mL); store at room temperature, replace after 1 month. This solution is used to prepare the instrument blank (Sections 8.3.3.3 and 9.2.5) and sample extract dilutions.
- Mobile Phase A – 2 mM ammonium acetate in 95:5 water: acetonitrile. Aliquot 2.0 mL of aqueous 1M ammonium acetate in 948 mL of water and 50 mL of acetonitrile. Store at room temperature; replace after 2 months or less.
- Mobile Phase B – Acetonitrile, HPLC grade or equivalent; Omnisolv AX0142-1 or equivalent
- Acetic acid (0.1%) - dissolve acetic acid (1 mL) in reagent water (1 L); store at room temperature, replace after 3 months.
- Aqueous ammonium hydroxide (3%) – add ammonium hydroxide (10 mL, 30%) to reagent water (90 mL), store at room temperature, replace after 3 months.
- Methanolic ammonium hydroxide (0.3%) – add ammonium hydroxide (1 mL, 30%) to methanol (99 mL), store at room temperature, replace after 1 month.
- Methanolic ammonium hydroxide (1%) – add ammonium hydroxide (3.3 mL, 30%) to methanol (97 mL), store at room temperature, replace after 1 month.
- Methanolic ammonium hydroxide (2%) – add ammonium hydroxide (6.6 mL, 30%) to methanol (93.4 mL), store at room temperature, replace after 1 month.
- Formic acid (aqueous, 0.1 M) – dissolve formic acid (4.6 g / 3.77 mL) in reagent water (1 L), store at room temperature, replace after 2 years.
- Formic acid (aqueous, 0.3 M) – dissolve formic acid (13.8 g / 11.31 mL) in reagent water (1 L), store at room temperature, replace after 2 years.
- Formic acid (aqueous, 5% v/v) – mix 5 mL formic acid with 95 mL reagent water, store at room temperature, replace after 2 years.
- Formic acid (aqueous, 50% v/v) – mix 50 mL formic acid with 50 mL reagent water, store at room temperature, replace after 2 years.
- Formic acid (methanolic 1:1, 0.1 M formic acid/methanol) – mix equal volumes of methanol and 0.1 M formic acid, store at room temperature, replace after 2 years.
- Methanolic potassium hydroxide (0.05 M KOH) – add 3.3 g of potassium hydroxide to 1 L of methanol, store at room temperature, replace after 3 months.

8.3.2 Intermediate Standards

Intermediate standards are stored in plastic containers as listed below. Expiries are listed with each formulation.

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- TDCA Stock Solution: Dissolve 10 mg of neat TDCA into 5 mL of MeOH; final concentration equals 2000 µg/mL. Store frozen (<0°C) when not in use; replace after 1 year, or sooner if degradation is observed.
- STK-10X Solution: Dilute 200 µL of EPA-1633STK with 1.8 mL of MeOH for a final volume of 2 mL; final concentrations vary by analyte – 25, 50, 100, 125, 250, or 625 ng/mL. Store at 0-6°C when not in use; replace every time a new lot of 1633STK is used, or after 1 month.

8.3.3 Working Solutions

Working solutions are stored in plastic containers under refrigerated conditions at 0-6°C and expire 1 month from the date of preparation.

8.3.3.1 Calibration Standards

A series of calibration solutions containing the target analytes and the EIS and NIS is used to establish the initial calibration of the analytical instrument. The concentration of the method analytes in the solutions varies to encompass the working range of the instrument, while the concentrations of the EIS and NIS (and TDCA) remain constant. The calibration solutions are prepared using the standards and intermediate standards described above. The final solvent composition will match the solvent mix of sample extracts, which contain methanol with 4% water, 1% ammonium hydroxide and 0.625% acetic acid. Calibration standard solutions do not undergo solid phase extraction/cleanup. Prepare the calibration standard solutions according to the table below. Following all formulations listed in this SOP will require 3 ampoules of the 1633STK mix to prepare a full calibration set; other final volumes may be prepared. If the lab follows all formulations in this SOP as written, the remaining volumes of 1633STK and STK-10X solutions after preparing the calibration should be enough to spike approximately 40 sets of aqueous batch QC. The remainder of MPFAC-HIF-ES and MPFAC-HIF-IS mixes should provide enough volume to spike approximately 40-45 samples.

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Component[1]	L1	L2 (LOQ)	L3	L4	L5 (CCV)	L6	L7	L8	L9
STK-10X	20	16	40						
EPA-1633STK				20	100	100	200	400	500
MPFAC-HIF-ES	25	10	10	10	25	10	10	10	10
MPFAC-HIF-IS	25	10	10	10	25	10	10	10	10
TDCA Stock	25				25				10
IBLK Mix	4905	1964	1940	1960	4825	1880	1780	1580	1470
Final Volume	5000	2000	2000	2000	5000	2000	2000	2000	2000

[1]*All values listed are µL*

8.3.3.2 Initial Calibration Verification Standard (ICV)

Prepare the ICV standard using the Absolute Standards 1633 PFC Mix, following the table below; expected concentration for all compounds in the ICV will be 10 ng/mL. The ICV is prepared from a separate, second source (or separate manufacturer lot) than that used for the calibration solutions. If a second source or lot is unavailable, a separate preparation using the same stocks is acceptable.

Component	Volume used (µL)
1633 PFC Mix	20
MPFAC-HIF-ES	20
MPFAC-HIF-IS	20
IBLK Mix	3940
ICV Final Volume	4000

8.3.3.3 Instrument Blank

A solvent blank is analyzed at the beginning of each analytical sequence, to demonstrate clean instrumental background, and after samples containing high levels of target compounds (e.g., calibration, CCV) to monitor carryover from the previous injection. The instrument blank consists of clean reagent fortified with the EIS and NIS for quantitation purposes. Prepare the IBLK using the IBLK mix (Section 8.3.1) and an appropriate volume of EIS and NIS; alternatively, prep the IBLK from 1887 µL of 1% Methanolic ammonium hydroxide, 80 µL of reagent water, 12.5 µL of acetic acid, and 10 µL each of EIS and NIS.

9.0 PROCEDURE

9.1 Equipment Preparation

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9.1.1 Instrument Setup

9.1.1.1 Routine Instrument Operating Conditions

Example LC Gradient

Step	Total Time (min)	Flow Rate (µL/min)	A: 5% Acetonitrile w/ 10mM Ammonium Acetate (%)	B: Acetonitrile (%)
1	0.00	400	80	20
2	6.00	400	0	100
3	6.50	400	0	100
4	6.51	400	80	20
5	8.50	400	80	20

Example MS Parameters

MS Parameter	Setting or Value
Sample Loop	100 µL
Injection Volume	2 µL
Column Oven Temperature	40° C
MRM Scan Window	60 sec
Curtain Gas (CUR)	30.0
Collision Gas (CAD)	9
Ion Spray Voltage (IS)	-4500 V
Source Temperature (TEM)	450° C
Ion Source Gas 1 (GS1)	30.0
Ion Source Gas 2 (GS2)	50.0

9.1.1.2 Mass Calibration

The mass spectrometer must undergo mass calibration to ensure accurate assignments by the instrument. This mass calibration must be performed at least annually to maintain instrument sensitivity and stability. Mass calibration must be repeated on an as-needed basis (e.g., QC failures, ion masses fall outside of the instrument required mass window, major instrument maintenance, or if the instrument is moved). Mass calibration must be performed using the calibration compounds and procedures prescribed by the manufacturer. The procedures used for mass calibration and mass calibration verification must evaluate an ion range that encompasses the ion range (Q1 and Q2 m/z) of the analytes of interest of this method.

9.1.1.3 Mass Calibration Verification

A mass calibration verification must be performed following mass calibration, prior to standard and sample analyses. Mass verification checks must also be performed after any subsequent mass calibrations. The laboratory must follow the instructions for the individual instrument software to confirm the mass calibration, mass resolution and peak relative response. If the manufacturer's

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instructions include options for evaluation of mass resolution, the tightest resolution requirements (typically called unit resolution) must be met.

9.1.1.4 Retention Time (RT) calibration

Once RT windows have been confirmed for each target analyte, EIS, and NIS compound, then once per ICAL and at the beginning of the analytical sequence, the position of all target analyte, EIS, and NIS peaks shall be set using the midpoint standard of the ICAL curve when ICAL is performed. When an ICAL is not performed, the initial CCV retention times or the midpoint standard of the ICAL curve can be used to establish the RT window position.

The RTs for the target analytes, EIS, and NIS compounds must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CCV, whichever was used to establish the RT window position for the analytical batch. All branched isomer peaks identified in either the calibration standard or the qualitative (technical grade) standard also must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CCV. For all target analytes with exact corresponding isotopically labeled analogs, target analytes must elute within 0.1 minutes of the associated EIS compound.

When establishing the chromatographic conditions, it is important to consider the potential interference of bile salts (i.e. TDCA) during analyses of samples. Analytical conditions must be set to allow a separation of at least 1 minute between TDCA and the retention time window of PFOS. The method requires this evaluation when establishing the chromatographic conditions, regardless of the sample matrices to be analyzed.

9.1.2 Support Equipment

Refer to laboratory SOP (ENV-SOP-WEST-0036 Balance Calibration Verification, ENV-SOP-WEST-0123 Pipette and Bottle Top Verification), or however named, for additional information on calibration requirements for support equipment that may be used in this procedure.

9.2 Calibration

Refer to corporate POL ENV-POL-CORQ-0005, *Acceptable Calibration Practices for Instrument Testing*, for general laboratory calibration policies and procedures.

9.2.1 Calibration Frequency

Prior to the analysis of samples, and after a successful mass calibration check, each LC-MS/MS system must be calibrated at a minimum of 6 standard concentrations (Section 8.3.3.1 and Appendix A, Table 5). This method procedure calibrates and quantifies 40 PFAS target analytes, using the isotopically labeled compounds added to the sample prior to extraction, by one of two approaches (see Appendix A, Table 4 for quantitation associations):

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- Isotope Dilution quantification (ID), whereby the response of the target compound is compared to the response of its isotopically labeled analog; twenty-four target compounds are quantified in this way.
- Extracted Internal Standard quantification (EIS), whereby the response of the target compound is compared to the response of the isotopically labeled analog of another compound with chemical and retention time similarities; sixteen target compounds are quantified in this way.

Each LC-MS/MS system must be calibrated whenever the laboratory takes corrective action that might change or affect the initial calibration criteria, or if either the CCV or ISC acceptance criteria have not been met.

Each time a modification is made to this method, the laboratory is required to repeat the procedure in Sections 11.3.1 and 11.3.2. If calibration will be affected by the change, the instrument must be recalibrated.

9.2.2 Calibration Levels

Calibration standards are stored in plastic containers under refrigerated conditions (0-6°C).

Concentrations for calibration solutions are presented in Appendix A, Table 5. A minimum of six contiguous calibration standards are required for a valid analysis when using a linear calibration model, with at least five of the six calibration standards being within the quantitation range (e.g., from the LOQ to the highest calibration standard). If a second-order calibration model is used, then a minimum of seven calibration standards are required, with at least six of the seven calibration standards within the quantitation range. The lowest level calibration standard must be at a concentration less than or equal to the Limit of Quantitation (LOQ) and must meet a signal-to-noise ratio of 3:1 for the quantitation and confirmation ions that exist and must meet ion ratio requirements described in Section 10.1.1.3. If the analyte has no confirmation ion, then a 10:1 signal to noise ratio is required. All initial calibration requirements listed in Section 9.2.4 and 9.2.5 must be met.

Note: Additional calibration standards, at levels lower than the lowest calibration standard listed in the method, may be added to accommodate a lower limit of quantitation if the instrument sensitivity allows. Calibration standards at the high end of the calibration may be eliminated if the linearity of the instrument is exceeded or at the low end if those calibration standards do not meet the S/N ratio criterion of 3:1 (for quantitation and confirmation ions that exist; 10:1 for analytes with no confirmation ion), so long as the required number of calibration points is met. All analytes with commercially available stable isotope analogues must be quantified using isotope dilution.

9.2.3 Calibration Sequence

Calibration standards must be analyzed in sequence from lowest to highest concentration to minimize the chance that carryover from a higher concentration standard will boost the area of a lower concentration standard. A typical sequence for days when calibration is required is shown below.

Description	Comment
ICAL L1	

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Description	Comment
ICAL L2	Also used as ISC (Section 9.2.4.4)
ICAL L3	
ICAL L4	
ICAL L5	Also used as bracketing/closing CCV (Section 9.2.4.5)
ICAL L6	
ICAL L7	
ICAL L8	
ICAL L9	
IBLK	Any detections must be <MDL
ICV	%R must be 70 – 130%
CCV (ISC)	%R must be 70-130%; begins and ends Analytical Sequence

9.2.4 Calibration Evaluation

If the criteria for initial calibration are not met, inspect the system for problems and take corrective actions to achieve the criteria. This may require the preparation and analysis of fresh calibration standards. All initial calibration criteria must be met before any samples or required blanks are analyzed.

9.2.4.1 Curve Fit

One of the following two approaches must be used to evaluate the linearity of the instrument calibration. Weighting (typically 1/x or 1/x2) is allowed for linear and non-linear regressions.

- Option 1: Calculate the relative standard deviation (RSD) of the Relative Response (RR) or Response Factor (RF) values of the initial calibration standards for each native compound and isotopically labeled compound. See Section 10.2.1 for calculation of RR and RF. The RSD must be ≤ 20% to establish instrument linearity.

- Option 2: Calculate the relative standard error (RSE) for each native compound and EIS compound for all the initial calibration standards that were analyzed. The RSE for all method analytes must be ≤ 20% to establish instrument linearity.

If these criteria cannot be met, corrective action should be taken to restrict the range of calibration, reanalyze and/or reprepare the ICAL standards, or perform instrument maintenance and/or re-optimization.

If more than the minimum number of standards are analyzed and levels are excluded from the calibration, only the lowest or highest standards may be excluded, except as noted here. The removal of calibration levels from the interior of the curve is allowed only when there is sound technical reason for doing so and when the level is removed for all analytes; for example, when it can be proven that the wrong standard was analyzed for the calibration level or there is obvious evidence that the instrument malfunctioned during injection of the standard. The removal of any calibration level from the interior of the curve must be approved by the department supervisor/manager. Management approval and

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the rationale for the level removal must be documented and kept with the technical record.

9.2.4.2 Relative Error (% RE)

Although not required by the method, it may be useful to compare the actual responses for each standard to the calibration model; percent error of >30% between the calculated and expected concentrations of an analyte in any standard may be cause for concern.

9.2.4.3 Initial Calibration Verification (ICV)

As part of the IDOC and once after each ICAL, analyze an ICV sample prepared from a second source (different from the source of the ICAL standards). If a second vendor is not available, then a different lot of the standard from the same vendor should be used. The ICV should be prepared and analyzed just like a CCV. Acceptance criteria for the ICV are identical to the CCVs: the calculated concentration for each analyte must be within ± 30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, correct the problem and rerun the ICV. If the problem persists, repeat the ICAL. Samples are not to be analyzed until the ICAL has been verified by acceptable ICV accuracy.

9.2.4.4 Instrument Sensitivity Check (ISC)

The lowest calibration standard within the quantitation range must be analyzed at the beginning of the analytical sequence. The signal-to-noise ratio of the ISC must be ≥ 3:1 for the quantification ions and the confirmation ions, or ≥ 10:1 if the analyte only has a quantification ion. Recovery of the native and EIS compounds for the ISC must be within 70-130%. If the requirements cannot be met, the problem should be corrected before analyses can proceed.

The lowest calibration standard within the quantitation range must be analyzed at the beginning of the analytical sequence. The signal-to-noise ratio of the ISC must be ≥ 3:1 for the quantification ions and the confirmation ions, or ≥ 10:1 if the analyte only has a quantification ion. Recovery of the native and EIS compounds for the ISC must be within 70-130%. If the requirements cannot be met, the problem should be corrected before analyses can proceed.

9.2.4.5 Continuing Calibration Verification (CCV)

After a passing MS resolution and a successful initial calibration is achieved and prior to the analysis of any samples, the calibration is verified by injecting an aliquot of the appropriate concentration ICAL standard, analyzed with the same conditions used during the ICAL. CCV is performed at the beginning of each analytical sequence, after every ten samples, and at the end of the analytical sequence. In this context, a “sample” is defined as a field sample: MBs, CCVs, LCSs, MSs, FDs, TBs and MSDs are not counted as samples. All CCV analyses are performed using a mid-level ICAL standard, except for the daily Instrument Sensitivity Check, as noted above.

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Calculate concentration for each native and EIS compound in the CCV; the recovery of native and EIS compounds for the CCVs must be within 70 – 130%. If the CCV criteria are not met, take corrective action (possibly including recalibration) and reanalyze any extracts that were analyzed between the last passing CCV and the one that failed. Alternately, the analyst may immediately analyze two CCVs for confirmation. If both confirmation CCV analyses meet the recovery criteria, analysis may proceed; however, the analyst must rerun any samples that were analyzed after the failing CCV and before the 2 passing CCVs. If either of the 2 confirmation CCV analyses fails to meet the acceptance criteria take corrective action and recalibrate the LC-MS/MS.

If an individual target compound recovery in a CCV is above the upper control limit and all associated samples are ND for that compound, the data for those samples may be reported. In such cases, a narrative statement must be included in the report indicating the specific compound result that was biased high in the CCV, and that samples were ND for that compound and thus reportable.

9.2.5 Initial Calibration Blank (ICB) / Continuing Calibration Blank (CCB)

One instrument blank (IBLK) is analyzed immediately following the highest ICAL standard analyzed (ICB), each analysis day prior to sample analysis, and following each bracketing CCV in a sequence (CCB), to check for carryover and instrument contamination. The concentration of each analyte must be ≤ the MDL-equivalent concentration in each IBLK/ICB/CCB. If the IBLK does not pass this requirement after the highest ICAL standard, the acquisition method should be adjusted to reduce the amount of carryover observed. Alternately, the calibration should be performed using a lower concentration for the highest standard until the acceptance criteria is met.

If unacceptable contamination is persistent in blanks, analyze additional instrument blanks until the response of the analyte is no longer detectable, or perform additional troubleshooting steps to identify and minimize other potential sources of PFAS contamination.

9.3 Sample Preparation

This section describes the sample preparation procedures for aqueous samples (Section 9.3.3), solid samples (soil, sediment or biosolid; Section 9.3.6), and tissue samples (Section 9.3.9). For solid samples, percent solids are determined using the procedures in Section 9.3.2. This section also describes the solid phase extraction (SPE) and extract cleanup protocols for all matrices.

Note: The laboratory may choose to pre-screen some samples prior to performing the analysis, following the protocol described in Appendix D. For aqueous samples, use the smaller secondary container to perform the pre-screening. If high levels of PFAS are present in the sample, a lower volume is required for analysis.

Do not use any fluoropolymer articles or task wipes in these extraction procedures. Use only HDPE or polypropylene wash bottles and centrifuge tubes. Reagents and solvents for cleaning may be kept in glass containers.

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9.3.1 Homogenization & Subsampling

Refer to laboratory SWI ENV-SWI-WEST-0128, Subsampling of Soil / Solid Samples, or however named, for information regarding the handling, homogenization, and splitting of samples to ensure that a representative aliquot is used for preparation.

The laboratory may subsample the aqueous samples as described in Appendix E; however, subsampling must meet project-specific requirements. The laboratory must notify the client that subsampling has occurred. Subsampling is acceptable for samples which require greater than a 10X dilution for over-range detections (or are known/expected to be highly contaminated), and for samples which fail the acceptance criteria for EIS compounds (see Appendix B, Tables 10-12). Other sample matrix characteristics which may require subsampling are described in Appendix G. When subsampling is required to manage high concentrations, no less than 250 µL of aqueous or leachate samples may be subsampled - if greater dilution is required, serial dilution must be employed. When subsampling is required to manage challenging matrices, no less than 1 mL of samples may be subsampled. For solid and tissue samples, no less than 10% of the target sample mass should be used for reduced-mass extractions, to help ensure the extracted mass is representative of the bulk sample. This means no less than 0.5 g for solids and no less than 0.2 g for tissues may be used for sample preparation.

Tissue sample homogenization will be performed in the Pace Green Bay facility, following SOP ENV-SOP-GBAY-0129 v05 *Sample Homogenization Compositing and Sub-Sampling*.

9.3.2 Determination of Percent Solids

Aqueous samples received with visually observable solids will be handled following the decision tree presented in Appendix G. No TSS pre-test will be performed on aqueous samples prior to preparation.

Percent solids analysis must be performed on all solid samples (excluding tissues) prior to preparation and analysis. All solid samples will be logged in for both 1633 and percent solids analysis. The percent solids analysis will follow the Method SM2540G protocol.

9.3.3 Aqueous Sample Processing

Per the parent method, this protocol is applicable to aqueous samples containing up to 100 mg/L solids per sample, and the procedure requires the preparation of the entire sample where possible. Smaller sample volumes may be analyzed for samples containing solids greater than specified for this method, or when unavoidable due to high levels of PFAS. The typical sample size is 500 mL; however, sample size may vary, depending on project requirements, applicable regulations, and sample characteristics. The sample is to be analyzed in its entirety and should not be filtered.

Leachate samples are analyzed using a 100 mL sample volume. Therefore, they must not be included in the same sample preparation batch as aqueous samples analyzed using 500 mL sample volumes. Otherwise, leachate samples are handled identically to all other aqueous samples.

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1) Visually inspect each sample and note any matrix characteristics which may pose challenges during SPE and require additional processing; see Appendix G for more information.

2) Weigh each sample bottle (with the lid) to the nearest 0.1 g. The volume of the aqueous sample analyzed is determined by weighing the full sample bottle and then the empty sample bottle after extraction is complete.

3) Prepare a method blank and two LCSs using PFAS-free water in HDPE bottles. Select a volume of water that is typical of the samples in the batch (i.e., 500 mL; 100 mL for leachate samples). Spike one LCS sample with native standard solution at 2x the LOQ (64 µL of STK-10X mix). This aliquot (LLLCS) will serve to verify the LOQ. Spike the other LCS sample at a concentration near the mid-level calibration point (40 µL of EPA-1633STK). This aliquot will serve as the traditional LCS.

Note: If matrix spikes are required for a specific project, spike the field sample bottles designated for use as MS/MSD samples in the same manner as the LCS.

4) Spike 20 µL of EIS solution (Section 8.2.3) directly into the sample in the original bottle (or subsampled bottle) as well as to the bottles prepared for the QC samples. Mix by capping and inverting the sample containers.

5) Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide (or with 5% formic acid and 3% aqueous ammonium hydroxide). The sample is now ready for solid phase extraction (SPE) and cleanup.

9.3.4 Solid Phase Extraction of Aqueous Samples

Note: Carbon cleanup is required. Carbon cleanup may remove analytes if the sample has a very low organic carbon content (this is unusual for non-drinking water environmental samples). This will be apparent if the isotope dilution standard recoveries are significantly higher on the reanalysis.

1) Pack clean silanized glass wool to half the height of a WAX SPE cartridge barrel; repeat for the total number of samples in the batch.

2) For each sample and QC aliquot, set up the vacuum manifold with one WAX SPE cartridge plus a reservoir adaptor and reservoir for each cartridge; label each reservoir with the associated sample ID. If using plastic transfer lines instead of reservoirs, ensure the connecting caps are snug in each cartridge and the transfer lines are placed within the appropriate sample; label each cartridge tube with the associated sample ID.

3) Pre-condition the cartridges by washing them with 15 mL of 1% methanolic ammonium hydroxide followed by 5 mL of 0.3M formic acid. Perform each rinse separately. Do not allow the WAX SPE to go dry. Discard the wash solvents.

4) Pour the sample into the reservoir (do not use a pipette), taking care to avoid splashing while loading; or, if using transfer lines, begin opening the stopcocks on the vacuum manifold. Adjust the vacuum/stopcocks to pass each sample through

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the cartridge at approximately 5-10 mL/min; discard the eluate. Retain the empty sample bottle for later rinsing (Section 9.3.5).

Note: In the event the SPE cartridge begins to clog during aqueous sample loading, abandon the loading step and attempt to rinse and dry the clogged cartridge, following the protocol below. The cartridge is then ready for elution. If the clogging prevents the rinse from passing through the cartridge, it will not be possible to collect an extract for the associated sample. See Appendix G for more information.

5) Rinse the walls of the reservoir with 5 mL reagent water twice, followed by 5 mL of 1:1 0.1M formic acid/methanol and pass those rinses through the cartridge using vacuum. If using sample transfer lines for loading, add the 3 rinses to the bottle and load through the transfer lines to the cartridge, one reagent at a time. Dry the cartridge by pulling air through for approximately 5 minutes. Discard the rinse solution.

6) After the WAX cartridges are sufficiently dry, rinse the GCB cartridges with 5 mL of 1% methanolic ammonium hydroxide; discard the rinsate. Do not allow the GCB to go completely dry.

7) Connect the outlet of the WAX cartridges to the inlet of the GCB cartridges to stack them on the manifold and allow for cleanup of the extract as part of elution. Ensure that the WAX cartridges are returned to their original locations on the manifold to avoid cross contamination. Continue to the elution steps in the next section.

9.3.5 Elution of Aqueous Sample Extracts

1) Place clean collection tubes inside the manifold, ensuring that the extract delivery tips do not touch the walls of the tubes. Resume vacuum and ensure a proper seal is achieved. DO NOT add NIS to these collection tubes.

2) Add 5 mL of 1% methanolic ammonium hydroxide to each empty sample bottle. Cap the bottle and rotate to ensure all internal surfaces of each bottle are rinsed; avoid vigorous shaking when rinsing the 500 mL aqueous sample bottles with only 5 mL of methanol – any evaporation/vaporization will contribute to loss of extract here. After rinsing the inside of the sample bottle, pour the rinse from the bottle or use a plastic transfer pipette to transfer the rinse to the SPE reservoir, using it to wash the walls of the reservoir. If using sample transfer lines, simply transfer this rinse from each sample container to its associated cartridge using vacuum. Allow the elution solvent to soak the SPE sorbent for 2 minutes before using vacuum to pull the elution solvent through the cartridge and into the collection tubes in a slow, dropwise manner.

3) Air dry the empty sample bottle after the rinse is transferred. Weigh the empty bottle with the cap on and subtract that from the weight of the bottle with sample, determined in Section 9.3.3, step 2.

4) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

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9.3.6 Solid Sample (excluding tissues) Processing

Any solid sample received containing <50% solids (>50% moisture; >10 g target mass for 5 g dry weight) should be re-logged and prepared as a biosolid, using a target dry weight of 0.5 g. Any solid or biosolid sample received containing <5% solids (>95% moisture; >10 g target mass for 0.5 g dry weight) should be re-logged and prepared as a leachate sample, using no more than 100 mL of sample for extraction.

1) Mix the sample in its original jar. If it is impractical to mix the sample within its container, transfer the sample to a larger container. Mix the sample thoroughly, stirring from the bottom to the top and in a circular motion along the sides of the jar, breaking particles up by pressing against the side of the container. The homogenized sample should be even in color and have no separate layers. Store the homogenized material in its original container or in multiple smaller containers.

2) Determine the percent solids as per Section 9.3.2.

Note: The target sample weight for sediment or soil is 5 g dry weight. The target sample weight for biosolids is 0.5 g dry weight. Small amounts of reagent-free water used for method blanks (10% of sample weight or less) can be added to unusually dry samples. This is an option, not a requirement.

3) Check the LIMS system for the percent solids data associated with the samples to be prepared. Using the percent solids data and the calculation below, weigh out an aliquot of each solid sample, not dried, into a 50 mL polypropylene centrifuge tube. Sample mass should be within ±0.2 g of target mass for soil and sediment samples, and within ±0.02 g of target mass for biosolids samples. Sample aliquot should provide 5 g dry weight (Wi_{Dry} below) for soil and sediment or 0.5 g dry weight for biosolids. Because biosolid samples are analyzed with a 0.5 g sample mass, they must not be included in the same sample preparation batch as solid samples analyzed with 5 g sample masses. Any solid sample received containing <50% solids (>50% moisture; >10 g target mass for 5 g dry weight) should be re-logged and prepared as a biosolid, using a target dry weight of 0.5 g. Any solid or biosolid sample received containing <5% solids (>95% moisture; >10 g target mass for 0.5 g dry weight) should be re-logged and prepared as a leachate sample, using no more than 100 mL of sample for extraction.

$$Solid\ Sample\ Target\ Mass\ (g) = \frac{Wi_{Dry}\ (g)}{\%\ solids\ (decimal)}$$

4) Prepare batch QC samples using 5 g of reference solid wetted with 2.5 g of reagent water for the method blank and two LCSs (use 0.5 g of reference solid with 0.25 g of reagent water for biosolid extraction batches). The addition of reagent water to the sand provides a matrix closer in composition to real-world samples. Spike one LCS sample with native standard solution at 2x the LOQ (80 µL of STK-10X mix). This aliquot (LLLCS) will serve to verify the LOQ. Spike the other LCS sample at a concentration near the mid-level calibration point (40 µL of EPA-1633STK). This aliquot will serve as the traditional LCS.

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Note: If matrix spikes are required for a specific project, spike the field sample bottles designated for use as MS/MSD samples in the same manner as the LCS.

5) Spike 20 µL of EIS solution (Section 8.2.3) directly into each centrifuge tube containing the aliquoted field and QC samples. Vortex or shake the sample to disperse the standard and allow to equilibrate for approximately 30 minutes.

6) Add 15 mL of 0.3% methanolic ammonium hydroxide to each centrifuge tube. Vortex to disperse, then shake for 30 minutes on a variable speed mixing table. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and transfer the supernatant to a clean, labeled 50 mL polypropylene centrifuge tube.

7) Add 15 mL of 0.3% methanolic ammonium hydroxide to the remaining solid sample in each centrifuge tube. Vortex to disperse, then shake for 30 minutes on a variable speed mixing table. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and decant the supernatant from the second extraction into the centrifuge tube with the supernatant from the first extraction.

8) Dilute to approximately 40 mL with reagent water. A separate centrifuge tube marked at the 40 mL level may be kept for a visual reference to get the approximate volume. Samples containing excess water may yield extracts that are greater than 40 mL in volume; therefore, do not add water to these.

9) Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide (or with 5% formic acid and 3% aqueous ammonium hydroxide). The extract is now ready for solid phase extraction (SPE) and cleanup.

9.3.7 Solid Phase Extraction of Solid Samples

1) Pack clean silanized glass wool to half the height of a WAX SPE cartridge barrel; repeat for the total number of samples in the batch.

2) For each sample and QC aliquot, set up the vacuum manifold with one WAX SPE cartridge plus a reservoir adaptor and reservoir for each cartridge; label each reservoir with the associated sample ID. If using plastic transfer lines instead of reservoirs, ensure the connecting caps are snug in each cartridge and the transfer lines are placed within the appropriate sample; label each cartridge tube with the associated sample ID.

3) Pre-condition the cartridges by washing them with 15 mL of 1% methanolic ammonium hydroxide followed by 5 mL of 0.3M formic acid. Perform each rinse separately. Do not allow the WAX SPE to go dry. Discard the wash solvents.

4) Pour the sample into the reservoir (do not use a pipette), taking care to avoid splashing while loading; or, if using transfer lines, begin opening the stopcocks on the vacuum manifold. Adjust the vacuum/stopcocks to pass each sample through the cartridge at approximately 5-10 mL/min; discard the eluate. Retain the empty sample bottle for later rinsing (Section 9.3.8).

5) Rinse the walls of the reservoir with 5 mL reagent water twice, followed by 5 mL of 1:1 0.1M formic acid/methanol and pass those rinses through the cartridge using

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vacuum. If using sample transfer lines for loading, add the 3 rinses to the bottle and load through the transfer lines to the cartridge, one reagent at a time. Dry the cartridge by pulling air through for approximately 5 minutes. Discard the rinse solution.

6) After the WAX cartridges are sufficiently dry, rinse the GCB cartridges with 5 mL of 1% methanolic ammonium hydroxide; discard the rinsate. Do not allow the GCB to go completely dry.

7) Connect the outlet of the WAX cartridges to the inlet of the GCB cartridges to stack them on the manifold and allow for cleanup of the extract as part of elution. Ensure that the WAX cartridges are returned to their original locations on the manifold to avoid cross contamination. Continue to the elution steps in the next section.

9.3.8 Elution of Solid Sample Extracts

1) Place a clean collection tube in the manifold rack for each sample and QC aliquot, ensuring the extract delivery needles are not touching the walls of the tubes. Resume vacuum and ensure a proper seal is achieved. DO NOT add NIS to these collection tubes.

2) Rinse the inside of each sample's centrifuge tube using 5 mL of 1% methanolic ammonium hydroxide. Then pour the rinse from each bottle (or use a plastic transfer pipette) to transfer the rinse to the associated SPE reservoir, washing the walls of the reservoir. If using sample transfer lines, simply transfer this rinse from each sample container to its associated cartridge using vacuum. Allow the elution solvent to soak the SPE sorbent for 2 minutes, then use vacuum to pull the elution solvent through the cartridge and into the collection tubes in a slow, dropwise manner.

3) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

9.3.9 Tissue Sample Processing

Prior to processing tissue samples, the laboratory must determine the exact tissue to be analyzed. Common requests for analysis of fish tissue include whole fish with the skin on, whole fish with the skin removed, edible fish fillets (filleted in the field or by the laboratory), specific organs, and other portions. Once the appropriate tissue has been determined, the samples must be prepared and homogenized.

Pace utilizes the Green Bay location for tissue homogenization, following ENV-SOP-GBAY-0129 (Sample Homogenization, Compositing, and Subsampling; specifically, Section 9.4).

1) For each sample, weigh a 2 g aliquot of homogenized tissue into a 50 mL polypropylene centrifuge tube. Reseal the container with the remaining homogenized portion of the sample and return it to frozen storage in case it needs to be used for reanalysis. The default sample weight for tissue is 2 g wet weight; however, a 1 g sample may be used. Higher sample weights are not recommended for this method.

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2) Prepare the batch QC samples using 2 g of reference tissue matrix for the method blank and two LCSs. Spike one LCS sample with native standard solutions at 2x the LOQ (80 µL of STK-10X mix). This aliquot (LLLCS) will serve to verify the LOQ. Spike the other LCS sample at a concentration near the mid-level calibration point (40 µL of EPA1633-STK). This aliquot will serve as the traditional LCS.

Note: If matrix spikes are required for a specific project, spike the field sample bottles designated for use as MS/MSD samples in the same manner as the LCS.

3) Spike 20 µL of EIS solution (Section 8.2.3) directly into each field and QC sample. Vortex and allow to equilibrate for approximately 30 minutes.

4) Add 15 mL of 0.05M KOH in methanol to each sample. Vortex to disperse the tissue then place tubes on a variable speed mixing table to shake for 1 hour. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and collect the supernatant in a 125mL sample bottle.

5) Add 10 mL of acetonitrile to remaining tissue in the centrifuge tube, vortex to mix and disperse the tissue. Sonicate for 30 minutes. Centrifuge at 3000 rpm (~2000 RCF) for 10 minutes and collect the supernatant, adding it to the 125mL bottle containing the initial extract.

6) Dilute to approximately 75 mL with reagent water. A separate bottle marked at the 75 mL level may be used to get the approximate volume.

7) Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide (or with 5% formic acid and 3% aqueous ammonium hydroxide). The extract is now ready for solid phase extraction (SPE) and cleanup.

9.3.10 Solid Phase Extraction of Tissue Samples

1) Pack clean silanized glass wool to half the height of a WAX SPE cartridge barrel; repeat for the total number of samples in the batch.

2) For each sample and QC aliquot, set up the vacuum manifold with one WAX SPE cartridge plus a reservoir adaptor and reservoir for each cartridge; label each reservoir with the associated sample ID. If using plastic transfer lines instead of reservoirs, ensure the connecting caps are snug in each cartridge and the transfer lines are placed within the appropriate sample; label each cartridge tube with the associated sample ID.

3) Pre-condition the cartridges by washing them with 15 mL of 1% methanolic ammonium hydroxide followed by 5 mL of 0.3M formic acid. Perform each rinse separately. Do not allow the WAX SPE to go dry. Discard the wash solvents.

4) Pour the sample into the reservoir (do not use a pipette), taking care to avoid splashing while loading; or, if using transfer lines, begin opening the stopcocks on the vacuum manifold. Adjust the vacuum/stopcocks to pass each sample through the cartridge at approximately 5-10 mL/min; discard the eluate. Retain the empty sample bottle for later rinsing (Section 9.3.8).

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5) Rinse the walls of the reservoir with 5 mL reagent water twice, followed by 5 mL of 1:1 0.1M formic acid/methanol and pass those rinses through the cartridge using vacuum. If using sample transfer lines for loading, add the 3 rinses to the bottle and load through the transfer lines to the cartridge, one reagent at a time. Dry the cartridge by pulling air through for approximately 5 minutes. Discard the rinse solution.

6) After the WAX cartridges are sufficiently dry, rinse the GCB cartridges with 5 mL of 1% methanolic ammonium hydroxide; discard the rinsate. Do not allow the GCB to go completely dry.

7) Connect the outlet of the WAX cartridges to the inlet of the GCB cartridges to stack them on the manifold and allow for cleanup of the extract as part of elution. Ensure that the WAX cartridges are returned to their original locations on the manifold to avoid cross contamination. Continue to the elution steps in the next section.

9.3.11 Elution of Tissue Sample Extracts

1) Place a clean collection tube in the manifold rack for each sample and QC aliquot, ensuring the extract delivery needles are not touching the walls of the tubes. Resume vacuum and ensure a proper seal is achieved. DO NOT add NIS to these collection tubes.

2) Rinse the inside of each sample's centrifuge tube using 5 mL of 1% methanolic ammonium hydroxide. Then pour the rinse from each bottle (or use a plastic transfer pipette) to transfer the rinse to the associated SPE reservoir, washing the walls of the reservoir. If using sample transfer lines, simply transfer this rinse from each sample container to its associated cartridge using vacuum. Allow the elution solvent to soak the SPE sorbent for 2 minutes, then use vacuum to pull the elution solvent through the cartridge and into the collection tubes in a slow, dropwise manner.

3) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

9.4 Analysis

9.4.1 Sequence Preparation

Analysis of sample extracts for PFAS by LC-MS/MS is performed running manufacturer's data acquisition software. The mass spectrometer is run with unit mass resolution in the multiple reaction monitoring (MRM) mode.

1) Perform mass calibration and mass calibration verification, establish the operating conditions, and perform an initial calibration prior to analyzing samples. Only after all performance criteria are met may blanks, MDLs, IDOC/LCS, and samples be analyzed.

2) Each day of analysis, the column must be thoroughly flushed with 100% Acetonitrile for at least 30 minutes to clear any accumulated impurities and interferences from the sample pathway and equilibrate the system. It is also good practice to open the purge valve(s) on the pumps for the first ~1 minute of flush time and/or use the "purge"

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function available as part of the pump functionality. Additionally, it is good practice to purge the autosampler injector flow path daily prior to analysis by using the "purge" function, if available. The column should then be equilibrated to the analysis starting conditions by flushing for approximately 15 mins with 50:50 Mobile Phase A: Mobile Phase B and finally approximately 15 mins with 80:20 Mobile Phase A: Mobile Phase B (acquisition starting conditions). Ensure that system pressure is stable.

3) Following any initial priming injections on days when a calibration is not needed, an ISC and an instrument blank will be analyzed to demonstrate system suitability and the absence of system contamination prior to sample analysis.

4) After acceptable ISC and IBLK results are confirmed, load and submit extracted samples for analysis, typically starting with batch QC with field samples following. A CCV and CCB must be analyzed after every 10 (or fewer) field samples.

9.4.2 Routine Analytical Sequence

After a successful initial calibration has been completed, samples may be analyzed; an example analytical sequence is provided below. The volume injected for samples and QCs must be identical to the volume used for calibration. Standards and sample extracts must be brought to room temperature and vortexed prior to aliquoting into an instrument vial to ensure homogeneity of the extract.

- ISC
- CCV
- Instrument Blank
- Method Blank
- LLLCS
- LCS
- Samples (10 or fewer)
- CCV
- CCB
- Samples (10 or fewer)
- CCV

If the results are acceptable, the closing CCV analysis may be used as the opening solution for the next analytical sequence.

If the response exceeds the calibration range for any sample, extracts are diluted as per Section 9.4.3 to bring all target responses within the calibration range.

Note: If the analytes that exceed the calibration range in the original analysis are known to not be of concern for the specific project (e.g., are not listed in a discharge permit), then the laboratory may consult with the client regarding the possibility of reporting that sample from the undiluted analysis.

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9.4.3 Sample Dilutions

If the measured concentration for any compound exceeds the calibration range of the system, dilute an aliquot of the sample extract with the IBLK mix solution by a factor no greater than 10x, refortify the NIS compounds to initial concentration, and analyze the diluted extract. If the responses for each applicable EIS in the diluted extract meet the S/N and retention time requirements in Section 10.1.1, and the EIS recoveries from the analysis of the diluted extract, corrected for the dilution, are within the limits presented in Table 10, 11 or 12 (according to sample matrix), then the compounds associated with those EISs may be quantified. The EIS recoveries, compound concentrations, detection limits, and LOQs are adjusted to account for the dilution.

If the EIS responses in the diluted extract do not meet the S/N and retention time requirements listed in Section 10.1.1, then the compound cannot be measured reliably in the diluted extract. In such cases, subsample a smaller aliquot of any affected aqueous sample and dilute it to 500 mL with reagent water and re-extract the sample. For solid sample matrices, prepare a smaller aliquot of soil, biosolid, sediment, or tissue and re-extract the sample. The reduced sample volume (or mass) chosen for the re-extraction should reflect the dilution applied to the original extract (i.e., if the original aqueous sample extract was analyzed at a 10X dilution, 50 mL should be subsampled for the re-extraction). See Section 9.3.1 for more guidance. The reported compound concentrations, detection limits, and LOQs are adjusted to account for the reduced sample volume (or mass) that is extracted.

If the recovery of any isotopically labeled compound is outside of the acceptance limits (Appendix B) in the original, undiluted analysis, a diluted aqueous sample or smaller aliquot (for solids and tissue) should be prepared and analyzed.

10.0 DATA ANALYSIS & CALCULATIONS

10.1 Data Analysis

10.1.1 Qualitative Identification

A native, EIS, or NIS compound is positively identified in a standard, blank, sample, or QC sample when all criteria in Sections 10.1.1.1 through 10.1.1.3 are met.

10.1.1.1 Signal-to-Noise Ratio (S/N)

Peak responses of the quantitation and confirmation ions must be at least three times the background noise level (S/N 3:1). The quantitation ion must have a S/N ≥ 10:1 if there is no confirmation ion. If the S/N ratio is not met in a standard or QC sample due to high background noise, the laboratory must correct the issue (e.g., perform instrument troubleshooting). If the S/N ratio is not met in a blank or sample, then the analyte is to be considered a non-detect.

10.1.1.2 RT Criteria

Target analyte, EIS analyte, and NIS analyte RTs must fall within 0.4 minutes of the predicted retention times from the midpoint standard of the ICAL or initial daily CCV, whichever was used to establish the RT window position for the

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analytical batch. The retention time window used must be of sufficient width to detect earlier-eluting branched isomers. For all method analytes with exact corresponding isotopically labeled analogs, method analytes must elute within 0.1 minutes of the associated EIS.

10.1.1.3 Ion Ratio Criteria

For any reported compound detection, the ratio of the total (branched and linear isomer) quantification ion response to the total (branched and linear isomer) confirmation ion response – referred to as the Ion Ratio – must fall within ± 50% of the ratio observed in the mid-point ICAL standard. The ion ratio requirement does not apply for PFBA, PFPeA, NMeFOSE, NEtFOSE, PFMPA, and PFMBA because suitable secondary transitions are unavailable (not detectable or inadequate S/N).

10.1.2 Manual Integration

Manual integration is sometimes necessary to correct inaccurate automated integrations but must never be used to meet QC criteria or to substitute for proper instrument maintenance and/or method set-up. To assure that all manual integrations are justified and proper all manual integrations must be performed, documented, reviewed, and approved in accordance with corporate SOP ENV-SOP-CORQ-0006, *Manual Integration*. Refer to this SOP for guidance on manual integration techniques and required procedures.

10.1.2.1 Branched Isomer Integration

The response of all isomers in the quantitative standards should be used to define integration parameters and ion ratios. In samples, the total integrated response should include the branched isomer peaks that have been identified in the quantitative standard, if present. For compounds with identified branched and linear isomer peaks, the reported concentration is the sum of all isomers. If standards (either quantitative or qualitative) containing a mix of isomers are not available for purchase for a particular compound, only the linear isomer can be identified and quantitated in samples.

10.1.2.2 Qualification

If the field sample result does not meet all criteria stated in Section 10.1.1, and all sample preparation avenues (e.g., extract cleanup, sample dilution, etc.) have been exhausted, the result may only be reported with a data qualifier alerting the data user that the result could not be confirmed because it did not meet the method-required criteria and therefore should be considered an estimated value. If the criteria listed above are not met for the standards, the laboratory must stop analysis of samples and correct the issue.

10.2 Calculations

Refer to laboratory SOP (ENV-SOP-WEST-0124, Common Laboratory Calculations), or however named, for equations used to perform common calculations.

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10.2.1 ICAL Relative Response (RR) and Response Factor (RF)

The response ratio (RR) for each native compound calibrated by isotope dilution is calculated according to the equation below, separately for each of the calibration standards, using the areas of the quantification ions shown in Table 4. RR is used for the 24 compounds measured by true isotope dilution quantification.

$$RR = \frac{Area_t M_{EIS}}{Area_{EIS} M_t}$$

Where:

$Area_t$ = Measured area of the quantitation ion for the target analyte.

$Area_{EIS}$ = Measured area of the quantitation ion for the corresponding labeled PFAS used as the EIS in the calibration standards.

M_{EIS} = Concentration of the isotopically labeled PFAS uses as the EIS in the calibration standards (ng/L)

M_t = Concentration of the target analyte in the calibration standard (ng/L)

Similarly, the response factor (RF) for each native compound calibrated by extracted internal standard is calculated according to the equation below. RF is used for the 16 compounds measured by extracted internal standard quantification.

$$RF = \frac{Area_t M_{EIS}}{Area_{EIS} M_t}$$

Where:

$Area_t$ = Measured area of the quantitation ion for the target analyte.

$Area_{EIS}$ = Measured area of the quantitation ion for the corresponding labeled PFAS used as the EIS in the calibration standards.

M_{EIS} = Concentration of the isotopically labeled PFAS uses as the EIS in the calibration standards (ng/L)

M_t = Concentration of the target analyte in the calibration standard (ng/L)

A response factor (RF_S) is calculated for each EIS compound in the calibration standard using the equation below. RF_S is used for the 24 isotopically labeled compounds measured by non-extracted internal standard quantification.

$$RF_S = \frac{Area_{EIS} M_{NIS}}{Area_{NIS} M_{EIS}}$$

Where:

$Area_{EIS}$ = Measured area of the quantitation ion for the EIS compound added to the sample before extraction.

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$Area_{NIS}$ = Measured area of the quantitation ion for the NIS compound in the calibration standard.

M_{NIS} = Concentration of the NIS compound in the calibration standard (ng/L).

M_{EIS} = Concentration of the EIS compound in the calibration standard (ng/L).

10.2.2 Target Analyte Concentration

Concentrations of the target analytes are determined with respect to the extracted internal standard (EIS) which is added to the sample prior to extraction (see Table 4). Other equations may be used if the laboratory demonstrates that those equations produce the same numerical result as produced by the equation below.

$$\boldsymbol{Concentration\ (ng/Lor ng/g) = \frac{Area_N M_{EIS}}{Area_{EIS}(\overline{RR}\ or\ \overline{RF})}\ x\ DF\ x \frac{Vf}{Vi}}$$

Where:

$Area_N$ = The measured area of the quantitation ion for the native (unlabeled) PFAS.

$Area_{EIS}$ = The measured area of the quantitation ion for the EIS.

M_{EIS} = The expected concentration of the EIS in the extract (ng/L)

$\boldsymbol{\overline{RR}}$ = Average response ratio used to quantify target compounds by the isotope dilution method.

$\boldsymbol{\overline{RF}}$ = Average response ratio used to quantify target compounds by the extracted internal standard method.

DF = Dilution Factor. If no extract dilution was performed, then DF=1.

Vf = Final extract volume (L)

Vi = Initial sample volume (L) or weight (g)

10.2.3 EIS Concentration

The EIS compounds are quantitated with respect to an NIS, as shown in Table 4, using the response ratios or response factors from the most recent initial calibration. Other equations may be used if the laboratory demonstrates that those equations produce the same numerical result as produced by the equation below.

$$Concentration\ (ng/L\ or\ ng/g) = \frac{Area_{EIS} M_{NIS}}{Area_{NIS}\overline{RF_S}}\ x\ DF\ x \frac{Vf}{Vi}$$

Where:

$Area_{EIS}$ = The measured area of the quantitation ion for the EIS.

$Area_{NIS}$ = The measured area of the quantitation ion for the associated NIS.

M_{NIS} = The expected concentration of the NIS in the extract (ng/L)

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$\overline{RF_S}$ = Average response factor used to quantify the EIS compound by the non-extracted internal standard method.

DF = Dilution Factor. If no extract dilution was performed, then DF=1.

Vf = Final extract volume (L)

Vi = Initial sample volume (L) or weight (g)

10.2.4 Relative Error (%RE)

$$\%\ Relative\ Error = \left(\frac{x'i - xi}{xi}\right) x\ 100$$

Where:

xi = True value of the calibration standard

x'i = Measured concentration of the calibration standard

10.2.5 Percent Relative Standard Deviation

$$\%\ Relative\ Standard\ Deviation = \left(\frac{S}{\bar{\bar{x}}}\right) x\ 100$$

Where:

S = Standard Deviation

X = Mean

10.2.6 Standard Deviation

$$S = \left(\frac{\sum (x_i - \bar{x})^2}{(n-1)}\right)$$

Where:

S = standard deviation

n = size of the population

x_i = each value of the population

$\bar{x}$ = population mean

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10.2.7 Mean

$$\bar{x} = \frac{\left(\sum_{i=1}^{n} x_i\right)}{n}$$

Where:

$\bar{x}$ = population mean

x_i = each value of the population

n = number of values in the population

10.3 Reporting

All results for aqueous samples will be reported in ng/L. All results for solid samples will be reported in ng/g, on a dry-weight basis, and the percent solids for each sample will be reported separately. All results for tissue samples will be reported in ng/g, on a wet-weight basis. All QC data will be reported with the sample results. See Appendix A for specific reporting limits in all matrices.

Unless specified otherwise by a regulatory authority or in a discharge permit, results for analytes that meet the identification criteria are reported down to the concentration of the LOQ established by the laboratory.

Results for any analyte found in a sample or extract that has been diluted will be reported at the least dilute level for which the measured concentration is within the calibration range (e.g., above the LOQ for the analyte and below the highest calibration standard) and in which isotopically labeled compound recoveries are within their respective QC acceptance criteria. This may require reporting results for some analytes from different analyses.

Recoveries of all associated EIS compounds will be reported for all field samples and QC Quality Control & Method Performance

10.4 Quality Control

Prepare and analyze the following QC samples with each batch of samples. Refer to Appendix B for acceptance criteria and required corrective action(s).

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QC Check	Acronym	Frequency
Method Blank	MB	1 per batch of 20 or fewer samples.
Laboratory Control Sample	LCS	1 per batch of 20 or fewer samples.
Low Level Laboratory Control Sample	LLLCS	1 per batch of 20 or fewer samples.
Matrix Spike	MS	1 pair per batch of 20 or fewer samples (if required/requested)
MS Duplicate	MSD	
Sample Duplicate	DUP	1 per AFFF or F3 sample.
Extracted Internal Standard	EIS	All CAL standards, batch QC and field samples.
Non-extracted Internal Standard	NIS	All CAL standards, batch QC and field samples.

The minimum quality control requirements of this method consist of an initial demonstration of laboratory capability, analysis of samples spiked with isotopically labeled compounds to evaluate and document data quality, and analysis of standards and blanks as tests of continued performance. Laboratory performance is compared to established performance criteria to determine if the results of analyses meet the performance characteristics of the method.

If the method is to be applied to a sample matrix other than water (e.g., soils, biosolids, tissue), the appropriate alternative reference matrix is substituted for the reagent water matrix in all performance tests.

The laboratory must make an initial demonstration of the ability to generate acceptable precision and recovery with this method. This demonstration is described in Section 11.3.2.

Analyses of method blanks (MBs) are required on an on-going basis to demonstrate the extent of background contamination in any reagents or equipment used to prepare and analyze field samples. The procedures and criteria for analyses of MBs are described in Section 11.1.1.

The laboratory must spike all samples with isotopically labeled compounds to monitor method performance. These evaluations are described in Sections 11.1.4 and 11.1.5. When results of these spikes indicate atypical method performance for samples, the samples are diluted to evaluate whether the performance issue is caused by the sample matrix. Procedures for dilution are given in Section 9.4.3.

The laboratory must, on an ongoing basis, demonstrate that the analytical system is in control through calibration verification (CCV) and the analysis of blanks and ongoing precision and recovery standards spiked at low (LLLCS) and mid-level concentrations (LCS). These procedures are given in Sections 9.2.4.5, 11.1.1 and 11.1.2.

10.4.1 Method Blank (MB)

A method blank is analyzed with each extraction batch to demonstrate freedom from contamination. The matrix for the method blank must be similar to the sample matrix for the batch (e.g., reagent water blank, solids matrix blank, or tissue blank [Section 7.3]).

Analyze the extract of the method blank aliquot before the analysis of the LCSs.

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If any PFAS is found in the MB 1) at a concentration greater than the LOQ for the analyte, 2) at a concentration greater than one-third the regulatory compliance limit, or 3) at a concentration greater than one-tenth the concentration in a sample in the extraction batch, whichever is greatest, analysis of samples must be halted, and the problem corrected. Other project-specific requirements may apply; therefore, the laboratory may adopt more stringent acceptance limits for the method blank at their discretion. If the contamination is traceable to the extraction batch, samples affected by the blank must be re-extracted and analyzed along with a new MB and LCS/LLLCS, provided enough sample volume is available and the samples are still within holding time. Reanalysis or re-extraction is not required if the samples are not impacted. Samples are not impacted when the MB detection is not present in the sample, or the sample concentration is ≥10x the concentration of the detection in the MB.

If the new blank also exhibits contamination and additional volume of the associated sample(s) is not available for re-extraction and analysis, the laboratory must document and report the failures (e.g., as qualifiers on results), unless the failures are not required to be reported as determined by the regulatory/control authority.

10.4.2 Laboratory Control Sample (LCS) / Low-Level LCS (LLLCS)

Analyze the extract of the LCS and LLLCS to ensure the analytical process is under control.

Compute the percent recovery of the native compounds by the appropriate quantification method depending on the compound. Compute the percent recovery of each isotopically labeled compound by the non-extracted internal standard quantitation method.

For the target analytes and EIS compounds, compare the recovery to the LCS and LLLCS limits given in Tables 7 through 10 (or 12). LCS, LLLCS, and EIS results must meet the acceptance criteria in these tables. If all compounds meet the acceptance criteria, system performance is acceptable, and analysis of blanks and aqueous samples may proceed. If, however, any individual concentration falls outside of the given range, the extraction/concentration processes are not being performed properly for that compound. In this event correct the problem, re-extract all affected samples, including any QC samples, and repeat the analysis. Samples are unaffected if the LCS or LLLCS recovery is above the acceptance criteria and the sample is ND for the failing compound.

10.4.3 Matrix Spike (MS)

Matrix spikes generally are not required for methods that employ isotope dilution quantification because deleterious effects of the matrix should be evident in the recoveries of the EIS compounds spiked into every sample. The analysis of matrix spike samples may help diagnose the potential impact of matrix interferences for specific target analytes or sample matrices. See Appendix E for MS/MSD, MS/DUP sample selection guidance.

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10.4.4 Extracted Internal Standard (EIS)

To assess method performance on the sample matrix, the laboratory must spike all samples with the EIS solution. Analyze each sample according to the procedures in this SOP. Compute the percent recovery of the EIS compound concentration using the NIS quantitation method and the equation in Section 10.2.3.

The recovery of each EIS compound in an aqueous sample must be within the limits in Table 10, which are the required QC acceptance limits for aqueous samples, including landfill leachates. The recovery of each EIS compound in soil, sediment, or biosolid samples must be within the limits in Table 11. The recovery of each EIS compound in tissue samples must be within the limits in Table 12. The limits presented in Tables 10, 11, and 12 are the required QC acceptance limits for these matrices derived from the multi-laboratory validation study. If the recovery of any EIS falls outside of these limits, method performance is unacceptable for that EIS in that sample. Additional cleanup procedures or limited dilution of the sample extract may be employed to attempt to bring the EIS recovery within the acceptance normal range.

If the recovery cannot be brought within the acceptance limits after extract dilution or additional cleanup procedures have been employed, then the laboratory must take a smaller aliquot of any affected aqueous sample, dilute it to 500 mL with reagent water and prepare and analyze the diluted sample, or must prepare and analyze a smaller aliquot of soil, sediment, biosolid, or tissue sample, per Section 9.4.3.

10.4.5 Non-extracted Internal Standard (NIS)

To assess method performance, the laboratory must spike all sample extracts with the NIS solution. Analyze each sample extract according to the procedures in this SOP. Percent recovery of the NIS compound is calculated by comparing the measured response in each analysis to the average response of the same compound measured in the ICAL.

Calculate the ratio of the NIS peak areas from the QC and field samples relative to the mean area of the corresponding NIS in the most recent initial calibration to check for possible bad injections of NIS solution or loss of instrument sensitivity.

The NIS areas in the field samples and QC samples must be within 50 to 200% of the mean area of the corresponding NIS in the most recent initial calibration (i.e., within a factor of 2). If the areas are low for all the field samples and QC samples in the batch, it suggests a loss of instrument sensitivity, while low areas in only some field or QC samples suggests a possible bad injection.

10.5 Instrument QC

Perform the following checks to verify instrument performance. Refer to Appendix B for acceptance criteria and required corrective action.

Instrument Check	Acronym	Frequency
Mass Calibration		Annually and on as-needed basis
Mass Calibration Verification		After mass calibration

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Instrument Check	Acronym	Frequency
Initial Calibration	ICAL	Prior to analysis, and on as-needed basis
Initial Calibration Verification	ICV	Following each ICAL
Instrument Blank	IBLK/ICB	Daily prior to analysis and after high standards
Instrument Sensitivity Check	ISC	Daily prior to analysis
Continuing Calibration Verification	CCV	At the beginning (ISC) and every 10 samples
Continuing Calibration Blank	CCB	After each bracketing CCV
RT Window	RTW	During ICAL and at the beginning of each analytical sequence

10.6 Method Performance

10.6.1 Method Validation

Refer to corporate SOP ENV-SOP-CORQ-0011, *Method Validation and Instrument Verification*, for general requirements and procedures for method validation.

Establish Detection Limit (DL) and limits of quantitation (LOQ) at initial method set up and verify the DL and LOQ on an on-going basis thereafter. Refer to corporate policy and/or SOP for DL and LOQ requirements and procedures.

10.6.2 Demonstration of Capability (DOC)

Refer to laboratory SOP ENV-SOP-WEST-0122 Demonstration of Capability, or however named, for information regarding the laboratory's procedures for initial and ongoing Demonstration of Capability.

Prior to unsupervised (independent) work on any client sample, analysts that prepare or analyze samples must have successful initial demonstration of capability (IDOC) and must successfully demonstrate on-going proficiency on an annual basis (see below for details). Successful means the initial or on-going DOC met criteria, documentation of the DOC is complete, and the DOC record is in the employee’s training file.

Each DOC requires the extraction and analysis of four aliquots of the reference matrix type to be tested, prepared in the same way as the mid-level LCS. At least one method blank, matching the matrix being analyzed, must be prepared with the DOC batch. If more than one MB was prepared and analyzed with the DOC batch, all blank results must be reported. All sample processing steps that are to be used for processing samples, including preparation and extraction, must be included in this test.

Using the results of the four analyses, compute the average percent recovery (%REC) and the relative standard deviation (RSD) of the concentration of each target compound. There are no mean or RSD criteria for EIS compounds in the DOC; %REC of each DOC sample should meet the criteria in Appendix B, Tables 10, 11, or 12, depending on the matrix.

For each target compound, compare RSD and %REC to the corresponding limits for initial precision and recovery in Appendix B, Tables 7, 8, or 9, depending on the matrix.

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If RSD and %REC for all compounds meet the acceptance criteria, system performance is acceptable, and analysis of blanks and samples may begin. If, however, any individual RSD exceeds the precision limit or any individual %REC falls outside the range for recovery, system performance is unacceptable for that compound. Correct the problem and repeat the test.

11.0 Data Review & Corrective Action

11.1 Data Review

The data review process of Pace® Analytical Services includes a series of checks performed at different stages of the process by different people to ensure that SOPs were followed, the analytical record is complete and properly documented, QC criteria were met, proper corrective actions were taken for QC failure and other nonconformance(s), and test results are reported with proper qualification, when necessary.

The review and checks that are performed by the employee performing the task is called primary review.

All data and test results are also peer reviewed. This process, known as secondary review, is performed to verify SOPs were followed, that calibration, instrument performance, and QC criteria were met and/or proper corrective actions were taken, qualitative ID and quantitative measurement is accurate, all manual integrations are justified, documented, and approved in accordance with the Pace® Analytical Services SOP for manual integration, calculations are correct, the analytical record is complete and traceable, and that results are properly qualified.

Lastly, a third-level review, called a completeness check, is performed by reporting or project management staff to verify the test report is complete.

Refer to laboratory SWI ENV-SWI-WEST-0087 SVOA Data Review Work Instructions for specific instructions and requirements for each step of the data review process.

11.2 Corrective Action

Corrective action is required when QC or sample results are not within acceptance criteria.

Refer to Appendix B for a complete summary of QC, acceptance criteria, and recommended corrective actions for QC associated with this test method.

If corrective action is not taken or was not successful, the decision/outcome must be documented in the analytical record. The primary analyst has primary responsibility for taking corrective action when QA/QC criteria are not met. Secondary data reviewers must verify that appropriate action was taken and/or that results reported with QC failure are properly qualified.

Corrective action is also required when carryover is suspected and when results are over range. Samples analyzed after a high concentration sample must be checked for carryover and reanalyzed if carryover is suspected. Carryover is usually indicated by low concentration detects of the analyte in successive samples analyzed after the high concentration sample.

Sample results at concentrations above the upper limit of quantitation must be diluted and reanalyzed. The result in the diluted samples should be within the working concentration range

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of the instrument calibration. If dilution is not performed, any result reported above the upper range is considered a qualitative measurement and must be qualified as an estimated value.

12.0 POLLUTION PREVENTION & WASTE MANAGEMENT

Refer to laboratory guide ENV-GUI-WEST-0020 Hazardous Waste Management and Disposal, or however named, for waste handling and management practices pertaining to the waste streams created at this facility.

Pace® proactively seeks ways to minimize waste generated during work processes. Some examples of pollution prevention include but are not limited to reduced solvent extraction, solvent capture, use of reusable cycletainers for solvent management, and real-time purchasing.

The EPA requires that laboratory waste management practices comply with all applicable federal and state laws and regulations. Excess reagents, samples, and method process wastes are characterized and disposed of in an acceptable manner in accordance with the Pace® Chemical Hygiene Plan / Safety Manual. Refer to this manual for these procedures.

13.0 MODIFICATIONS

The procedures in this SOP have been modified from the reference test method as follows:

Modification	Section of Reference Method Modified	Justification for Modification	Validation of Modification
Updated EIS quantitation matching for select compounds (PFMPA, 7:3FTCA, ADONA, 9Cl-PF3ONS, 11Cl-PF3OUdS)	Section 20, Table 10	Improved performance, more appropriate correlation	MDL, IDOC, PT
Updated product ion used for measurement of 13C4-PFOA from m/z 172 to m/z 372	Section 20, Table 10	Match ion transition used for EIS 13C8-PFOA and native PFOA	MDL, IDOC, PT
Increased SPE sorbent bed to 250mg, tube size to 20mL	Section 6.7.1	Wider cartridge improves sample loading, reduces chances of clogs	MDL, IDOC, PT
Increased allowable sample loading rate to 5-10 mL/min	Section 12.1.4	Reduced Sample processing time	MDL, IDOC, PT
Omit TSS for aqueous samples	Section 11.1 (11.1.1.5), 11.2.4	Reduced sample processing time	MDL, IDOC, PT
Solid matrix extraction: reduced liquid-solid shake/decant steps to 2; omitted concentration step	Section 11.3 (11.3.4, 11.3.6, 11.3.9)	Improved performance & reduced sample processing time	MDL, IDOC, PT
GCB cartridges: eliminated dGCB + syringe filtration	Section 11.3.7, 11.4.7, 12.1, 12.2.3, 12.2.4, 12.3.3, 12.4.3	Improved performance, reduced sample processing time, & ease of use	MDL, IDOC, PT

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Modification	Section of Reference Method Modified	Justification for Modification	Validation of Modification
Tissue matrix extraction: reduced liquid-solid shake/decant steps to 2; reduced shake time; omitted concentration step	Section 11.4.4, 11.4.6, 11.4.8	Improved performance & reduced sample processing time	MDL, IDOC, PT
Clearly defined the characteristics used to distinguish Aqueous vs. Biosolid vs. Solid matrices	n/a	Increased clarity in process decision making, improved first-run performance	MDL, IDOC, PT

When applicable, comparability and/or equivalency studies necessary to validate the modification as required per corporate SOP ENV-SOP-CORQ-0011, *Method Validation and Instrument Verification*, are retained by local quality personnel for historical reference.

14.0 RESPONSIBILITIES

- PAS employees that perform any part this procedure in their work activities must have a signed Read and Acknowledgement Statement (R&A) in their training file for the version(s) of the SOP that were in effect during the time the employee performed the activity.
- PAS supervisors and managers, however named, are responsible for training employees on the procedures in this SOP, implementing the SOP in the work area, and monitoring on-going adherence to the SOP in the work area(s) they oversee.
- PAS employees are responsible for following the procedures in this SOP. Unauthorized deviations or departures from this SOP are not allowed except with documented approval from the local QM and only when those deviations do not violate the Pace® Code of Ethics or Professional Conduct (COR-POL-0004) or associated policy and procedure(s). Hand-edits or manual changes to the SOP are not permitted. If a change is desired or necessary, Pace® employees must follow the procedures for document revision specified in corporate SOPs ENV-SOP-CORQ-0015, *Document Management* and ENV-SOP-CORQ-0016, *SOP for Creation of SOP and SWI.*

15.0 ATTACHMENTS

- Appendix A: Routine Analyte Limits (DL, LOQ), Analytical Parameters, and Calibration
- Appendix B: QC Summary & Corrective Action; Table: Method Acceptance Criteria
- Appendix C: State/Program Specific Requirements
- Appendix D: Sample Pre-screening Instructions
- Appendix E: Aqueous Sample Subsampling Instructions
- Appendix F: MS/MSD, MS/DUP Selection Protocols
- Appendix G: Aqueous Sample Management Decision Guide
- Appendix H: Aqueous Sample Centrifugation Protocol

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- Appendix I: Separation and Analysis of Liquid-Solid Biphasic Matrices
- Appendix J: TCLP/SPLP by 1633
- Appendix K: Wipe Analysis by 1633
- Appendix L: Articles of Commerce Analysis via Cryomill Processing
- Appendix M: Procedure for Total Oxidizable Precursors (TOP)

16.0 REFERENCES

- ENV-POL-CORQ-0005, *Acceptable Calibration Practices*, current version.
- ENV-SOP-CORQ-0006, *Manual Integration*, current version.
- ENV-SOP-CORQ-0011, *Method Validation and Instrument Verification*, current version.
- ENV-SOP-CORQ-0015, *Document Management*, current version.
- ENV-SOP-CORQ-0016, *Standard Operating Procedures and Standard Work Instructions,* current version.
- COR-POL-0004, *Code of Ethics and Professional Conduct*, current version.
- COR-MAN-001, *Pace® Safety Manua*l, current version.
- ENV-MAN-WEST-0001, *Quality Manual*, current version.
- TNI Standard, “Volume 1 Management and Technical Requirements for Laboratories Performing Environmental Analysis”, current version.
- “Working with Carcinogens,” Department of Health, Education, & Welfare, Public Health Service, Centers for Disease Control, NIOSH, Publication 77-206, August 1977, NTIS PB-277256.
- “OSHA Safety and Health Standards, General Industry,” OSHA 2206, 29 CFR 1910.
- “Safety in Academic Chemistry Laboratories,” ACS Committee on Chemical Safety, 1979.
- “Standard Methods for the Examination of Water and Wastewater,” 18th edition and later revisions, American Public Health Association, 1015 15th St, NW, Washington, DC 20005, 1-35: Section 1090 (Safety), 1992.
- “Standard Practice for Sampling Water,” ASTM Annual Book of Standards, ASTM, 1916 Race Street, Philadelphia, PA 19103-1187, 1980.
- “Handbook of Analytical Quality Control in Water and Wastewater Laboratories,” USEPA EMSL, Cincinnati, OH 45268, EPA 600/4-79-019, April 1979.
- “Less is Better: Laboratory Chemical Management for Waste Reduction,” American Chemical Society, 1993. Available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th Street NW, Washington, DC 20036.
- “Environmental Management Guide for Small Laboratories,” USEPA, Small Business Division, Washington DC, EPA 233-B-00-001, May 2000.

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- "The Waste Management Manual for Laboratory Personnel," American Chemical Society, 1990. Available from the American Chemical Society's Department of Government Relations and Science Policy, 1155 16th Street NW, Washington, DC 20036.
- SERDP. Single-Laboratory Validation Study of PFAS by Isotope Dilution LC-MS/MS. ER19-1409. January 26, 2022.
- Woudneh, Million B., Bharat Chandramouli, Coreen Hamilton, Richard Grace, 2019, "Effects of Sample Storage on the Quantitative Determination of 29 PFAS: Observation of Analyte Interconversions during Storage", Environmental Science and Technology 53(21): 12576-12585.
- EPA. Method 1633, Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. January 2024.
- Standard Method for the Examination of Water and Wastewater, 23rd Edition, 2017 – Total, Fixed, and Volatile Solids in Solid and Semisolid Samples, Method 2540.

17.0 REVISION HISTORY

Revisions Made from Prior Version

Section	Description of Change
	N/A: new document

Document Succession: This version replaces the following document(s):

Document Number	Version	Document Title	Effective Date:
N/A	N/A	N/A	N/A

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Appendix A: Routine Analyte Limits (DL, LOQ), Analytical Parameters, and Calibration

DL and LOQ are always adjusted to account for actual amounts used and for dilution. Values listed are as of effective date of this SOP. DL and LOQ are subject to change. Contact quality personnel for current information. See Table 4 below for more information regarding analyte detection and quantitation.

Table 1: Standard Analyte List – Aqueous and Landfill Leachate Matrices

Analyte Abbreviation	CAS #	Aqueous (ng/L)		Leachate (ng/L)	
		DL	LOQ	DL	LOQ
PFBA	375-73-5	0.527	6.4	2.64	32
PFPeA	2706-91-4	0.359	3.2	1.79	16
PFHxA	355-46-4	0.245	1.6	1.22	8
PFHpA	375-92-8	0.238	1.6	1.19	8
PFOA	1763-23-1	0.263	1.6	1.31	8
PFNA	68259-12-1	0.266	1.6	1.33	8
PFDA	335-77-3	0.210	1.6	1.05	8
PFUnA	79780-39-5	0.178	1.6	0.892	8
PFDoA	375-73-5	0.214	1.6	1.07	8
PFTrDA	2706-91-4	0.187	1.6	0.934	8
PFTeDA	355-46-4	0.160	1.6	0.801	8
PFBS	375-73-5	0.402	1.6	2.01	8
PFPeS	2706-91-4	0.206	1.6	1.03	8
PFHxS	355-46-4	0.133	1.6	0.665	8
PFHpS	375-92-8	0.201	1.6	1.00	8
PFOS	1763-23-1	0.264	1.6	1.32	8
PFNS	68259-12-1	0.203	1.6	1.02	8
PFDS	335-77-3	0.140	1.6	0.699	8
PFDoS	79780-39-5	0.242	1.6	1.21	8
4:2 FTS	757124-72-4	0.910	6.4	4.55	32
6:2 FTS	27619-97-2	4.82	6.4	24.1	32
8:2 FTS	39108-34-4	1.22	6.4	6.11	32
PFOSA	754-91-6	0.097	1.6	.484	8
NMeFOSA	31506-32-8	0.226	1.6	1.13	8
NEtFOSA	4151-50-2	0.351	1.6	1.76	8

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Analyte Abbreviation	CAS #	Aqueous (ng/L)		Leachate (ng/L)	
		DL	LOQ	DL	LOQ
NMeFOSAA	2355-31-9	0.483	1.6	2.41	8
NEtFOSAA	2991-50-6	0.478	1.6	2.39	8
NMeFOSE	24448-09-7	1.30	16	6.52	80
NEtFOSE	1691-99-2	1.10	16	5.50	80
HFPO-DA	13252-13-6	1.60	6.4	8.02	32
ADONA	919005-14-4	0.376	6.4	1.88	32
PFMPA	377-73-1	0.244	3.2	1.22	16
PFMBA	863090-89-5	0.360	3.2	1.80	16
NFDHA	151772-58-6	0.541	3.2	2.71	16
9Cl-PF3ONS	756426-58-1	0.442	6.4	2.21	32
11Cl-PF3OUdS	763051-92-9	0.447	6.4	2.23	32
PFEESA	113507-82-7	0.330	3.2	1.65	16
3:3 FTCA	356-02-5	0.535	8	2.68	40
5:3 FTCA	914637-49-3	4.26	40	21.3	200
7:3 FTCA	812-70-4	3.18	40	15.9	200

Table 2: Standard Analyte List – Solid and Biosolid Matrices

Analyte Abbreviation	CAS #	Solid (ng/g)		Biosolid (ng/g)	
		DL	LOQ	DL	LOQ
PFBA	375-73-5	0.028	0.8	0.28	8
PFPeA	2706-91-4	0.038	0.4	0.38	4
PFHxA	355-46-4	0.016	0.2	0.16	2
PFHpA	375-92-8	0.012	0.2	0.12	2
PFOA	1763-23-1	0.026	0.2	0.26	2
PFNA	68259-12-1	0.012	0.2	0.12	2
PFDA	335-77-3	0.035	0.2	0.35	2
PFUnA	79780-39-5	0.013	0.2	0.13	2
PFDoA	375-73-5	0.021	0.2	0.21	2
PFTrDA	2706-91-4	0.016	0.2	0.16	2
PFTeDA	355-46-4	0.024	0.2	0.24	2
PFBS	375-73-5	0.020	0.2	0.20	2

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Analyte Abbreviation	CAS #	Solid (ng/g)		Biosolid (ng/g)	
		DL	LOQ	DL	LOQ
PFPeS	2706-91-4	0.027	0.2	0.27	2
PFHxS	355-46-4	0.020	0.2	0.20	2
PFHpS	375-92-8	0.045	0.2	0.45	2
PFOS	1763-23-1	0.031	0.2	0.31	2
PFNS	68259-12-1	0.029	0.2	0.29	2
PFDS	335-77-3	0.015	0.2	0.15	2
PFDoS	79780-39-5	0.022	0.2	0.22	2
4:2 FTS	757124-72-4	0.078	0.8	0.78	8
6:2 FTS	27619-97-2	0.148	0.8	1.48	8
8:2 FTS	39108-34-4	0.259	0.8	2.59	8
PFOSA	754-91-6	0.011	0.2	0.11	2
NMeFOSA	31506-32-8	0.026	0.2	0.26	2
NEtFOSA	4151-50-2	0.022	0.2	0.22	2
NMeFOSAA	2355-31-9	0.086	0.2	0.86	2
NEtFOSAA	2991-50-6	0.044	0.2	0.44	2
NMeFOSE	24448-09-7	0.121	2.0	1.21	20
NEtFOSE	1691-99-2	0.081	2.0	0.81	20
HFPO-DA	13252-13-6	0.039	0.8	0.39	8
ADONA	919005-14-4	0.030	0.8	0.30	8
PFMPA	377-73-1	0.017	0.4	0.17	4
PFMBA	863090-89-5	0.024	0.4	0.24	4
NFDHA	151772-58-6	0.083	0.4	0.83	4
9Cl-PF3ONS	756426-58-1	0.029	0.8	0.29	8
11Cl-PF3OUdS	763051-92-9	0.040	0.8	0.40	8
PFEESA	113507-82-7	0.046	0.4	0.46	4
3:3 FTCA	356-02-5	0.092	1.0	0.92	10
5:3 FTCA	914637-49-3	0.236	5.0	2.36	50
7:3 FTCA	812-70-4	0.365	5.0	3.65	50

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Table 3: Standard Analyte List – Tissue Matrices

Analyte Abbreviation	CAS #	DL (ng/g)	LOQ (ng/g)
PFBA	375-73-5	0.215	2.0
PFPeA	2706-91-4	0.088	1.0
PFHxA	355-46-4	0.044	0.5
PFHpA	375-92-8	0.062	0.5
PFOA	1763-23-1	0.070	0.5
PFNA	68259-12-1	0.099	0.5
PFDA	335-77-3	0.102	0.5
PFUnA	79780-39-5	0.093	0.5
PFDoA	375-73-5	0.052	0.5
PFTrDA	2706-91-4	0.067	0.5
PFTeDA	355-46-4	0.039	0.5
PFBS	375-73-5	0.044	0.5
PFPeS	2706-91-4	0.029	0.5
PFHxS	355-46-4	0.075	0.5
PFHpS	375-92-8	0.093	0.5
PFOS	1763-23-1	0.084	0.5
PFNS	68259-12-1	0.065	0.5
PFDS	335-77-3	0.056	0.5
PFDoS	79780-39-5	0.062	0.5
4:2 FTS	757124-72-4	0.222	2.0
6:2 FTS	27619-97-2	0.934	2.0
8:2 FTS	39108-34-4	0.249	2.0
PFOSA	754-91-6	0.051	0.5
NMeFOSA	31506-32-8	0.139	0.5
NEtFOSA	4151-50-2	0.115	0.5
NMeFOSAA	2355-31-9	0.089	0.5
NEtFOSAA	2991-50-6	0.106	0.5
NMeFOSE	24448-09-7	0.598	5.0
NEtFOSE	1691-99-2	0.410	5.0
HFPO-DA	13252-13-6	0.072	2.0

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Analyte Abbreviation	CAS #	DL (ng/g)	LOQ (ng/g)
ADONA	919005-14-4	0.139	2.0
PFMPA	377-73-1	0.078	1.0
PFMBA	863090-89-5	0.086	1.0
NFDHA	151772-58-6	0.113	1.0
9Cl-PF3ONS	756426-58-1	0.179	2.0
11Cl-PF3OUdS	763051-92-9	0.228	2.0
PFEESA	113507-82-7	0.069	1.0
3:3 FTCA	356-02-5	0.145	2.5
5:3 FTCA	914637-49-3	1.54	12.5
7:3 FTCA	812-70-4	1.26	12.5

Table 4: Identification and Quantification Information for Target Analytes, Extracted Internal Standards and Non-extracted Internal Standards.

Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluorobutanoic acid	375-73-5	PFBA	213	169	NA	13C4-PFBA
Perfluoropentanoic acid	2706-91-4	PFPeA	263	219	69	13C5-PFPeA
Perfluorohexanoic acid	355-46-4	PFHxA	313	269	119	13C5-PFHxA
Perfluoroheptanoic acid	375-92-8	PFHpA	363	319	169	13C4-PFHpA
Perfluorooctanoic acid	1763-23-1	PFOA	413	369	169	13C8-PFOA
Perfluorononanoic acid	68259-12-1	PFNA	463	419	219	13C9-PFNA
Perfluorodecanoic acid	335-77-3	PFDA	513	469	219	13C6-PFDA
Perfluoroundecanoic acid	79780-39-5	PFUnA	563	519	269	13C7-PFUnA
Perfluorododecanoic acid	375-73-5	PFDoA	613	569	319	13C2-PFDoA
Perfluorotridecanoic acid	2706-91-4	PFTrDA	663	619	169	13C2-PFDoA
Perfluorotetradecanoic acid	355-46-4	PFTeDA	713	669	169	13C2-PFTeDA
Perfluorobutanesulfonic acid	375-73-5	PFBS	299	80	99	13C3-PFBS
Perfluoropentansulfonic acid	2706-91-4	PFPeS	349	80	99	13C3-PFHxS
Perfluorohexanesulfonic acid	355-46-4	PFHxS	399	80	99	13C3-PFHxS

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluoroheptanesulfonic acid	375-92-8	PFHpS	449	80	99	13C8-PFOS
Perfluorooctanesulfonic acid	1763-23-1	PFOS	499	80	99	13C8-PFOS
Perfluorononanesulfonic acid	68259-12-1	PFNS	549	80	99	13C8-PFOS
Perfluorodecanesulfonic acid	335-77-3	PFDS	599	80	99	13C8-PFOS
Perfluorododecanesulfonic acid	79780-39-5	PFDoS	699	80	99	13C8-PFOS
1H,1H, 2H, 2H-Perfluorohexane sulfonic acid	757124-72-4	4:2 FTS	327	307	81	13C2-4:2FTS
1H,1H, 2H, 2H-Perfluorooctane sulfonic acid	27619-97-2	6:2 FTS	427	407	81	13C2-6:2FTS
1H,1H, 2H, 2H-Perfluorodecane sulfonic acid	39108-34-4	8:2 FTS	527	507	81	13C2-8:2FTS
Perfluorooctanesulfonamide	754-91-6	PFOSA	498	78	478	13C8-PFOSA
N-methyl perfluorooctanesulfonamide	31506-32-8	NMeFOSA	512	219	169	D3-NMeFOSA
N-ethyl perfluorooctanesulfonamide	4151-50-2	NEtFOSA	526	219	169	D5-NEtFOSA
N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9	NMeFOSAA	570	419	483	D3-NMeFOSAA
N-ethyl perfluorooctanesulfonamidoacetic acid	2991-50-6	NEtFOSAA	584	419	526	D5-NEtFOSAA
N-methyl perfluorooctanesulfonamidoethanol	24448-09-7	NMeFOSE	616	59	NA	D7-NMeFOSE
N-ethyl perfluorooctanesulfonamidoethanol	1691-99-2	NEtFOSE	630	59	NA	D9-NEtFOSE
Hexafluoropropylene oxide dimer acid (GenX)	13252-13-6	HFPO-DA	285	169	185	13C3-HFPODA
4,8-Dioxa-3H-perfluorononanoic acid	919005-14-4	ADONA	377	251	85	13C4-PFHpA
Perfluoro-3-methoxypropanoic acid	377-73-1	PFMPA	229	85	NA	13C4-PFBA
Perfluoro-4-methoxybutanoic acid	863090-89-5	PFMBA	279	85	NA	13C5-PFPeA
Nonafluoro-3,6-dioxaheptanoic acid	151772-58-6	NFDHA	295	201	85	13C5-PFHxA

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	756426-58-1	9Cl-PF3ONS	531	351	533→353	13C8-PFOS
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	11Cl-PF3OUdS	631	451	633→453	13C8-PFOS
Perfluoro(2-ethoxyethane)sulfonic acid	113507-82-7	PFEESA	315	135	83	13C5-PFHxA
3-Perfluoropropyl propanoic acid (FPrPA)	356-02-5	3:3FTCA	241	177	117	13C5-PFPeA
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)	914637-49-3	5:3FTCA	341	237	217	13C5-PFHxA
3-Perfluoroheptyl propanoic acid (FHpPA)	812-70-4	7:3FTCA	441	337	317	13C9-PFNA
Extracted Internal Standard Compounds (EIS)						
Perfluoro-n-[13C4] butanoic acid	NA	13C4-PFBA	217	172	NA	13C3-PFBA
Perfluoro-n-[13C5] pentanoic acid	NA	13C5-PFPeA	268	223	NA	13C2-PFHxA
Perfluoro-n-[1,2,3,4,6-13C5] hexanoic acid	NA	13C5-PFHxA	318	273	NA	13C2-PFHxA
Perfluoro-n-[1,2,3,4-13C4] heptanoic acid	NA	13C4-PFHpA	367	322	NA	13C2-PFHxA
Perfluoro-n-[13C8] octanoic acid	NA	13C8-PFOA	421	376	NA	13C4-PFOA
Perfluoro-n-[13C9] nonanoic acid	NA	13C9-PFNA	472	427	NA	13C5-PFNA
Perfluoro-n-[1,2,3,4,5,6-13C6] decanoic acid	NA	13C6-PFDA	519	474	NA	13C2-PFDA
Perfluoro-n-[1,2,3,4,5,6,7-13C7] undecanoic acid	NA	13C7-PFUnA	570	525	NA	13C2-PFDA
Perfluoro-n-[1,2-13C2] dodecanoic acid	NA	13C2-PFDoA	615	570	NA	13C2-PFDA
Perfluoro-n-[1,2-13C2] tetradecanoic acid	NA	13C2-PFTeDA	715	670	NA	13C2-PFDA
Perfluoro-1-[2,3,4-13C3] butanesulfonic acid	NA	13C3-PFBS	302	80	NA	18O2-PFHxS
Perfluoro-1-[1,2,3-13C3] hexanesulfonic acid	NA	13C3-PFHxS	402	80	NA	18O2-PFHxS

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluoro-1-[13C8] octanesulfonic acid	NA	13C8-PFOS	507	80	NA	13C4-PFOS
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2] hexanesulfonic acid	NA	13C2-4:2FTS	329	81	NA	18O2-PFHxS
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2] octanesulfonic acid	NA	13C2-6:2FTS	429	81	NA	18O2-PFHxS
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2] decanesulfonic acid	NA	13C2-8:2FTS	529	81	NA	18O2-PFHxS
Perfluoro-1-[13C8] octanesulfonamide	NA	13C8-PFOSA	506	78	NA	13C4-PFOS
N-methyl-D3-perfluoro-1-octanesulfonamide	NA	D3-NMeFOSA	515	219	NA	13C4-PFOS
N-ethyl-D5-perfluoro-1-octanesulfonamide	NA	D5-NEtFOSA	531	219	NA	13C4-PFOS
N-methyl-D3-perfluoro-1-octanesulfonamidoacetic acid	NA	D3-NMeFOSAA	573	419	NA	13C4-PFOS
N-ethyl-D5-perfluoro-1-octanesulfonamidoacetic acid	NA	D5-NEtFOSAA	589	419	NA	13C4-PFOS
N-methyl-D7-perfluorooctanesulfonamidoethanol	NA	D7-NMeFOSE	623	59	NA	13C4-PFOS
N-ethyl-D9-perfluorooctanesulfonamidoethanol	NA	D9-NEtFOSE	639	59	NA	13C4-PFOS
Tetrafluoro-2-heptafluoropropoxy-13C3-propanoic acid	NA	13C3-HFPO-DA	287	169	NA	13C2-PFHxA
Non-extracted Internal Standard Compounds (NIS)						
Perfluoro-n-[2,3,4-13C3] butanoic acid	NA	13C3-PFBA	216	172	NA	NA
Perfluoro-n-[1,2-13C2]hexanoic acid	NA	13C2-PFHxA	315	270	NA	NA
Perfluoro-n-[1,2,3,4-13C4]octanoic acid	NA	13C4-PFOA	417	172	NA	NA
Perfluoro-n-[1,2,3,4,5-13C5] nonanoic acid	NA	13C5-PFNA	468	423	NA	NA

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Analyte Name	CAS #	Analyte Abbreviation	Parent Ion Mass	Quantification Ion Mass	Confirmation Ion Mass	Quantification Reference Compound
Perfluoro-n-[1,2-13C2]decanoic acid	NA	13C2-PFDA	515	470	NA	NA
Perfluoro-1-hexane[18O2]sulfonic acid	NA	18O2-PFHxS	403	84	NA	NA
Perfluoro-n-[1,2,3,4-13C4] octanesulfonic acid	NA	13C4-PFOS	503	80	NA	NA

Table 5: Calibration Standard Concentrations (ng/mL)

Compound	L1	L2 (ISC)	L3	L4	L5 (CCV)	L6	L7	L8	L9
Perfluoroalkyl carboxylic acids									
PFBA	0.4	0.8	2	10	20	50	100	200	250
PFPeA	0.2	0.4	1	5	10	25	50	100	125
PFHxA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFHpA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFOA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFNA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFDA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFUnA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFDoA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFTrDA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
PFTeDA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
Perfluoroalkyl sulfonic acids									
PFBS	0.089	0.178	0.444	2.22	4.44	11.1	22.2	44.4	55.5
PFPeS	0.094	0.188	0.470	2.35	4.70	11.8	23.5	47.0	58.8
PFHxS	0.091	0.182	0.456	2.28	4.56	11.4	22.8	45.6	57.0
PFHpS	0.095	0.190	0.476	2.38	4.76	11.9	23.8	47.6	59.5
PFOS	0.093	0.186	0.464	2.32	4.64	11.6	23.2	46.4	58.0
PFNS	0.096	0.192	0.480	2.40	4.80	12.0	24.0	48.0	60.0
PFDS	0.096	0.193	0.482	2.41	4.82	12.1	24.1	48.2	60.3
PFDoS	0.097	0.194	0.484	2.42	4.84	12.1	24.2	48.4	60.5
Fluorotelomer sulfonic acids									
4:2FTS	0.375	0.750	1.87	9.37	18.7	46.9	93.7	187	234
6:2FTS	0.380	0.761	1.90	9.51	19.0	47.6	95.1	190	238
8:2FTS	0.384	0.768	1.92	9.6	19.2	48	96	192	240
Perfluorooctane sulfonamides									

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Compound	L1	L2 (ISC)	L3	L4	L5 (CCV)	L6	L7	L8	L9
PFOSA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
NMeFOSA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
NEtFOSA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
Perfluorooctane sulfonamidoacetic acids									
NMeFOSAA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
NEtFOSAA	0.1	0.2	0.5	2.5	5	12.5	25	50	62.5
Perfluorooctane sulfonamide ethanols									
NMeFOSE	1	2	5	25	50	125	250	500	625
NEtFOSE	1	2	5	25	50	125	250	500	625
Per- and polyfluoroether carboxylic acids									
HFPO-DA	0.4	0.8	2	10	20	50	100	200	250
ADONA	0.378	0.756	1.89	9.45	18.9	47.25	94.5	189	236.25
PFMPA	0.2	0.4	1	5	10	25	50	100	125
PFMBA	0.2	0.4	1	5	10	25	50	100	125
NFDHA	0.2	0.4	1	5	10	25	50	100	125
Ether sulfonic acids									
9Cl-PF3ONS	0.373	0.746	1.87	9.33	18.7	46.7	93.3	187	233
11Cl-PF3OUdS	0.377	0.754	1.89	9.43	18.9	47.2	94.3	189	236
PFEESA	0.178	0.357	0.892	4.46	8.92	22.3	44.6	89.2	112
Fluorotelomer Carboxylic Acids									
3:3FTCA	0.5	1	2.5	12.5	25	62.5	125	250	312.5
5:3FTCA	2.5	5	12.5	62.5	125	312.5	625	1250	1560
7:3FTCA	2.5	5	12.5	62.5	125	312.5	625	1250	1560
Extracted Internal Standards (EIS)									
13C4-PFBA	10	10	10	10	10	10	10	10	10
13C5-PFPeA	5	5	5	5	5	5	5	5	5
13C5-PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C4-PFHpA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C8-PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C9-PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C6-PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C7-PFUnA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C2-PFDoA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C2-PFTeDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C3-PFBS	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
13C3-PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
13C8-PFOS	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40
13C2-4:2FTS	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69

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Compound	L1	L2 (ISC)	L3	L4	L5 (CCV)	L6	L7	L8	L9
13C2-6:2FTS	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
13C2-8:2FTS	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
13C8-PFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
D3-NMeFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
D5-NEtFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
D3-NMeFOSAA	5	5	5	5	5	5	5	5	5
D5-NEtFOSAA	5	5	5	5	5	5	5	5	5
D7-NMeFOSE	25	25	25	25	25	25	25	25	25
D9-NEtFOSE	25	25	25	25	25	25	25	25	25
13C3-HFPODA	10	10	10	10	10	10	10	10	10
Non-Extracted Internal Standards (NIS)									
13C3-PFBA	5	5	5	5	5	5	5	5	5
13C2-PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C4-PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
13C5-PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
13C2-PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
18O2-PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
13C4-PFOS	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40	2.40

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Appendix B: QC Summary & Corrective Action Table; Method Acceptance Criteria

Table 6: QC Summary & Corrective Action

QC Item	Frequency	Acceptance Criteria	Corrective Action	Qualification
Demonstration of Capability (DOC)	Initially, prior to analyzing field samples and annually thereafter.	See Method Acceptance Criteria for each matrix in the Tables below.	Identify and correct source of problem, repeat.	None. Do not proceed with analysis.
Mass Calibration	Annually and on as-needed basis.	Must meet manufacturer's acceptance criteria.	Identify and correct source of problem, repeat.	None. Do not proceed with analysis.
Mass Calibration Verification	After each Mass Calibration performed.	Must meet manufacturer's acceptance criteria.	Identify and correct source of problem, repeat Mass Calibration.	None. Do not proceed with analysis.
Initial Calibration (ICAL)	At instrument set up, after CCV failure and/or major maintenance.	Must meet one of the curve fit options presented in Section 9.2.4.	Identify and correct source of problem, repeat.	None. Do not proceed with analysis.
Initial Calibration Verification (ICV)	After Each ICAL.	All analytes must be within ± 30% of their true values. (%R)	Identify and correct source of problem, re-analyze. If repeat failure, repeat ICAL. Analysis may proceed if it can be demonstrated that the ICV exceedance has no impact on analytical measurements. For example, the ICV %R is high, CCV is within criteria, and the analyte is not detected in sample(s).	Qualify analytes with ICV out of criteria when results are unaffected; otherwise, correct the problem and repeat ICV.
Initial Calibration Blank (ICB)	After highest concentration ICAL standard.	Must meet criteria specified in Section 9.2.5: all detections ≤MDL concentration.	Identify and correct source of contamination or performance issue. Alternately, calibrate using a lower concentration standard for the highest point.	No samples shall be analyzed until ICB has met acceptance criteria.
RT Window Position	Once per ICAL and at the beginning of the analytical window.	Position is set using the mid-point of the ICAL on the day ICAL is performed; otherwise, opening CCV is used. RT Window is ± 60 secs from RT position.	NA	NA
Instrument Sensitivity Check (ISC)	Daily before sample analysis.	All native and isotopically labelled compounds within ± 30% recovery.	Identify and correct source of problem and reanalyze ISC. If problem persists, repeat ICAL.	No samples shall be analyzed until ISC has met acceptance

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QC Item	Frequency	Acceptance Criteria	Corrective Action	Qualification
				criteria. See Section 9.2.4.5 for exceptions.
Bile Salts Check	With each ICAL and daily with each CCV	Bile Salt peak detected >1 min outside RT window for PFOS.	Identify and correct source of problem, then reevaluate Bile Salts separation from PFOS.	No samples shall be analyzed until Bile Salts Check has met acceptance criteria.
Continuing Calibration Verification (CCV)	Daily before sample analysis, after every 10 samples, and at end of analytical sequence.	All native and isotopically labelled compounds within ±30% recovery.	See Section 9.2.4.5 for required corrective actions based on circumstance.	Qualify analytes with CCV out of criteria.
Instrument Blank (IBLK) / Continuing Calibration Blank (CCB)	Daily prior to analysis and after high standards, including CCV.	Must meet criteria specified in Section 9.2.5: all detections ≤MDL concentration.	Identify and correct source of contamination or performance issue. Reanalyze IBLK.	No samples shall be analyzed until IBLK has met acceptance criteria.
Extracted Internal Standards (EIS)	Every field sample, standard and QC sample.	See Method Acceptance Criteria for each matrix in the Tables below.	If batch QC is acceptable, reanalyze to confirm. If confirmed, re-extract and reanalyze samples. If reprep is within acceptance, report reprep data. If failure is confirmed by reprep, qualify as matrix impacted.	Qualify outages and explain in case narrative.
Non-extracted Internal Standards (NIS)	Every field sample, standard and QC sample.	NIS areas in all samples must be within 50 – 200% of the average area of the corresponding NIS in the ICAL.	Troubleshoot instrument performance. Reanalyze samples.	Qualify outages and explain in case narrative.
Method Blank (MB)	1 per batch of 20 or fewer samples.	Must meet criteria specified in Section 10.4.1: all detections ≤MDL concentration.	If IBLK is acceptable, reanalyze MB to confirm. If confirmed, re-extract and reanalyze associated impacted samples (if sufficient sample remains). If insufficient sample remains for reprep, narrate and report data associated with unacceptable MB. See Section 10.4.1 for more details.	Qualify outages and explain in case narrative.

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QC Item	Frequency	Acceptance Criteria	Corrective Action	Qualification
LCS/LLLCS	1 pair per batch of 20 or fewer samples.	See Method Acceptance Criteria for each matrix in the Tables below; must meet criteria specified in Section 10.4.2.	If most recent ISC/CCV is acceptable, reanalyze LCS to confirm. If low-failure results are confirmed, re-extract and reanalyze associated samples (if sufficient sample remains). If insufficient sample remains for reprep, narrate and report data associated with low-failure LCS. If high-failure results are confirmed and sample(s) is ND for failing compound, narrate and report sample data.	Qualify outages and explain in case narrative.
MS/MSD	1 pair per batch of 20 or fewer samples. (If requested)	RSD ≤30% between MS/MSD	If possible, reprep to confirm.	Qualify outages and explain in case narrative.
Laboratory Duplicate	1 per AFFF sample; 1 per prep batch for all other matrices (if requested).	RSD ≤30% between parent/DUP	If possible, reprep to confirm.	Qualify outages and explain in case narrative.

Table 7: DOC/LCS/LLLCS Acceptance Limits for Aqueous & Landfill Leachate Matrices

Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFBA	70-135	21	70-140
PFPeA	70-135	23	65-135
PFHxA	70-135	24	70-145
PFHpA	70-135	28	70-150
PFOA	65-155	27	70-150
PFNA	70-140	28	70-150
PFDA	65-140	26	70-140
PFUnA	70-135	29	70-145
PFDoA	70-130	21	70-140
PFTrDA	60-145	29	65-140
PFTeDA	70-145	27	60-140
PFBS	70-140	23	60-145
PFPeS	70-135	25	65-140
PFHxS	70-135	27	65-145
PFHpS	70-140	30	70-150
PFOS	70-140	29	55-150
PFNS	70-135	29	65-145
PFDS	70-135	30	60-145

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Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFDoS	45-135	35	50-145
4:2FTS	70-135	27	70-145
6:2FTS	70-135	32	65-155
8:2FTS	70-140	33	60-150
PFOSA	70-135	22	70-145
NMeFOSA	70-135	30	60-150
NEtFOSA	70-130	26	65-145
NMeFOSAA	65-140	32	50-140
NEtFOSAA	70-135	28	70-145
NMeFOSE	70-135	29	70-145
NEtFOSE	70-130	21	70-135
HFPO-DA	70-135	23	70-140
ADONA	70-135	23	65-145
PFMPA	60-140	23	55-140
PFMBA	65-145	27	60-150
NFDHA	65-140	37	50-150
9Cl-PF3ONS	70-145	30	70-155
11Cl-PF3OUdS	50-150	35	55-160
PFEESA	70-135	25	70-140
3:3FTCA	70-130	23	65-130
5:3FTCA	70-130	24	70-135
7:3FTCA	55-130	34	50-145

Table 8: DOC/LCS/LLLCS Acceptance Limits for Solid & Biosolid Matrices

Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFBA	70-140	17	70-140
PFPeA	70-140	26	60-150
PFHxA	70-135	23	65-140
PFHpA	70-140	21	65-145
PFOA	70-140	23	70-150
PFNA	65-145	24	70-155
PFDA	70-145	26	70-155
PFUnA	70-145	26	70-155
PFDoA	70-145	25	70-150
PFTrDA	55-160	26	65-150
PFTeDA	70-145	24	65-150
PFBS	60-145	25	65-145
PFPeS	65-140	29	55-160
PFHxS	65-145	28	60-150
PFHpS	70-140	27	65-155
PFOS	70-135	27	65-160
PFNS	70-140	27	55-140

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Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFDS	50-150	31	40-155
PFDoS	40-140	40	25-160
4:2FTS	70-135	27	60-150
6:2FTS	60-160	50	55-200
8:2FTS	70-140	27	70-150
PFOSA	70-140	19	70-140
NMeFOSA	65-145	26	70-155
NEtFOSA	70-135	19	70-140
NMeFOSAA	65-145	31	65-155
NEtFOSAA	60-150	31	65-165
NMeFOSE	70-140	19	70-140
NEtFOSE	70-135	17	70-135
HFPO-DA	70-140	25	70-145
ADONA	70-155	26	70-160
PFMPA	70-140	25	30-140
PFMBA	55-145	33	60-150
NFDHA	45-145	27	60-155
9Cl-PF3ONS	65-135	23	70-150
11Cl-PF3OUdS	50-135	31	45-160
PFEESA	70-140	20	70-140
3:3FTCA	45-155	32	45-130
5:3FTCA	70-135	28	60-130
7:3FTCA	70-145	39	60-150

Table 9: DOC/LCS/LLLCS Acceptance Limits for Tissue Matrix

Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFBA	70-135	20	60-140
PFPeA	70-130	20	60-145
PFHxA	70-140	20	60-160
PFHpA	70-140	20	60-145
PFOA	70-130	25	60-150
PFNA	70-140	20	60-145
PFDA	70-135	20	60-150
PFUnA	70-135	20	60-155
PFDoA	70-135	20	60-140
PFTrDA	55-160	20	60-150
PFTeDA	70-140	25	60-140
PFBS	70-145	20	60-150
PFPeS	70-150	20	60-145
PFHxS	70-140	25	60-155
PFHpS	70-145	20	60-140
PFOS	70-135	30	60-160

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Target Analyte	DOC Mean Recovery (%)	DOC RSD (%)	LCS/LLLCS Recovery (%)
PFNS	60-130	20	45-140
PFDS	55-135	20	50-140
PFDoS	25-145	45	25-140
4:2FTS	65-140	30	55-150
6:2FTS	70-140	25	60-150
8:2FTS	70-150	25	60-170
PFOSA	70-140	20	60-150
NMeFOSA	70-140	30	60-160
NEtFOSA	70-140	40	60-150
NMeFOSAA	70-140	20	60-145
NEtFOSAA	70-140	25	60-145
NMeFOSE	60-150	20	40-180
NEtFOSE	70-145	40	60-205
HFPO-DA	70-140	25	60-145
ADONA	70-145	20	55-165
PFMPA	70-145	40	25-145
PFMBA	70-140	20	60-150
NFDHA	70-155	30	60-180
9Cl-PF3ONS	70-140	20	60-170
11Cl-PF3OUdS	65-140	20	50-170
PFEESA	70-145	25	50-150
3:3FTCA	55-130	25	30-140
5:3FTCA	70-145	20	60-160
7:3FTCA	70-155	20	60-200

Table 10: Acceptance Limits for EIS and NIS Compounds in Aqueous & Landfill Leachate Matrices

Labeled Compound	Aqueous Recovery (%)	Landfill Leachate Recovery (%)
13C4-PFBA	5-130	5-130
13C5-PFPeA	40-130	40-130
13C5-PFHxA	40-130	40-130
13C4-PFHpA	40-130	40-130
13C8-PFOA	40-130	40-130
13C9-PFNA	40-130	40-130
13C6-PFDA	40-130	40-130
13C7-PFUnA	30-130	40-130
13C2-PFDoA	10-130	35-130
13C2-PFTeDA	10-130	25-130
13C3-PFBS	40-135	40-130
13C3-PFHxS	40-130	40-130
13C8-PFOS	40-130	40-130

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Labeled Compound	Aqueous Recovery (%)	Landfill Leachate Recovery (%)
13C2-4:2FTS	40-200	40-220
13C2-6:2FTS	40-200	40-170
13C2-8:2FTS	40-300	40-145
13C8-PFOSA	40-130	40-130
D3-NMeFOSA	10-130	40-130
D5-NEtFOSA	10-130	35-130
D3-NMeFOSAA	40-170	35-130
D5-NEtFOSAA	25-135	30-130
D7-NMeFOSE	10-130	20-130
D9-NEtFOSE	10-130	20-130
13C3-HFPODA	40-130	40-130
13C3-PFBA	50-200	50-200
13C2-PFHxA	50-200	50-200
13C4-PFOA	50-200	50-200
13C5-PFNA	50-200	50-200
13C2-PFDA	50-200	50-200
18O2-PFHxS	50-200	50-200
13C4-PFOS	50-200	50-200

Table 11: Acceptance Limits for EIS and NIS Compounds in Solid & Biosolid Matrices

Labeled Compound	Solids Recovery (%)	Biosolids Recovery (%)
13C4-PFBA	8-130	5-130
13C5-PFPeA	35-130	35-130
13C5-PFHxA	40-130	40-130
13C4-PFHpA	40-130	40-130
13C8-PFOA	40-130	40-130
13C9-PFNA	40-130	40-145
13C6-PFDA	40-130	40-130
13C7-PFUnA	40-130	40-130
13C2-PFDoA	40-130	40-130
13C2-PFTeDA	20-130	10-160
13C3-PFBS	40-135	40-150
13C3-PFHxS	40-130	40-140
13C8-PFOS	40-130	40-130
13C2-4:2FTS	40-165	40-300
13C2-6:2FTS	40-215	40-300
13C2-8:2FTS	40-275	40-300

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Labeled Compound	Solids Recovery (%)	Biosolids Recovery (%)
13C8-PFOSA	40-130	20-140
D3-NMeFOSA	10-130	20-130
D5-NEtFOSA	10-130	20-130
D3-NMeFOSAA	40-135	30-150
D5-NEtFOSAA	40-150	20-140
D7-NMeFOSE	20-130	25-130
D9-NEtFOSE	15-130	20-130
13C3-HFPODA	40-130	40-130
13C3-PFBA	50-200	50-200
13C2-PFHxA	50-200	50-200
13C4-PFOA	50-200	50-200
13C5-PFNA	50-200	50-200
13C2-PFDA	50-200	50-200
18O2-PFHxS	50-200	50-200
13C4-PFOS	50-200	50-200

Table 12: Acceptance Limits for EIS and NIS Compounds in Tissue Matrices

Labeled Compound	Tissue Recovery (%)
13C4-PFBA	5-130
13C5-PFPeA	10-185
13C5-PFHxA	25-170
13C4-PFHpA	25-150
13C8-PFOA	25-150
13C9-PFNA	35-185
13C6-PFDA	30-150
13C7-PFUnA	30-180
13C2-PFDoA	35-180
13C2-PFTeDA	20-160
13C3-PFBS	25-190
13C3-PFHxS	35-175
13C8-PFOS	40-160
13C2-4:2FTS	30-300
13C2-6:2FTS	35-300
13C2-8:2FTS	40-365
13C8-PFOSA	25-180
D3-NMeFOSA	5-130
D5-NEtFOSA	5-130

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Labeled Compound	Tissue Recovery (%)
D3-NMeFOSAA	30-250
D5-NEtFOSAA	30-235
D7-NMeFOSE	5-160
D9-NEtFOSE	5-130
13C3-HFPODA	20-185
13C3-PFBA	50-200
13C2-PFHxA	50-200
13C4-PFOA	50-200
13C5-PFNA	50-200
13C2-PFDA	50-200
18O2-PFHxS	50-200
13C4-PFOS	50-200

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Appendix C: State/Program Specific Requirements

This appendix provides program specific requirements that supersede or supplement the main body of the SOP. When analyzing samples under DoD compliance, these requirements are applicable.

QC Item	SOP Section	Requirement
Instrument Blank	9.2.5	No analytes detected > ½ LOQ.
Method Blank	11.1.1	No analytes detected > ½ LOQ.
AFFF Sample Duplicate	Appendix E	All AFFF samples shall be prepared and analyzed in duplicate in the same manner as aqueous samples (e.g., solid phase extraction, extracted internal standards, carbon cleanup, etc.).
Laboratory Duplicate	Appendices B & F	One per preparatory batch. RPD of all analytes should be ≤ 30% between sample and DUP. RPD criterion does not apply if both results are below the LOQ.

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Appendix D: Sample Pre-screening Instructions

Samples that are known or suspected to contain high levels of analytes may be pre-screened using the following procedure. These are example procedures using smaller sample aliquots spiked with EIS and NIS and no clean up procedures. Other pre-screening procedures may be used.

Aqueous Samples

1) Weight out 10 (±0.1) g of sample into a 50-mL centrifuge tube.
2) Add 50 µL of EIS to the sample and vortex to mix.
3) Filter 1 mL of the sample through 0.2-µm membrane filter into a microvial. Sample is ready for instrumental analysis.

Solid and Tissue Samples

1) Weigh 1.0 (±0.1) g sample into 50-mL polypropylene centrifuge tubes.
2) Add 20 mL of 0.3% methanolic ammonium hydroxide to the sample. Vortex and mix on a shaker table (or equivalent) for 10 min. Allow to settle and/or centrifuge to produce a clear extract.
3) Filter using a filter vial:
    a. Add 20 µL of EIS to a clean filter vial (chamber).
    b. Add 400 µL of clear extract from step 2 (e.g., by adding extract until it reaches the fill line), carefully vortex to mix.
    c. Use filter/plunger part and filter.
4) Transfer 30 µL of filtrate to a ~300 µL polypropylene microvial and dilute to 300 µL with 0.3% methanolic ammonium hydroxide. Add NIS (1.5 µL) to the resulting solution.
5) The extract is now a 10x dilution.
6) Sample is ready for instrumental screening analysis.
7) Calculate results using the equivalent sample weight computed as follows:

$$Equivalent\ Weight = Sample\ weight\ (g) x \frac{0.4\ mL}{20\ mL}$$

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Appendix E: Aqueous Sample Subsampling Instructions

Note: Because some target analytes may be stratified within the sample (e.g., AFFF-contaminated media, surfactants), or adhere to the walls of the sample container, subsampling may only be done on a project-specific basis. Subsampling has been shown to increase uncertainty in PFAS analysis, especially on foaming samples.

If a reduced sample size is required, transfer a weighed subsample using the following subsampling procedure to a 60-mL HDPE bottle and dilute to approximately 60 mL using reagent water. This container is now considered the "sample bottle."

1) Gently invert sample 3-4 times being careful to avoid foam formation and subsample immediately (do not let stand).
2) If foam forms and more than 5 mL is required – pour sample, avoiding any foam.
3) If foaming forms and a volume less than 5 mL is required – pipette from ½ cm below the foam.
4) If no foam forms – pour or pipette based on volume required.

Required Protocol for AFFF and FFF (F3) Concentrates

Samples composed of AFFF or F3 will be subsampled consistently, with approximately **0.02 g of AFFF/F3 material** aliquoted for each discrete sample preparation/analysis; each AFFF or F3 concentrate sample analyzed under DoD direction **must be prepared in duplicate**. After creating and documenting the subsample aliquot, add approximately 60 mL of reagent water, cap the vessel, and shake vigorously by hand for 20-30 seconds. After adding the reagent water and agitating, allow **at least 3 hours** for the subsample aliquot to fully dissolve in the water. If dissolution is incomplete after 3 hours, agitate again and wait another 3 hours; consider applying continuous agitation (orbital shaker) if full dissolution of the aliquot into water requires extended time. Following the extended dissolution time, prepared AFFF/F3 samples should be prepared and analyzed following the routine protocols for aqueous sample processing. Aqueous reporting limits (MDL/LOD/LOQ) will be used, with values adjusted to account for the actual sample aliquot, assuming 1 g/mL; this constitutes a 25,000X nominal adjustment factor for AFFF/F3 reporting limits, relative to nominal aqueous reporting limits.

Pace **STRONGLY DISCOURAGES** clients from sending AFFF concentrate material for analysis; this protocol is designed for "as-prepared" AFFF materials (i.e. pre-diluted to application concentration) and newer generation 'Fluorine Free Foam' (F3) concentrates. If F3 material (concentrate or as-prepared) or as-prepared AFFF material is received, follow the normal routines described in the first paragraph above. If an AFFF concentrate material (usually of a thick gel-like consistency) is received for analysis, the lab shall prepare a 3% (w/w) aqueous solution from the received sample (in the smallest volume feasible) prior to subsampling and diluting 0.02 g for extraction. Handling of AFFF concentrate should ideally be done in an isolated area outside of the PFAS processing area to prevent gross lab contamination. Following the two dilution steps, the nominal adjustment factor for AFFF concentrate material is 833,333X (8.33×10^5) relative to nominal aqueous reporting limits.

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Appendix F: MS/MSD, MS/DUP SAMPLE SELECTION PROTOCOL

Project-specific requirements may include that matrix spikes (MS), matrix spike duplicates (MSD), and/or laboratory duplicates (DUP) be prepared and analyzed with project samples. The client/field team should identify those samples which are designated for these additional QC procedures and provide additional sample material for them. In the event that samples are received for such a project without additional containers for MS/MSD/DUP, prep analysts will select samples to be used for this purpose following a hierarchy of preference, as defined below.

Note: Any kind of blank (Field Blank, Trip Blank, Equipment Blank, Rinsate Blank, etc.) will not be used for MS/MSD/DUP analysis.

1) First preference is to use client-designated samples as MS/MSD samples. This designation should show up on the prep worklist, in the comments. It is possible that SR will miss adding this comment to the sample, but this designation will be present in the COC from the client, on the right side of the COC under “Comments/Remarks/Cooler ID.” When a client designates a sample to be used for MS/MSD analysis, they will typically provide us with more than 2 bottles (often 4, sometimes as many as 6).

2) Lacking a client-designated MS/MSD sample, the next preference is to use any sample received with more than 2 bottles provided. If an analyst selects a set of samples for prep in which none of the samples are client-designated for MS/MSD, the analyst should check for any samples in the set that were received with 3 or more bottles. If there is a sample with 3 or more bottles, pull 3 of them and use one for the parent sample and spike the other two for analysis as MS/MSD samples.

3) Lacking any samples received with 3 or more bottles, the prep analyst must use two different parent samples to create an MS/DUP pair. Find two samples out of the set of samples selected for prep which were received with 2 bottles and pull both bottles for each sample. Pick one sample (pair of bottles) to be used for parent/MS prep and the other sample (pair of bottles) to be used for parent/DUP. The sample selected for parent/MS will have one bottle spiked with targets and one prepped as normal, with no added spiking. The bottle which is spiked should be identified in the LIMS as MS. The sample selected for parent/DUP will have both bottles prepared following normal procedures but one of the two should be identified in the LIMS as DUP.

4) If all samples in a particular prep batch were all received in just one bottle, analysis of an MS/MSD or MS/DUP pair will not be possible. This should be an uncommon occurrence, as prep analysts will attempt to adjust batching to ensure that every prep batch contains an MS/MSD or MS/DUP for projects which require the additional QC.

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Appendix G: Aqueous Sample Management Decision Guide

NOTE: No TSS pre-test will be performed on aqueous samples received for 1633 analysis.

Per Method 1633, Section 11.1.1.5, “laboratories may utilize other documented strategies for minimizing the disruptions due to SPE clogging and slow extractions.” Follow the guide below to evaluate aqueous sample matrices for solid material and determine the appropriate preparation approach; a matching decision tree is included at the end of this appendix.

If potential interferences other than settled solids are observed, take action to mitigate the impacts on data quality. Examples of other sample characteristics that could lead the lab to take precautionary measures with a field sample (i.e., prepare from reduced volume) include: presence of standing foam in the sample after shaking, thick/viscous matrix, collected from a known highly contaminated site/project, client notes indicating potential high concentrations, and knowledge of potential hazards to safety, equipment performance, or process integrity due to sample composition. Consider any visible indications of particulate matter including settled solids collected on the bottom of the container, cloudiness and/or dark color of the sample, suspended solids within the sample, increased viscosity, etc. If uncertain, seek a second opinion from another analyst, supervisor, or operations director; these matrix characteristics may require reduced-volume extraction. The lab will attempt to use the largest volume possible (i.e., the smallest reduction possible) when performing a reduced-volume extraction to manage challenging matrix characteristics, and no less than 1 mL of sample will be used in this case.

1) Allow samples to sit for at least 15 minutes to allow solids in the matrix to settle to the bottom of the container.

2) Visually inspect each sample for settled solids collected in the bottom of the container and follow the appropriate protocol based on observation:

    a. If no solids are observed in the bottom of the container, proceed to step 3.

    b. If solids are observed in the bottom of the container with an approximate depth <1/2 cm (<5 mm), proceed to step 5.

    c. If solids are observed in the bottom of the container with an approximate depth >1/2 cm (>5 mm), proceed to step 7.

    d. If solids observed in the container make up approximately 5% or more of the total sample volume, proceed to step 9.

No Settled Solids Observed:

3) Do not take any additional action to prepare for extraction and follow routine protocols.

4) If the SPE cartridge begins to clog during sample loading (see Identifying Cartridge Clogging section below), abandon loading of the remaining sample volume and proceed to the cartridge rinsing and drying described in step 10 of Section 9.3.4.

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a. Document the inability to load the entire sample volume due to cartridge clogging. If the resulting EIS recoveries are below the method acceptance ranges, this documentation provides the rationale for re-extraction from reduced volume.

b. The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.

c. If the cartridge clog prevents the cartridge rinses or elution solvent from passing through the cartridge, document that an extract could not be collected for that sample. Submit the sample for re-extraction from reduced volume. Notify the group leader and prep team of this necessity and, based on the total volume loaded in the first extraction attempt, provide a suggested reduction factor (i.e., reduce volume 5X, 10X, 20X, etc.).

Settled Solids Depth <1/2 cm Observed:

5) Do not take any additional action to prepare for extraction and follow routine protocols; however, be aware that there is a higher probability that the SPE cartridge will clog, and care must be taken in sample loading to attempt to pass the entire sample through the sorbent.

6) If the SPE cartridge begins to clog during sample loading (see Identifying Cartridge Clogging section below), abandon loading of the remaining sample volume and proceed to the cartridge rinsing and drying described in step 10 of Section 9.3.4.

a. The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.

b. Document the inability to load the entire sample volume due to cartridge clogging. If the resulting EIS recoveries are below the method acceptance ranges, this documentation provides the rationale for re-extraction following centrifugation; however,

c. If the cartridge clog prevents the cartridge rinses or elution solvent from passing through the cartridge, document that an extract could not be collected for that sample. Submit the sample for re-extraction with sample centrifugation (See Aqueous Sample Centrifugation Protocol in Appendix H). Notify the group leader and prep team of this necessity.

i. If, in the judgment of an experienced analyst, the nature of the solids present in the sample is of a nature that would preclude successful centrifugation and decantation, the decision should be confirmed with the group supervisor and/or another experienced analyst; once confirmed, the sample is submitted for re-extraction from reduced volume. Notify the group of this necessity and, based on the total volume loaded in the first extraction attempt, provide a suggested reduction factor (i.e., reduce volume 5X, 10X, 20X, etc.).

ii. If the centrifuged sample clogs the cartridge in the second extraction, see step 6 above; if there is sufficient sample remaining for another re-extraction, submit the sample for re-extraction from reduced volume as described in (i) above. If there is not sufficient sample remaining for another re-extraction, narrate any quality exceedances and report data for all runs.

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Settled Solids Depth >1/2 cm Observed:

7) The sample will need to be centrifuged before performing SPE. Instead of following the routine sample extraction procedures, refer to Appendix H for the Aqueous Sample Centrifugation Protocol.

8) Document the decision to centrifuge the sample prior to SPE.

    a. If resulting EIS recoveries are below the method acceptance ranges, this documentation provides evidence that the results are impacted by matrix interference.

        i. Report the data with a narrative statement explaining that the results are matrix-impacted.

        ii. Alternately, submit the sample for re-extraction from reduced volume to attempt to provide data with compliant EIS recoveries.

    b. If the decanted sample clogs the SPE and prevents successful collection of the extract, document that detail and submit the sample for re-extraction from reduced volume. Notify the group of this necessity and, based on the total volume loaded in the first extraction attempt, provide a suggested reduction factor (i.e., reduce volume 5X, 10X, 20X, etc.) for the re-extraction.

Settled Solids Observed to be ≥ 5% of Total Volume:

9) Shake the sample to thoroughly homogenize it, then immediately subsample 1 mL into a pre-labeled 50mL centrifuge tube and add reagent water to approximately 40 mL. At 5% solids, a sample contains 50,000 mg/L, so 1 mL contains 50 mg of solid material.

10) Spike the diluted subsample with EIS as normal and proceed with extraction.

11) If the SPE cartridge begins to clog during sample loading (see Identifying Cartridge Clogging section below), abandon loading of the remaining sample volume and proceed to the cartridge rinsing and drying described in step 10 of Section 9.3.4.

    a. Document the inability to load the entire sample volume due to cartridge clogging.

    b. The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.

    c. If the cartridge clog prevents the cartridge rinses or elution solvent from passing through the cartridge, document that an extract could not be collected for that sample.

12) If the cartridge clogs during extraction and causes failing results, the lab will contact the client and notify them that sample extraction failed due to the nature of the matrix, and that they must decide between two options for reprocessing the sample:

    a. Apply biosolid matrix protocols, following Sections 9.3.6 through 9.3.8 of this SOP. Use 0.5 g of sample for extraction; do not submit for % solids analysis and report results as ng/g, on a wet weight basis.

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b. Attempt to separate and analyze the aqueous and solid phases separately. If the client selects this option, follow the protocol detailed in Appendix I.

Identifying Cartridge Clogging

During the loading phase of the SPE process, some samples may cause their cartridges to clog, preventing the entire sample from being loaded through, and sometimes preventing an extract from being collected. If you have a sample that slows down considerably during the loading process, you may need to abandon loading the remainder of the sample. The goal is to stop the process before the cartridge seizes up completely, so that a sample extract can still be collected from the cartridge.

When Clogs Start

Some of the first visual indications of a cartridge becoming clogged include: discoloration of the cartridge frit and/or sorbent bed, reduced drip rate of the sample through the cartridge, and coloration or sedimentation on the bottom of the reservoir.

When a cartridge starts to clog, it is important to stop the process before the cartridge seizes up completely. Take the actions listed below; an evaluation must be made to decide whether each cartridge can reasonably be used further without seizing up completely.

- Do not continue to add any more sample volume to the reservoir of the clogging cartridge.
- If there is substantial volume remaining in the reservoir (i.e., > 10 mL) and the cartridge is in apparent imminent danger of seizing completely, close the manifold port to stop sample loading. Carefully remove the cartridge-adaptor-reservoir assembly for the sample in question and pour whatever sample volume remains in the reservoir back into the original sample bottle. This volume will be included in the evaluation of extracted sample volume (initial volume).
- If the reservoir on the clogging cartridge empties before the other samples have finished loading, close the manifold port to prevent the cartridge from drying.
- If sample volume remains in any of the slowed cartridges after the loading of the other samples is finished, close all the manifold ports and focus pressure on the slowed cartridge in an attempt to load the volume remaining in the reservoir. (Do this one at a time for multiple clogs.) If the cartridge appears to be in imminent danger of seizing up completely, do not attempt to load the volume remaining in the reservoir; follow the steps in the second bullet of this section.

Abandoning Sample Loading

If the decision is made to abandon sample loading, take the following actions. Some of these are partial duplicates of the actions listed in the section above.

- If any sample remains in the reservoir, carefully remove the cartridge-adaptor-reservoir assembly for the sample in question and pour whatever sample volume remains in the reservoir back into the

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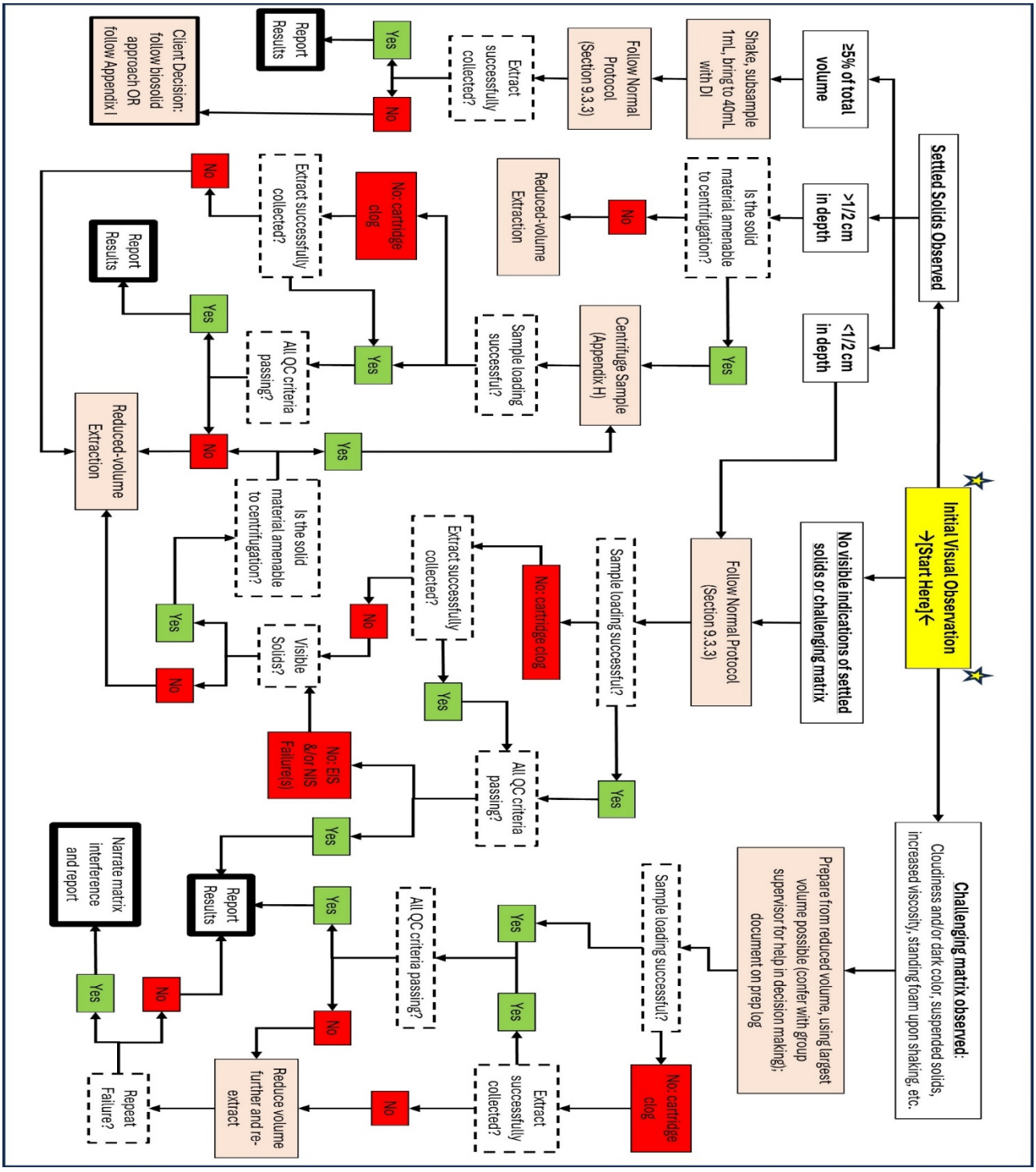
original sample bottle. This volume will be included in the evaluation of extracted sample volume (initial volume).

- Use the cartridge from the abandoned sample and finish the SPE process to collect what extract is available.
- The sample bottle rinse described in step 12 of Section 9.3.5 must be omitted; simply add the 5 mL of 1% methanolic ammonium hydroxide directly to the reservoir/cartridge.
- Weigh the sample in its original bottle to establish the “empty bottle” weight (aka post-extraction weight).

Fully Clogged Cartridges

Samples will have to be re-extracted when cartridges clog so fully that the extraction process cannot be taken to completion to collect a sample extract. Based on the total volume loaded in the failed extraction attempt, provide a suggested reduction factor for the re-extraction (i.e., reduce volume 5X, 10X, 20X, etc.) The sample should be shaken up before subsampling for the reduced volume re-extraction. However, for samples containing solids that are very fine and easily suspended, the analyst may consider allowing the sample to settle before subsampling an aliquot for reduced volume re-extraction; this may help prevent cartridge clogging in the re-extraction process.

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Appendix H: Aqueous Sample Centrifugation Protocol

Method 1633 states “laboratories may utilize other documented strategies for minimizing the disruptions due to SPE clogging and slow extractions,” and “a trained analyst should be able to distinguish samples with very low TSS and focus…on only those samples that might present a risk of clogging.” Therefore, whether an individual sample will require centrifugation for proper preparation will be determined and documented by the preparation analyst, following the guidance in Appendix G. Additionally, the method states “If centrifugation is used to prevent samples with high TSS from clogging the SPE, the EIS compounds must be spiked into the original sample container prior to centrifugation.” This protocol complies with that dictate.

1) Follow Appendix G to evaluate the sample for the presence of solids. Inspect the sample and consider the necessity of centrifuging.

2) If the sample is determined to require centrifugation/decantation, contemporaneously make a note on the prep batch log indicating this fact.

3) Spike samples requiring centrifugation in the same manner and with the same standard volume as samples which will not be centrifuged.

4) Label a 500mL conical centrifuge bottle with the sample ID for each sample that will be centrifuged. Set them in an appropriate rack with the caps removed.

5) Vigorously shake the spiked sample and then quickly pour it into the appropriately labeled centrifuge bottle. Try to ensure that the original sample bottle is devoid of any solid material after the transfer. Be careful to avoid spilling sample during the transfer process. Tightly cap each centrifuge bottle after transfers are complete.

6) Transfer capped centrifuge bottles to the centrifuge rotor, ensuring that the carousel is symmetrically balanced. Close the top and centrifuge at 3000 RPM (~2000 RCF) for 6 minutes.

7) Remove centrifuge bottles and decant the centrifuged liquid from the condensed solids by transferring it back into the original sample bottle. Try to avoid transferring any of the condensed solids from the centrifuge bottle back to the original sample bottle, while maximizing the amount of liquid collected in the sample bottle.

8) Weigh the full, decanted original sample bottle and document in the prep batch log.

9) Extract the decanted sample as normal alongside un-centrifuged samples, through the cartridge rinsing and drying (step 10 of Section 9.3.4).

10) When the SPE cartridges have been dried, rinse the original sample bottle following the protocol in step 12 of Section 9.3.5. Additionally, add 5mL of 1% methanolic ammonium hydroxide (1%-MeOH) to each centrifuge bottle to rinse the inside of them as well as the solids they contain. If the condensed solids become re-suspended while rinsing the bottles, centrifugation may be required. Using a transfer pipet or mechanical pipet, transfer the 1%-MeOH rinse from the centrifuge bottle into the reservoir/SPE cartridge and elute with the original sample bottle rinse into a 15mL conical centrifuge tube.

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11) Add 5 mL of additional 1%-MeOH directly to the SPE reservoir of all batch QC samples (MB/LCS/LLLCS) and elute with the normal bottle rinse. This is to match the volume used for elution of centrifuged field samples in the prep batch.

12) After elution, all sample extracts (client and QC) with additional elution volume shall be concentrated to ~3.5 mL and brought to a final volume of ~4 mL with 1%-MeOH. Concentrate each extract at approximately 55 ºC with N2 flow of approximately 1.2 L/min. Use a reference elution tube to reconstitute to the appropriate volume, like the protocol in step 8 of Section 9.3.6 of this SOP. This extract concentration and reconstitution must be done BEFORE adding acetic acid and NIS to the extracts, as directed in step 14 of Section 9.3.5.

13) Weigh the empty bottle with the cap on and subtract that from the weight of the bottle with sample, determined in step 8 of this appendix, to determine initial sample volume.

14) Add 25 µL of concentrated acetic acid and 20 µL of NIS mix to each sample extract in its collection tube and vortex to mix. Transfer a portion of each extract into an autosampler vial for LC-MS/MS analysis. Cap the collection tubes containing the remaining extracts and store at 0 - 6 °C.

15) Generate a narrative statement noting which samples in the prep batch included centrifugation in the extraction process. Include any additional observations and/or deficiencies that were noted during the centrifugation or extraction process, particularly if any issues were encountered during the sample loading step of the SPE process.

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Appendix I: Separation & Analysis of Liquid-Solid Biphasic Matrices

Method 1633 states “laboratories may utilize other documented strategies for minimizing the disruptions due to SPE clogging and slow extractions, including centrifuging the sample before adding the EIS and treating the supernatant aqueous phase and the solid phase as separate samples.” This will be done only according to client direction or project requirement; see Appendix G for more information regarding management of solids in aqueous samples.

1) If the client has requested to have the sample separated into aqueous and solid phases for analysis, the sample must be logged into the LIMS system separately for both matrices. The resulting solid phase will be reported on a wet weight basis and will not be analyzed for percent solids (aka percent moisture).

NOTE: The LOQ for the resulting solid analysis will depend on the amount of solid material available after decanting – the lab will use ~5 g of material if available, but any reduction in available solids will result in an increase in the reported LOQ.

2) Label a 500mL conical centrifuge bottle with the sample ID for each sample that will be centrifuged. Set them in an appropriate rack with the caps removed.

3) Vigorously shake the sample and then quickly pour it into the appropriately labeled centrifuge bottle. Try to ensure that the original sample bottle is devoid of any solid material after the transfer. Be careful to avoid spilling sample during the transfer process. Tightly cap each centrifuge bottle after transfers are complete.

4) Transfer capped centrifuge bottles to the centrifuge rotor, ensuring that the carousel is symmetrically balanced. Close the top and centrifuge at 3000 RPM (~2000 RCF) for 6 minutes.

5) Remove centrifuge bottles and decant the centrifuged liquid from the condensed solids by transferring it back into the original sample bottle. Try to avoid transferring any of the condensed solids from the centrifuge bottle back to the original sample bottle, while maximizing the amount of liquid collected in the sample bottle.

6) Weigh the full, decanted original sample bottle and document in the prep batch log.

7) Extract the decanted aqueous sample as normal alongside un-centrifuged samples, starting with EIS addition.

8) Label a 50 mL centrifuge tube with the sample ID for each solid phase sample generated from phase separation. Using a wooden tongue depressor or a pre-cleaned metal scoopula, transfer the solid material from the decanted 500 mL centrifuge bottle to the labeled 50 mL tube, targeting 5 g of total sample mass. Record the sample mass transferred to the 50 mL tube – this will be the extracted sample mass used for calculations and reporting. In many cases, re-extraction will not be possible due to limited solid material.

9) Spike the collected solid material with EIS and extract as normal alongside solid samples which were not generated from phase separation.

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Appendix J: TCLP/SPLP by 1633

Clients may submit samples (solid or aqueous) for PFAS following TCLP or SPLP procedures. For solid samples, the TCLP and SPLP procedures are used to simulate the leaching of environmental contaminants over extended periods of time from a solid material into the environment. A subsample of the client's sample is weighed out and combined with a leaching solution and mechanically tumbled for a set period. Each leachate prep method (TCLP: Method 1311 or SPLP: Method 1312) employs a unique leaching solution dictated by the parent methods. After the sample has been tumbled/leached by the Organic prep department, the leachate is filtered by the Organic Prep department and delivered to the PFAS sample holding area. The PFAS department is notified by email when the leachate solutions are ready for PFAS prep. The filtered leachate solutions are prepared by the PFAS prep analysts using the 1633 aqueous prep method, at a 1:5 dilution (100 mL of leachate solution).

1) Samples requested for PFAS by SPLP/TCLP analysis will be batched and leached by the normal SPLP/TCLP procedures used by the Westborough Alpha Organic Prep department. Organic Prep will be the initial responsible party for samples analyzed for PFAS by SPLP/TCLP.

2) When the leaching process is complete, Organic Prep will collect approximately 500mL (at minimum 100mL) of the leachate solutions in clean HDPE containers provided by the Emerging Contaminants department.

3) After collecting the leachate solution, an Organic Prep analyst will filter approximately 500 mL (at minimum 100mL) of each leachate solution using a Flipmate apparatus, using normal protocols for Flipmate filtration.

4) After filtering the leachates, the Organic Prep analyst will deliver the filtrates to the Sample management department for transport to the Emerging Contaminants Department (EC) at the Alpha Mansfield Facility. Leachates will be transferred to the EC department's designated sample storage refrigerator.

5) Samples to be analyzed for PFAS following TCLP/SPLP will appear on a separate PFAS prep worklist, the title of which will contain "SPLP" or "TCLP." From these worklists, PFAS analysts will select the samples to be extracted.

6) Pour ~100 mL of filtrate solution into a pre-labeled HDPE PFAS sample bottle, using the gradations marked on the bottle as a guide. Record the actual amount of filtrate by weighing the sample bottle. LOQs for samples prepared in this way will be ~5X higher than normal Aqueous matrix LOQs.

7) Following the instructions in step 7, use the leachate blank solution (typically has sample ID L0000000-01) to prepare three bottles for use as batch QC. Volume for the leachate blank, LLLCS, and LCS will be recorded as 100 mL.

8) Label and fill a clean 125 mL HDPE bottle with ~125 mL of pre-tested reagent water for use as a typical 1633 MB sample. Volume for the 1633 MB sample will be recorded as 100 mL.

9) After preparing the diluted filtrate, filtrate batch QC, and 1633 MB bottles, follow the normal extraction steps for aqueous matrices. Each sample will be spiked with EIS as normal. The filtrate

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LLLCS and LCS will be spiked with target analytes according to the routine aqueous protocol for LLLCS and LCS target spiking.

10) Leachate batch QC (MB/LLLCS/MS/MSD) are documented in LIMS as leachate blank (MB), and LLLCS (LCS).

11) Following the SPE process, the instrumental analyst will analyze the extracts by the 1633 method, as normal.

12) After processing, reviewing, generating reports for the data, and importing the data into LIMS, the TCLP/SPLP tumble date must be input into the analytical results from the leachate logs.

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Appendix K: Surface Wipe PFAS Analysis by 1633

Clients may submit wipe samples for PFAS analysis by 1633; wipes can be used as a proxy measurement of surface contamination in production facilities, labs, etc. The lab provides sampling kits for users which consist of a 50 mL centrifuge tube paired with a packaged ghost wipe for each surface to be sampled (ghost wipes: Environmental Express Part# SC5000). The wipe is used to swab a defined area of the surface or item of interest and is placed in the accompanying centrifuge tube, which is then capped, labeled, and shipped back to the lab for preparation and analysis.

Used wipe samples are prepared directly in the container in which they are received, following the protocols for solid matrices described in Sections 9.3.6 through 9.3.8; analysis follows normal 1633 routines. No correction will be made for percent solids, and results are reported as ng/wipe.

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Appendix L: Articles of Commerce Analysis via Cryomill Processing

Clients may submit samples of various consumer product materials and 'articles of commerce' for analysis of PFAS contained in the products. To effectively mobilize any PFAS that may be present within the structure of the material, samples must be milled to a fine powder using a cryogenic mill (or Cryomill).

This appendix provides strategies for processing samples obtained from an article of commerce. Common techniques are covered for mechanical size reduction of articles and their sub-units or portions thereof prior to the determination of PFAS in the article or article components via extraction and quantitative analysis. Polymer powders, nanomaterials, fibers, pastes, fluorinated ionomers etc. may not require size reduction if they are known to be sufficiently homogenous and more than 95% of the material passes a 250 µm sieve. Examples of common articles requiring milling prior to extraction and analysis are compacted cakes, melt extruded pellets and molded articles, elastomers and agglomerates, coated wire, textiles, paper, leather, food, and LDPE and polypropylene.

The user shall elect to apply one or more of the approaches, or compendium of approaches, to create homogenous samples suitable for extraction and analysis. Selection of the appropriate technique(s) depends on the article. Alternative methods of mechanical sample preparation can be used, provided that the required particle size (avg. particle size approx. 100 µm) of the sample is achieved without contaminating or compromising the sample.

Sample Processing Equipment and Materials

The following sample processing equipment and materials are required, subject to the type of material being prepared. Conditions for cryogenic fine milling are provided for the Retsch CryoMill, however, alternative cryomilling equipment like the SPEX ® Freezer/Mill may be used for most products.

1) Scissors, heavy plate shears or RetschTM ZM 200 Grinding Mill (Centrifugal Mill) with 6 or 12 tooth stainless steel (SS) rotor and 1 mm stainless steel bottom sieve.
2) Retsch CryoMill (Ball Mill), with SS grinding cartridge and 25 mm grinding ball (50 mL grinding cartridge, 5 g fill), or equivalent cryogenic mill capable of grinding to approximately 100 µm particles.
3) Cleaning brushes (different sizes) and polishing cloths, or cotton balls/swabs
4) Liquid nitrogen (LN2)
5) High purity methanol and ASTM Type I water for cleaning mill parts
6) Ventilated hood, to minimize exposure to fine particles/dusts/aerosols and chemical vapors
7) Ventilated drying oven capable of > 200°C
8) Precision sieves and accessories, nickel mesh, 50 µm and 150 µm sizes

Manual Cutting

If possible, manual cutting with pre-cleaned shears or scissors is suitable for rough cutting and preparation of samples for further reduction by grinding, etc. Recommended maximum sample size is 10

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x 10 mm but will depend on the specification of the equipment used in the subsequent preparation processes.

Fine Grinding by Cryomill

Fine grinding via cryomill is suitable for further mechanical breakdown of samples, grinding material to pieces ~100 µm in diameter. Be careful not to allow the LN2 to come into direct contact with the sample to prevent spattering and sample loss. Thorough cleaning of the mill components between samples is crucial to avoid cross-contamination; see steps 7-11 below for details.

Cryomilling will be performed using a Retsch CryoMill (ball mill) with automatic LN2 feed, as described below:

Sample Type[1]	Cycles	Preset	Frequency (Hz)	PCT (minutes)	MT (minutes)	ICT (minutes)
Elastomers (FKM, FFKM, FEPM, and agglomerates)	1	1	30	Auto	2	NA
Compacted Cake	5	NA	30	Auto	2	2
Melt Extruded Pellets and Molded Articles	7	2	30	Auto	4	2
Coated Wire	3	3	30	Auto	2	2
Textiles, Paper, Leather	3	4	25	10	2.5	0
Food (meat, cheese)	1	5	25	8	2	NA
LDPE and PP	2	6	25	10	2	2

[1] *In most applications, a feed mass of 5 g is used.*
PCT: Precooling time (automatic set)
MT: Milling time
ICT: In-between cooling time

1) In the case of FFKM compounds and articles, care must be taken to avoid excessive energy input as it may lead to cryo-mechanical degradation of the polymer and the creation of mechanoradicals, which can inflate the amount of target substance detected. Filling levels will impact the energy applied in the grinding process and can inflate test results as well.

2) In the case of cured FFKM elastomeric articles, pulverizing the product in a 2-roll mill as commonly used for compounding of elastomers can be an alternate sample preparation method to avoid or reduce the risk of mechanical degradation. Alternative methods for FFKM compounds and articles that do not require cryo-grinding are being investigated.

3) Cryogenically mill the sample powder and sweep out the milled material to collect all the powder. The collected plastic-based sample material should be precision sieved to obtain a sufficiently homogeneous portion of known particle size range of 50 µm to 150 µm, by first sieving material

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through the 150 µm sieve, then the 50 µm sieve (keep contents captured on 50 µm sieve). Size range is 100 + 50 µm (i.e. ~ 100 µm).

4) The collected FKM-, FFKM- and FEPM-based samples are visually inspected for homogenous size, verification via light-scattering is beneficial. Sieving of the samples is not recommended due to materials' elastomeric nature and the potential for particles to re-agglomerate into larger segments over time.

NOTE: Freshly cryomilled samples should either be extracted ASAP (same day) OR placed under frozen conditions (-10° C) ASAP and held under frozen conditions until ready to extract.

5) Make sure to follow the User Manual for installing and removing the grinding jar. This includes the two lock rings on the left side of the mechanism.

    a. Make sure outer LOCK RINGS are loosened.

    b. Screw in the grinding jar (from the right side of the mechanism). Tighten with black plastic tightening aid.

    c. TIGHTEN TWO LOCK RINGS: Outside ring tightened first (hand-tighten only); inner ring tightened second (snug), using the tool.

    d. Perform grinding cycle.

    e. LOOSEN THOSE TWO LOCK RINGS: Inside ring loosened first, outer ring loosened second. To loosen either ring, the tool will be needed because of icing.

    f. Unscrew grinding jar.

    g. When cryomill is not in use, make sure to replace the cooling jacket seal.

6) For extraction of cryomilled materials, follow the solid matrix extraction protocol listed in Sections 9.3.6-9.3.8, using 2 g as the target sample mass instead of 5 g. Sample results will be reported as ng/g, with no moisture correction.

Cleaning Procedure for Mill Components

Thorough cleaning of the mill components between samples is crucial to avoid cross-contamination. The following cleaning procedure is recommended.

7) Remove residual polymer thoroughly with DI water and brush.

8) If necessary, wipe away last polymer residue with clean polish cloth or cotton ball/swab.

9) Rinse all parts with methanol, use an ultrasonic bath as needed.

10) Rinse all parts with DI Water, use an ultrasonic bath as needed.

11) Repeat steps 7-10 as needed.

Analysis and Holding Time

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Matrix	Routine Container	Minimum Sample Amount	Preservation	Holding Time
Fluoropolymers, molded articles, coated wire, pellets, or other Articles of Commerce[1]	Any container or packaging that does not contain PFAS. Target container is a 125 mL PFAS container; however, clients will often send in Ziploc bags or other packaging.	5 g (target weight for clients to send is 20 g).	Can be shipped at any temperature (being an Article of Commerce). Once received in the lab: <6°C (prior to cryomill) Once cryomilled: Frozen Extract storage: <6°C	Sample receipt (or dated collected)[2] to cryomill: 1 year From cryomilling to extraction: 14 days Once extracted: 30 days

[1] Almost any "solid" material is applicable to this approach, as long as it can be manually coarse cut to approximately 5-10 mm in size (half a pea). If the matrix is soft (e.g., gummy bear), a larger feed size can be used.

[2] Often clients do not include "date collected." If none provided, "date collected" becomes "date received."

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Appendix M: Procedure for Total Oxidizable Precursors (TOP)

The following modifications to the referenced SOP are as follows:

Section 7: Water Bath – Capable of monitoring recording to .1 C maintaining 85 C.

Section 8.1: Sodium Hydroxide (NaOH, CAS#: 1310-73-2) – High purity, demonstrated to be free of analytes and interferences.

Potassium Persulfate ($K_2S_2O_8$, CAS#: 7727-21-1) - High purity, demonstrated to be free of analytes and interferences.

Hydrochloric Acid (HCl, CAS#: 7647-01-0) - High purity, demonstrated to be free of analytes and interferences.

Additional table to be added to Section 8

Table 1

Isotope Labeled Standard	Conc. Top Surr Stock (ng/mL)	Vol. of Top Surr Stock (µl)	Final Vol. of Top Surr PDS (mL)	Final Conc. of Top Surr PDS (ng/mL)
$^{13}C_2$-PFOA	50,000	40	4.0	500
$^{13}C_2D_4$-4:2FTS	50,000	80	4.0	1000

For Aqueous samples, prior to Section 10 of SOP 45852, add to each 125 ml sample with Potassium Persulfate until 60 mM (about 2 grams). Add Sodium Hydroxide until the sample is 125 mM (about .625 grams).

Sample should have a pH >12.

Fortify each sample with 20 µl of TOP pre-assay surrogate containing 1 negative control surrogates and 1 positive control surrogates from table 1.

Place sample in a water bath at 85 C for 6 hours.

Remove sample from water bath and adjust pH 6-8 with Hydrochloric Acid.

Following pre-treatment, follow the aqueous extraction protocol from section 10 of SOP 45852 unaltered.

Section 11, An additional calculation is added for the final reporting of the TOP assay results.

TOP Assay = Result of Post TOP assay extraction – Result of analysis from Pre-Top Assay extraction.

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Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (LC/MS/MS)

References: EPA Method 537.1, Version 2, March 2020, EPA Document #: EPA/600/R-20/006

EPA Method 533, November 2019, EPA Document #: 815-B-19-020

ISO 25101, First Edition, March 2009, Reference #: ISO 25101:2009(E)

Department of Defense, Quality Systems Manual for Environmental Laboratories, Version 5.4, 2021

1. Scope and Application

Matrices: Drinking water, Non-potable Water, Tissues, Biosolids and Soil Matrices
(Drinking water is applicable for specific state regulatory requirements for this method)
Definitions: Refer to Alpha Analytical Quality Manual.

1.1. This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water and soil Matrices. Accuracy and precision data have been generated in reagent water, finished ground and surface waters, and soils for the compounds listed in Table 1.

1.2. The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.

1.3. This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of the Method

2.1. A 250-mL water sample is fortified with extracted internal standards (EIS) and passed through a solid phase extraction (WAX) cartridge containing a mixed mode, Weak Anion Exchange, reversed phase, water-wettable polymer to extract the method analytes and isotopically labeled compounds. The compounds are eluted from the solid phase in two fractions with methanol followed by a small amount of 2% ammonium hydroxide in methanol solution. The extract is concentrated with nitrogen in a heated water bath and then adjusted to a 1-mL volume with 80:20% (vol/vol) methanol:water.

2.2. A 0.5 to 4 gram soil, solid, tissue, or biosolid sample is fortified with extracted internal standards (EIS), diluted in methanol, and agitated rigorously. An aliquot of the methanol is passed across an SPE-based clean-up cartridge and the eluate is collected. The extract is concentrated with

nitrogen in a heated water bath and then adjusted to a 1-mL volume with 80:20% (vol/vol) methanol:water.

2.3. A sample extract is injected into an LC equipped with a C18 column that is interfaced with an MS/MS. The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.4. Method Modifications from Reference

2.4.1. None.

Table 1

Parameter	Acronym	CAS
PERFLUOROALKYL ETHER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTA	376-06-7
Perfluorohexadecanoic acid	PFHxDA	67905-19-5
Perfluorooctadecanoic acid	PFODA	16517-11-6
PERFLUOROALKYL SULFONIC ACIDS (PFASs)		
Perfluoropropanesulfonic acid	PFPrS	423-41-6
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5

Table 1 Cont.

Parameter	Acronym	CAS
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
PERFLUOROOCTANESULFONAMIDES (FOSAs)		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
TELOMER SULFONIC ACIDS		
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)	4:2FTS	757124-72-4
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	8:2FTS	39108-34-4
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2)	10:2FTS	120226-60-0
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
NATIVE PERFLUOROOCTANESULFONAMIDOETHANOLS (FOSEs)		
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	NMeFOSE	24448-09-7
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	NEtFOSE	1691-99-2
PERFLUOROETHER AND POLYETHER CARBOXYLIC ACIDS		
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

3. Reporting Limits

3.1. The reporting limit for PFAS's is 2 ng/L for aqueous samples (20 ng/L for HFPO-DA) and 0.25 - 1 ng/g (2.5 ng/g for HFPO-DA) for soil samples.

4. Interferences

4.1. PFAS standards, extracts and samples should not come into contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.

4.2. Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that can lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be demonstrated to be free from interferences (less than 1/3 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks whenever a new vendor or reagent is brought online as described in Section 9.1,

and by continuous evaluation of method blanks and/or instrument blanks. **Subtracting blank values from sample results is not permitted.**

4.3. Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

4.4. SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

5.1. The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.

5.2. All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.

5.3. PFOA has been described as “likely to be carcinogenic to humans.” Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1. Sample Collection for Aqueous Samples

6.1.1. Samples must be collected in two (2) 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap.

6.1.2. The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.

6.1.3. Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.

6.1.4. Fill sample bottles. Samples do not need to be collected headspace free.

6.1.5. After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.

6.1.6. Field Reagent Blank (FRB)

6.1.6.1. An FRB must be handled along with each sample set. The sample set is composed of samples collected from the same sample site and at the same time. At the laboratory, fill the field blank sample bottle with reagent water and preservatives, seal, and ship to the sampling site along with the sample bottles. For each FRB shipped, an empty sample bottle (no preservatives) must also be shipped. At the sampling site, the sampler must open the shipped FRB and pour the reagent water into the empty shipped sample bottle, seal and label this bottle as the FRB. The FRB is shipped back to the laboratory along with the samples and analyzed to ensure that PFAS's were not introduced into the sample during sample collection/handling.

6.1.6.2. The reagent water used for the FRBs must be initially analyzed for method analytes as a MB and must meet the MB criteria in Section 9.1.1 prior to use. This requirement will ensure samples are not being discarded due to contaminated reagent water rather than contamination during sampling.

6.2. Sample Collection for Soil and Sediment samples

6.2.1. Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided.

6.3. Sample Preservation

6.3.1. Not applicable.

6.4. Sample Shipping

6.4.1. Samples must be chilled during shipment and must not exceed 10 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 10 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction but should not be frozen.

6.4.2. **NOTE:** Samples that are significantly above 10° C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.5. Sample Handling

6.5.1. Holding Times

6.5.1.1. Aqueous samples should be extracted as soon as possible but must be extracted within 28 days and stored at 0° - 6° C in the dark. Solid and tissue matrices should be extracted within 90 days and stored at 0° - 6° C in the dark. Extracts are stored at <10° C and analyzed within 90 days after extraction.

6.5.1.2. The holding time for extraction for all matrices reporting to the State of Maine is 14 days stored at 0-6°C or -20°C; analytical holding time is 28 days for extracts stored at 0-4°C.

7. Equipment and Supplies

7.1. SAMPLE CONTAINERS – 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.2. SAMPLE JARS – 8-ounce wide mouth high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.3. POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.

7.4. CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.

7.5. AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.

7.6. NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.

7.7. POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.

7.8. Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µls.

7.9. PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.

7.10. ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.

7.11. ANALYTICAL BALANCE – Capable of weighing to the nearest 0.1 g.

7.12. SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.13. SPE CARTRIDGES – 0.5 g SPE cartridges containing a reverse phase copolymer characterized by a weak anion exchanger (WAX) sorbent phase.

7.14. VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB (Sect. 9.1.1).

7.15. SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8" O.D. x 1/16" I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB (Sect. 9.1.1) and LCS (Sect. 9.2) QC requirements.

7.16. Extract Clean-up Cartridge – 250 mg 6mL SPE Cartridge containing graphitized polymer carbon.

7.17. EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 65 °C.

7.18. LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.19. LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.20. LC SYSTEM – Instrument capable of reproducibly injecting up to 10-µL aliquots and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase

without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

7.21. LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.22. DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.23. ANALYTICAL COLUMN – An LC BEH C18 column (2.1 x 50 mm) packed with 1.7 µm dp C18 solid phase particles was used. Any column that provides adequate resolution, peak shape, capacity, accuracy, and precision (Sect. 9) may be used.

8. Reagents and Standards

8.1. GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals must be used.

8.1.1. REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/3 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2. METHANOL (CH_3OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3. AMMONIUM ACETATE ($NH4C2H3O2$, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences.

8.1.4. ACETIC ACID (H_3CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences.

8.1.5. 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6. 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 mL of 1M AMMONIUM ACETATE,1 mL ACETIC ACID and 50 mL METHANOL into I Liter of REAGENT WATER.

8.1.7. Methanol/Water (80:20) – To prepare a 1 Liter bottle, mix 200 mL of REAGENT WATER with 800 mL of METHANOL.

8.1.8. AMMONIUM HYDROXIDE (NH_3, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences.

8.1.9. Sodium Acetate ($NaOOCCH_3$, CAS#: 127-09-3) – High purity, demonstrated to be free of analytes and interferences.

8.1.10. 25 mM Sodium Acetate Buffer – To prepare 250 mLs, dissolve .625 grams of sodium acetate into 100 mLs of reagent water. Add 4 mLs Acetic Acid and adjust the final volume to 250 mLs with reagent water.

8.1.11. NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).

8.1.12. ARGON – Used as collision gas in MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.

8.2. STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.

NOTE: Stock standards and diluted stock standards are stored at ≤4 °C.

8.2.1. ISOTOPE DILUTION Extracted Internal Standard (ID EIS) STOCK SOLUTIONS - ID EIS stock standard solutions are stable for at least 6 months when stored at 4 °C. The stock solution is purchased at a concentration of 1000 ng/mL.

8.2.2. ISOTOPE DILUTION Extracted Internal Standard PRIMARY DILUTION STANDARD (ID EIS PDS) – Prepare the ID EIS PDS at a concentration of 500 ng/mL. The ID PDS is prepared in methanol. The ID PDS is stable for 1 year when stored at ≤4 °C (table 2a).

Table 2a

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Vol. of EIS Stock (mL)	Final Vol. of EIS PDS (mL)	Final Conc. of EIS PDS (ng/mL)
M4PFBA	1000	1.0	2.0	500
M5PFPeA	1000	1.0	2.0	500
M5PFHxA	1000	1.0	2.0	500
M4PFHpA	1000	1.0	2.0	500
M8PFOA	1000	1.0	2.0	500
M9PFNA	1000	1.0	2.0	500
M6PFDA	1000	1.0	2.0	500
M7PFUdA	1000	1.0	2.0	500
MPFDoA	1000	1.0	2.0	500
M2PFTeDA	1000	1.0	2.0	500
M2PFHxDA	50,000	.02	2.0	500
M8FOSA	1000	1.0	2.0	500
d3-N-MeFOSAA	1000	1.0	2.0	500
d5-N-EtFOSAA	1000	1.0	2.0	500
M3PFBS	929	1.0	2.0	464.5
M3PFHxS	946	1.0	2.0	473
M8PFOS	957	1.0	2.0	478.5
M2-4:2FTS	935	1.0	2.0	467.5
M2-6:2FTS	949	1.0	2.0	474.5
M2-8:2FTS	958	1.0	2.0	479
M2,D4-10:2FTS	50,000	.04	2.0	1000
M3HFPO-DA	50,000	.4	2.0	10,000

Table 2b

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Vol. of EIS Stock (mL)	Final Vol. of EIS PDS (mL)	Final Conc. of EIS PDS (ng/mL)
d3-N-MeFOSA	50,000	.2	2.0	5000
d5-N-EtFOSA	50,000	.2	2.0	5000
d7-N-MeFOSE	50,000	.2	2.0	5000
d9-N-EtFOSE	50,000	.2	2.0	5000

8.2.3. ANALYTE STOCK STANDARD SOLUTION – Analyte stock standards are stable for 1 year when stored at 4 °C. When using these stock standards to prepare a PDS, care must be taken to ensure that these standards are at room temperature and adequately vortexed.

8.2.4. ANALYTE PRIMARY SPIKING STANDARD – Prepare the spiking standard at a concentration of 500 ng/mL in methanol. The spiking standard is stable for at least two months when stored in polypropylene centrifuge tubes at room temperature.

8.2.5. Analyte Secondary Spiking Stock (SS): Prepare the spiking solution of additional add on components for project specific requirements only.

Table 3: Purchased PFAC-30PAR

Analyte	Conc. of Stock (ng/mL)	Vol. of Stock (mL)	Final Vol. of PDS (mL)	Final Conc. of PDS (ng/mL)
PFBA	1000	1	2	500
PFPeA	1000	1	2	500
PFHxA	1000	1	2	500
PFHpA	1000	1	2	500
PFOA	1000	1	2	500
PFNA	1000	1	2	500
PFDA	1000	1	2	500
PFUnA	1000	1	2	500
PFDoA	1000	1	2	500
PFTrDA	1000	1	2	500
PFTA	1000	1	2	500
FOSA	1000	1	2	500
Br-NMeFOSAA	240	1	2	120
L-NMeFOSAA	760	1	2	380
Br-NEtFOSAA	225	1	2	112.5
L-NEtFOSAA	775	1	2	387.5
L-PFBS	887	1	2	443.5
L-PFPeS	941	1	2	470.5
L-PFHxSK	741	1	2	370.5
Br-PFHxSK	173	1	2	86.5
L-PFHpS	953	1	2	476.5
L-PFOSK	732	1	2	366
Br-PFOSK	196	1	2	98
L-PFNS	962	1	2	481
L-PFDS	965	1	2	482.5
4:2FTS	937	1	2	468.5
6:2FTS	951	1	2	475.5
8:2FTS	960	1	2	480
9ClPF3ONS	933	1	2	466.5
11ClPF3OUdS	943	1	2	471.5
ADONA	945	1	2	472.5
HFPO-DA	1000	1	2	500

Table 4: Secondary Stock (SS)

Analyte	Conc. of Stock (ng/mL)	Vol. of Stock (mL)	Final Vol. of SS (mL)	Final Conc. of SS(ng/mL)
PFHxDA	50,000	0.4	10	2000
PFODA	50,000	0.4	10	2000
HFPO-DA	50,000	3.9	10	19,500
10:2-FTS	48,300	0.4	10	1932
PFDoS	48,400	0.4	10	1936
PFPrS	45,800	0.4	10	1832
PFMPA	50,000	0.4	10	2000
PFMBA	50,000	0.4	10	2000
PFEESA	44,500	0.4	10	1780
NFDHA	50,000	0.4	10	2000
NMeFOSA	50,000	0.4	10	2000
NMeFOSE	50,000	0.4	10	2000
NEtFOSA	50,000	0.4	10	2000
NEtFOSE	50,000	0.4	10	2000

Table 5: Final PDS solution

Stock	Conc of Stock	Vol of Stock (mL)	Final Vol of PDS (mL)	Final conc (ng/mL)
PFAC30PAR	**Varies (see Table 3)**	**2**	**4**	**500 (varies)**
Secondary Stock	**Varies (see Table 4)**	**1**	**4**	**500 (varies)**

8.2.6. LOW, MEDIUM, AND HIGH LEVEL LCS – The LCS's will be prepared at the following concentrations and rotated per batch; 2 ng/L, 40 ng/L, 500 ng/l for drinking water. The analyte PDS contains all the method analytes of interest at various concentrations in methanol. The analyte PDS has been shown to be stable for six months when stored at ≤ 4 °C.

8.2.7. Isotope Dilution Labeled Recovery Stock Solutions (ID REC) – ID REC Stock solutions are stable for at least 1 year when stored at 4 °C. The stock solution is purchased at a concentration of 2000 ng/mL.

8.2.8. Isotope Dilution Labeled Recovery Primary Dilution Standard (ID REC PDS) - Prepare the ID REC PDS at a concentration of 500 ng/mL. The ID REC PDS is prepared in methanol. The ID REC PDS is stable for at least 1 year when stored in polypropylene centrifuge tubes at ≤4 °C.

Table 5

Analyte	Conc. of REC Stock (ng/mL)	Vol. of REC Stock (mL)	Final Vol. of REC PDS (mL)	Final Conc. of REC PDS (ng/mL)
M2PFOA	2000	1	4	500
M2PFDA	2000	1	4	500
M3PFBA	2000	1	4	500
M4PFOS	2000	1	4	500

8.2.9. CALIBRATION STANDARDS (CAL)

Current Concentrations (ng/mL): 0.25 (optional), 0.5, 1.0, 5.0, 10.0, 25, 50.0, 100, 250.

Prepare the CAL standards over the concentration range of interest from dilutions of the analyte PDS in methanol containing 20% reagent water. 20 µl of the EIS PDS and REC PDS are added to the CAL standards to give a constant concentration of 10 ng/mL. The lowest concentration CAL standard must be at or below the RL (2 ng/L), which may depend on system sensitivity. The CAL standards may also be used as CCVs (Sect. 9.8).

Table 6

Calibration Standard Concentration	Final Aqueous Cal STD Concentration	Final Soil Cal STD Concentration	30 Compound Stock Added (uL)	Individual Analyte Stocks Added (uL)	500 ng/mL Dilution Added (uL)	Final Volume in MeOH/H2O (80:20)
.5 ng/mL	2 ng/L	.25 ng/g	6.25		25	25 mLs
1 ng/mL	4 ng/L	.5 ng/g	5		20	10 mLs
5 ng/mL	20 ng/L	1 ng/g	25		100	10 mLs
10 ng/mL	40 ng/L	5 ng/g	125	5		25 mLs
50 ng/mL	200 ng/L	25 ng/g	250	10		10 mLs
125 ng/mL	500 ng/L	62.5 ng/g	625	25		10 mLs
150 ng/mL	600 ng/L	75 ng/g	750	30		10 mLs
250 ng/mL	1000 ng/L	125 ng/g	625			5 mLs
500 ng/mL	2000 ng/L	250 ng/g	1250			5 mLs

9. Quality Control

The laboratory must maintain records to document the quality of data that is generated. Ongoing data quality checks are compared with established performance criteria to determine if the results of analyses meet the performance characteristics of the method.

9.1. Blanks

9.1.1. METHOD BLANK (MB) - A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination, and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch. Because background contamination is a significant problem for several method analytes, it is highly recommended that the analyst maintains a historical record of MB data.

9.1.1.1. Corrective Action: Samples should not be analyzed until an acceptable method blank analysis is obtained. The results are qualified with a “B” flag for any associated sample concentrations that are less than 10x the blank concentration for the analyte. Sample results are qualified with a “B” flag for analytes observed in the blank > RL. Exceptions may be made if the samples associated with the out-of-control method blank

are non-detect for the compound of interest, or if sample concentrations are greater than 10x the blank levels. In such cases when the sample results are accepted, the client is notified in a project narrative associated with the sample results.

9.1.2. **FIELD REAGENT BLANK (FRB)** - The purpose of the FRB is to ensure that PFAS's measured in the Field Samples were not inadvertently introduced into the sample during sample collection/handling. Analysis of the FRB is performed on a project specific basis. The FRB is processed, extracted, and analyzed in exactly the same manner as a Field Sample.

9.2. Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicates (LCSD)

9.2.1. An LCS is required with each extraction batch. The fortified concentration of the LCS may be rotated between low, medium, and high concentrations from batch to batch. Default limits of 50-150% (60 – 140% for New Jersey programs) of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation:

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B =fortification concentration.

9.2.2. Where applicable, in the absence of additional sample volume required to perform matrix specific QC, LCSD's are to be extracted and analyzed. The concentration and analyte recovery criteria for the LCSD must be the same as the batch LCS. The RSD's must fall within ≤30% of the true value for medium and high-level replicates, and ≤50% for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

9.2.3. If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.2.4. Corrective Action: All compounds should be recovered within the specified limits. If the LCS recovery is still out of control, re-extract and/or re-analyze the LCS and all associated samples. Samples cannot be reported until an acceptable LCS is obtained. Exceptions may be made in some cases for documented difficult/poor performing compounds such as PFODA, FOSA, and NFDHA. An explanation of any out-of-control LCS recovery must be included in the project narrative to the client.

9.3. Labeled Recovery Standards (REC)

9.3.1. The analyst must monitor the peak areas of the REC(s) in all injections during each analysis day.

9.4. Extracted Internal Standards (EIS)

9.4.1. The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation:

$$\%R = (A / B) \times 100$$

Where:

A = calculated EIS concentration for the QC or Field Sample

B = fortified concentration of the EIS.

9.4.2. EIS recoveries are evaluated according to their matrix specific control limits in the LIMS. Any samples with EIS recoveries < 5% (< 10 % for New York) must be re-extracted. Any data associated with EIS recoveries <2% cannot be reported and the project manager needs to be notified. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data, but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4) instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria but the EIS is outside criteria, the data can be used. If the associated target analytes do not meet the acceptance criteria, the data must be reanalyzed.

9.5. Matrix Spike (MS)

9.5.1. Analysis of an MS is required in each extraction batch and is used to determine that the sample matrix does not adversely affect method accuracy. Assessment of method precision is accomplished by analysis of a Field Duplicate (FD) (Sect. 9.6); however, infrequent occurrence of method analytes would hinder this assessment. If the occurrence of method analytes in the samples is infrequent, or if historical trends are unavailable, a second MS, or MSD, must be prepared, extracted, and analyzed from a duplicate of the Field Sample. Extraction batches that contain MSDs will not require the extraction of a field sample duplicate. If a variety of different sample matrices are analyzed regularly, for example, drinking water from groundwater and surface water sources, method performance should be established for each. Over time, MS data should be documented by the laboratory for all routine sample sources.

9.5.2. Within each extraction batch, a minimum of one Field Sample is fortified as an MS for every 20 Field Samples analyzed. The MS is prepared by spiking a sample with an appropriate amount of the Analyte Stock Standard (Sect. 8.2.3). Use historical data and rotate through the low, mid and high concentrations when selecting a fortifying concentration. Calculate the percent recovery (%*R*) for each analyte using the equation:

$$\%R = \frac{(A - B)}{C} \times 100$$

Where:

A = measured concentration in the fortified sample
B = measured concentration in the unfortified sample
C = fortification concentration.

9.5.3. Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6. Laboratory Duplicate

9.6.1. FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.

9.6.1.1. Calculate the relative percent difference (*RPD*) for duplicate measurements (*FD1*

and *FD2*) using the equation:

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

9.6.2. RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6.3. If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|MS - MSD|}{(MS + MSD) / 2} \times 100$$

9.6.4. RPDs for duplicate MSs should be ≤30% for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are ≤50% for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased.

9.7. Initial Calibration Verification (ICV)

9.7.1. After each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be ± 30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedure to locate and correct the problem.

9.8. Continuing Calibration Verification (CCV)

9.9. CCV Standards are analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch. See Section 10.11 for concentration requirements and acceptance criteria.

9.10. Method-specific Quality Control Samples

9.10.1. None

9.11. Method Sequence

- CCV-LOW
- MB
- LCS
- LCSD (where applicable)
- MS
- Duplicate or MSD
- Field Samples (1-10)
- CCV-MID
- Field Samples (11-20)
- CCV-LOW

10. Procedure

10.1. Equipment Set-up

10.1.1. This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements (Sect. 9.1).

10.1.2. Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent (Sect 10.3.4) whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected (Sect. 10.3.4).

10.1.3. NOTE: The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.

10.2. Sample Preparation and Extraction of Aqueous Samples

10.2.1. Samples are preserved, collected, and stored as presented in Section 6. The entire sample that is received must be sent through the SPE cartridge. In addition, the bottle must be solvent rinsed and this rinse must be sent through the SPE cartridge as well. The method blank (MB) and laboratory control sample (LCS) must be extracted in the same manner (i.e., must include the bottle solvent rinse). It should be noted that a water rinse alone is not sufficient. This does not apply to samples with high concentrations of PFAS that are prepared using serial dilution and not SPE.

10.2.2. Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new 250mL HDPE bottle and record the weight of the new container.

NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may NOT be transferred to a graduated cylinder for volume measurement.

10.2.3. The MB, LCS and FRB may be prepared by measuring 250 mL of reagent water with a polypropylene graduated cylinder or filling a 250-mL sample bottle to near the top.

10.2.4. Adjust the QC and sample pH to 3 by adding acetic acid in water dropwise.

10.2.5. Add 20 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC, cap and invert to mix.

10.2.6. If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.4 and Sect 8.2.5). Cap and invert each sample to mix.

10.3. Cartridge SPE Procedure

10.3.1. CARTRIDGE CLEAN-UP AND CONDITIONING – DO NOT allow cartridge packing material to go dry during any of the conditioning steps. Rinse each cartridge with 3 X 5 mL of 2% ammonium hydroxide in methanol, followed by 5mLs of methanol. Next, rinse each cartridge with 5 mLs of the 25 mM acetate buffer, followed by 15 mL of reagent water, without allowing the water to drop below the top edge of the packing. If the cartridge goes dry during the conditioning phase, the conditioning must be started over. Add 4-5 mL of reagent water to

each cartridge, attach the sample transfer tubes (Sect. 7.11.3), turn on the vacuum, and begin adding sample to the cartridge.

10.3.2. SAMPLE EXTRACTON – Adjust the vacuum so that the approximate flow rate is approximately 4 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.3.3. SAMPLE BOTTLE AND CARTRIDGE RINSE – After the entire sample has passed through the cartridge, rinse the sample bottles with 4 mL reagent water followed by 4 mL 25 mM acetate buffer at pH 4 and draw the aliquot through the sample transfer tubes and the cartridges. Draw air or nitrogen through the cartridge for 5-10 min at high vacuum (10-15 in. Hg). NOTE: If empty plastic reservoirs are used in place of the sample transfer tubes to pass the samples through the cartridges, these reservoirs must be treated like the transfer tubes. After the entire sample has passed through the cartridge, the reservoirs must be rinsed to waste with reagent water.

10.3.4. SAMPLE BOTTLE AND CARTRIDGE ELUTION, Fraction 1 – Turn off and release the vacuum. Lift the extraction manifold top and insert a rack with collection tubes into the extraction tank to collect the extracts as they are eluted from the cartridges. Rinse the sample bottles with 12 mLs of methanol and draw the aliquot through the sample transfer tubes and cartridges. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

10.3.5. NOTE: Due to the possible volatility and suspect degradation of sulfonamides and sulfonamide ethanols when exposed to heat, a portion of the methanol fraction may be retained and analyzed independently with no evaporation for these analytes.

10.3.6. SAMPLE BOTTLE AND CARTRIDGE ELUTION, Fraction 2 In a separate collection vial, rinse the sample bottles with 12 mL of 2% ammonium hydroxide in methanol and elute the analytes from the cartridges by pulling the 4 mL of methanol through the sample transfer tubes and the cartridges. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

10.3.7. NOTE: If empty plastic reservoirs are used in place of the sample transfer tubes to pass the samples through the cartridges, these reservoirs must be treated like the transfer tubes. After the reservoirs have been rinsed in Section 10.3.3, the elution solvent used to rinse the sample bottles must be swirled down the sides of the reservoirs while eluting the cartridge to ensure that any method analytes on the surface of the reservoirs are transferred to the extract.

10.3.8. CLEAN-UP CARTRIDGE ELUTION, Elute the clean-up cartridge with 8 additional mLs of methanol and draw the aliquot through the cartridge. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

10.3.9. Fractions 1 and 2 are to be combined during the concentration stage (section10.8).

10.4. Sample Prep and Extraction Protocol for Soils, Solids and Sediments.

10.4.1. Homogenize and weigh 4 grams of sample (measured to the nearest hundredth of a gram) into a 50 mL polypropylene centrifuge tube. For laboratory control blanks and spikes, 4 grams of clean sand is used.

10.4.2. Add 40 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC.

10.4.3. If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.6). Cap and invert each sample to mix.

10.4.4. To all samples, add 10 mLs of methanol, cap, vortex for 25 seconds at 2500 RPM.

10.4.5. Following mixing, sonicate each sample for 30 minutes and let samples sit overnight (at least 2 hours is required for RUSH samples).

10.4.6. Centrifuge each sample at 3500RPM for 10 minutes.

10.4.7. Remove 5mL of supernatant, and reserve for clean-up.

10.5. Sample Prep and Extraction Protocol for Tissues, Oils and Biosolids.

10.5.1. Homogenize and weigh 2-8 grams of sample (measured to the nearest hundredth of a gram) into a 50 mL polypropylene centrifuge tube. For laboratory control blanks and spikes, 4 grams of clean sand is used.

10.5.2. Add 40 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC.

10.5.3. If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.6). Cap and invert each sample to mix.

10.5.4. Add 100 ul of Ammonium Hydroxide.

10.5.5. To all samples, add 10 mLs of methanol, cap, vortex for 25-30 seconds at 2500 RPM.

10.5.6. Following mixing, sonicate each sample for 30 minutes and let samples sit for 2 hours.

10.5.7. Centrifuge each sample at 3500RPM for 10 minutes.

10.5.8. Remove 5 mLs of the supernatant, and reserve for clean-up.

10.6. Extract Clean-up: Soils, Solids and Sediment Matrices

10.6.1. CARTRIDGE CLEAN-UP AND CONDITIONING –. Rinse each cartridge with 15 mL of methanol and discard. If the cartridge goes dry during the conditioning phase, the conditioning must be started over. Attach the sample transfer tubes (Sect. 7.11.3), turn on the vacuum, and begin adding sample to the cartridge. For Soils extracts, transfer 5 mLs of the MeOH eluate to the cartridge. Samples should be allowed to pass through the cartridge by gravity feed at a dropwise rate to ensure adequate contact time with the cartridge sorbent. Vacuum is only applied if the flow of solvent through the cartridge stops.

10.6.2. Adjust the vacuum so that the approximate flow rate is 1-2 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.6.3. SAMPLE BOTTLE AND CARTRIDGE RINSE – After the entire sample has passed through the cartridge, rinse the sample collection vial with two 4-mL aliquots of methanol and draw each aliquot through the cartridges. Draw air or nitrogen through the cartridge for 5 min at high vacuum (10-15 in. Hg).

10.6.4. If extracts are not to be immediately evaporated, cover collection tubes and store at ambient temperature till concentration.

NOTE: Due to the possible volatility and suspect degradation of sulfonamides and sulfonamide ethanols when exposed to heat, a portion of the eluate may be retained and analyzed independently with no evaporation for these analytes.

10.7. Extract Clean-up: Tissues, Oils and Biosolids

10.7.1. CARTRIDGE CLEAN-UP AND CONDITIONING –. Stack a 500 mg WAX cartridge onto a 250 mg GCB cartridge. Rinse each cartridge set with 10 mL of 2% NH_4OH and discard. Immediately rinse each cartridge stack with 15 mLs MeOH and discard, If the cartridge goes

dry during the conditioning phase, the conditioning must be started over. Attach the sample transfer tubes (Sect. 7.11.3), turn on the vacuum.

10.7.2. Adjust the vacuum so that the approximate flow rate is 1-2 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.7.3. SAMPLE elution AND CARTRIDGE RINSE – Load 5 mLs of the MeOH sample extract to the cartridge. After the entire sample has passed through the cartridge, rinse the cartridges with 5-mLs of methanol and draw through the cartridges. Immediately add and elute 2 5mL aliquots of 2% NH_4OH to the cartridges, collecting the eluate with the MeOH eluate.

10.7.4. If extracts are not to be immediately evaporated, cover collection tubes and store at ambient temperature till concentration.

10.7.5. NOTE: Due to the possible volatility and suspect degradation of sulfonamides and sulfonamide ethanols when exposed to heat, a portion of the eluate may be retained and analyzed independently with no evaporation for these analytes.

10.8. Extract Concentration

10.8.1. Concentrate the extract to dryness under a gentle stream of nitrogen in a heated water bath (60-65 °C) to remove all the water/methanol mix. Add the appropriate amount of 80:20% (vol/vol) methanol:water solution and 20 µl of the ID REC PDS (Sect. 8.2.8) to the collection vial to bring the volume to 1 mL and vortex. Transfer two aliquots with a plastic pipet (Sect. 7.8) into 2 polypropylene autosampler vials.

10.8.2. NOTE: It is recommended that the entire 1-mL aliquot not be transferred to the autosampler vial because the polypropylene autosampler caps do not reseal after injection. Therefore, do not store the extracts in the autosampler vials as evaporation losses can occur occasionally in these autosampler vials. Extracts can be split between 2 X 700 µl vials (Sect. 7.5).

10.9. Sample Volume Determination

10.9.1. If the level of the sample was marked on the sample bottle, use a graduated cylinder to measure the volume of water required to fill the original sample bottle to the mark made prior to extraction. Determine to the nearest 10 mL.

10.9.2. If using weight to determine volume, weigh the empty bottle to the nearest 10 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight (Sect. 10.2.2). Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration (Sect. 11.2).

10.10. Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.10.1. ESI-MS/MS TUNE

10.10.1.1. Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.

10.10.1.2. Optimize the [M-H]- for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are

varied until optimal analyte responses are determined. The method analytes may have different optima requiring some compromise between the optima.

10.10.1.3. Optimize the product ion for each analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of method analytes. The MS/MS parameters (collision gas pressure, collision energy, etc.) are varied until optimal analyte responses are determined. Typically, carboxylic acids have very similar MS/MS conditions and sulfonic acids have similar MS/MS conditions.

10.10.2. Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

10.10.2.1. Cautions: LC system components, as well as the mobile phase constituents, contain many of the method analytes in this method. Thus, these PFAS's will build up on the head of the LC column during mobile phase equilibration. To minimize the background PFAS peaks and to keep background levels constant, the time the LC column sits at initial conditions must be kept constant and as short as possible (while ensuring reproducible retention times). In addition, prior to daily use, flush the column with 100% methanol for at least 20 min before initiating a sequence. It may be necessary on some systems to flush other LC components such as wash syringes, sample needles or any other system components before daily use.

10.10.3. Inject (2µl for Sciex systems, 3µl for Waters systems, 20µl for MeOH fractions) a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. If analyzing for PFTA, ensure that the LC conditions are adequate to prevent co-elution of PFTA and the mobile phase interferants. These interferants have the same precursor and products ions as PFTA, and under faster LC conditions may co-elute with PFTA. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]-) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ±0.5 daltons around the product ion mass were used for quantitation.

10.10.4. Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

10.10.4.1. NOTE: PFHxS, PFOS, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

10.10.5. Prepare a set of CAL standards as described in Section 8.2.9. The lowest concentration CAL standard must be at or below the RL (2 ng/L), which may depend on system sensitivity.

10.10.6. The LC/MS/MS system is calibrated using the isotope dilution technique. Target analytes are quantitated against their isotopically labeled analog (Extracted Internal Standard) where commercially available. If a labeled analog is not commercially available, the extracted internal standard with the closest retention time and /or closest chemical similarity is to be used. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 5 levels are required for a linear calibration model and a minimum of 6 levels are required for a quadratic calibration model.

10.10.7. CALIBRATION ACCEPTANCE CRITERIA – A linear or quadratic fit is acceptable if the coefficient of determination (r^2) is greater than 0.990. All curves must force through zero (some of the SCIEX software versions do not allow forcing through zero for quadratic curves, therefore an additional standard at approximately half the RL must be analyzed). Any target analyte calibrated using average response must have a relative standard deviation (RSD) of ≤20%. When quantitated using the initial calibration curve, each calibration point, except the lowest point, for each analyte must calculate to be within 70-130% of its true value. Any CAL point within 2x the RL must calculate to be within 50-150% of its true value. If these criteria cannot be met, the analyst will have difficulty meeting ongoing QC criteria. It is recommended that corrective action is taken to reanalyze the CAL standards, restrict the range of calibration, or select an alternate method of calibration (forcing the curve through zero is still required). EIS compounds must have an RSD of ≤20%; the fluorotelomer EIS compounds must have an RSD ≤30%.

10.10.7.1. **CAUTION:** When acquiring MS/MS data, LC operating conditions must be carefully reproduced for each analysis to provide reproducible retention times. If this is not done, the correct ions will not be monitored at the appropriate times. As a precautionary measure, the chromatographic peaks in each window must not elute too close to the edge of the segment time window.

10.10.8. CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a “sample” is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria.

10.10.8.1. Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.

10.10.8.2. Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each analyte for medium level CCVs must be within 70 – 130% of the true value with an allowance of 10% of the reported analytes to be less than 70% (minimum recovery is 10%) for compounds without their own labelled EIS. For CCVs, if the recovery of the corresponding target analytes meets the acceptance criteria but the EIS is outside criteria, the data can be used. The calculated amount for the lowest calibration point for each analyte must be within 50-150%. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. If the CCV fails

because the calculated concentration is greater than 130% (150% for the low-level CCV) for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.

10.10.8.3. REMEDIAL ACTION – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration (Sect 10.10) and verification of sensitivity by analyzing a CCV at or below the RL (Sect 10.11).

10.10.9. EXTRACT ANALYSIS

10.10.9.1. Establish operating conditions equivalent to those summarized in Tables 7-9 of Section 16.

10.10.9.2. Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.

10.10.9.3. Calibrate the system by either the analysis of a calibration curve (Sect. 10.10) or by confirming the initial calibration is still valid by analyzing a CCV as described in Section 10.11.

10.10.9.4. Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.

10.10.9.5. At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.

10.10.9.6. The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to insure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.

11. Data Evaluation, Calculations and Reporting.

11.1. Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 9.

11.2. Calculate analyte concentrations using the multipoint calibration established in Section 10.9. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.8

Cex = (Area of target analyte * Concentration of Labeled analog) / (area of labeled analog * CF)

C_s = (Cex / sample volume in mL) * 1000

Cex = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3. Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4. PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to the linear and branch isomers of these compounds (Sect. 10.10.4.). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5. Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

11.6. Peak responses must be at least 3 times the background noise level (S/N 3:1). If the S/N ratio is not due to high background noise, the sample may be diluted (either by extraction or analytically) to reduce the noise.

11.7. Target analytes, Extracted Internal Standards, and Response Internal Standard RTs must fall within +/-0.4minutes of the predicted retention times of the midpoint of the initial calibration curve or daily calibration verification standard. Additionally, a target analyte with a corresponding isotopically labelled analog must elute within +/- 0.1minutes of the associated EIS.

11.8. The ion ratio between the quantification ion and confirmation ion response must fall within +/-50% of the ratio observed in the mid-point initial calibration standard. When this ratio is not met, the data must be flagged.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1. Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

12.2. All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1. Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

13.1.1. The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2. Demonstration of Capability Studies

13.2.1. Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.

13.2.2. The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

14.1. Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.

14.2. This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.

14.3. The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124
Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP – ID 1732
Demonstration of Capability (DOC) Generation SOP – ID 1739
Hazardous Waste Management and Disposal SOP – ID 1728

16. REVISION HISTORY

Revisions Made from Prior Version

Section	Description of Change
6.5.1.1	Updated Hold Time for Aqueous, Soils and Tissues.
6.5.1.2	Added specific hold time criteria for Maine
8.2.9	Revised the calibration standard levels
9.1.1.1	Added Corrective Action for Method Blanks
9.1.2	Changed FRB to project-specific basis
9.2.1	Added LCS criteria specific to NJ
9.2.4	Added Corrective Action for LCS
9.4.2	Revisions to EIS criteria
10.10.7	Revisions to Calibration Acceptance Criteria

16. Attachments

Table 7a: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 MeOH/H_2O)	100% Methanol
Initial	100.0	0.0
1.0	100.0	0.0
2.2	85.0	15.0
11	20.0	80.0
11.4	0.0	100.0
12.4	100.0	00.0
15.5	100.0	0.0
Waters Aquity UPLC ® BEHC_{18} 2.1 x 50 mm packed with 1.7 µm BEH C_{18} stationary phase Flow rate of 0.4 mL/min 3 µL injection		

Table 7b: LC Method Conditions (MeOH Fraction)

Time (min)	2 mM Ammonium Acetate (5:95 MeOH/H_2O)	100% Methanol
Initial	100.0	0.0
1.0	50.0	50.0
4.5	1.0	99.0
4.95	1.0	99.0
5.0	100.0	0.0
5.5	100.0	0.0
Waters Aquity UPLC ® BEHC_{18} 2.1 x 50 mm packed with 1.7 µm BEH C_{18} stationary phase Flow rate of 0.6 mL/min 20 µL injection		

Table 8: ESI-MS Method Conditions

ESI Conditions	
Polarity	Negative ion
Capillary needle voltage	.5 kV
Cone Gas Flow	25 L/hr
Nitrogen Desolvation gas	1000 L/hr
Desolvation gas temp.	500 ºC

Table 9a: Method Analyte Source, Retention Times (RTs), and EIS References

#	Analyte	Transition	Confirmation Mass	RT	IS	Type
1	M3PFBA	216>171		2.65		REC
2	PFBA	213 > 169	N/A	2.65	3: M4PFBA	
3	M4PFBA	217 > 172		2.65	1: M3PBA	EIS
4	PFPeA	263 > 219	N/A	5.67	5: M5PFPEA	
5	M5PFPEA	268 > 223		5.66	1: M3PFBA	EIS
6	PFBS	299 > 80	99	6.35	7: M3PFBS	
7	M3PFBS	302 > 80		6.35	29:M4PFOS	EIS
8	FTS 4:2	327 > 307	81	7.47	9: M2-4:2FTS	
9	M2-4:2FTS	329 > 81		7.47	29:M4PFOS	EIS
10	PFHxA	313 > 269	119	7.57	11: M5PFHxA	
11	M5PFHxA	318 > 273		7.57	19:M2PFOA	EIS
12	PFPeS	349 > 80	99	7.88	18: M3PFHxS	
13	PFHpA	363 > 319	169	8.80	14: M4PFHpA	
14	M4PFHpA	367 > 322		8.80	19:M2PFOA	EIS
15	L-PFHxS	399 > 80	99	8.94	18: M3PFHxS	
16	br-PFHxS	399 > 80	99	8.72	18: M3PFHxS	
17	PFHxS Total	399 > 80		8.94	18: M3PFHxS	
18	M3PFHxS	402 > 80		8.94	29:M4PFOS	EIS
19	M2PFOA	415 > 370		9.7		REC
20	L-PFOA	413 > 369	169	9.7	23: M8PFOA	
21	br-PFOA	413 > 369	169	9.48	23: M8PFOA	
22	PFOA Total	413 > 369		9.7	23: M8PFOA	
23	M8PFOA	421 > 376		9.7	19: M2PFOA	EIS
24	FTS 6:2	427 > 407	81	9.66	25: M2-6:2FTS	
25	M2-6:2FTS	429 > 409		9.66	29:M4PFOS	EIS
26	PFHpS	449 > 80	99	9.78	33: M8PFOS	
27	PFNA	463 > 419	219	10.41	33: M9PFNA	
28	M9PFNA	472 > 427		10.41	19: M2PFOA	EIS
29	M4PFOS	503 > 80		10.45		REC
30	L-PFOS	499 > 80	99	10.45	33: M8PFOS	
31	br-PFOS	499 > 80	99	10.27	33: M8PFOS	
32	PFOS Total	499 > 80		10.45	33: M8PFOS	
33	M8PFOS	507 > 80		10.45	29: M4PFOS	EIS
34	FTS 8:2	527 > 507	81	10.99	35: M2-8:2FTS	
35	M2-8:2FTS	529 > 509		10.99	29:M4PFOS	EIS
36	M2PFDA	515 > 470		11.00		REC
37	PFDA	513 > 469	219	11.00	38: M6PFDA	
38	M6PFDA	519 > 474		11.00	36: M2PFDA	EIS
39	PFNS	549 > 80	99	11.02	33:M8PFOS	
40	br-NMeFOSAA	570 > 419	483	11.41	41: D3-NMeFOSAA	

#	Analyte	Transition	Confirmation Mass	RT	IS	Type
41	L-NMeFOSAA	570 > 419	483	11.41	41: D3-NMeFOSAA	
42	NMeFOSAA total	570 > 419		11.41	41: D3-NMeFOSAA	
43	d3-NMeFOSAA	573 > 419		11.41	36: M2PFOA	EIS
44	PFOSA	498 > 78	478	11.48	29: M8FOSA	
45	M8FOSA	506 > 78		11.48	19: M2PFOA	EIS

#	Analyte	Transition	Confirmation Mass	RT	IS	Type
46	PFUnDA	563 > 519	269	11.51	41: M7-PFUDA	
47	M7-PFUDA	570 > 525		11.51	36: M2PFDA	EIS
48	PFDS	599 > 80	99	11.51	33:M8PFOS	
49	br-NEtFOSAA	584 > 419	526	11.68	48: d5-NEtFOSAA	
50	L-NEtFOSAA	584 > 419	526	11.68	48: d5-NEtFOSAA	
51	NEtFOSAA total	584 > 419		11.68	48: d5-NEtFOSAA	
52	d5-NEtFOSAA	589 > 419		11.68	36: M2PFOA	EIS
53	PFDoA	613 > 569	319	11.96	50: MPFDOA	
54	MPFDOA	615 > 570		11.96	36: M2PFDA	EIS
55	PFTrdA	663 > 619	169	12.34	53: M2PFTEDA and 50:MPFDOA avg	
56	PFTeA	713 > 669	169	12.6	53: M2PFTEDA	
57	M2PFTEDA	715 > 670		12.6	36: M2PFDA	EIS
58	M3HFPO-DA	287>169		7.97	19: M2PFOA	EIS
59	HFPO-DA	285>169	185	7.97	54: M3HFPO-DA	
60	ADONA	377>251	85	8.00	23: M8PFOA	
61	PFHxDA	813>769		13.20	59: M2PFHxDA	
62	PFODA	913>869		13.50	59: M2PFHxDA	
63	M2PFHxDA	815>770		13.20	36:M2PFDA	EIS
64	NEtFOSA	526>169	119	11.00	61: d5-NEtFOSA	
65	NMeFOSA	512>169	219	10.50	63: d3-NMeFOSA	
66	d3-NMeFOSA	515>169		10.50	19: M2PFOA	EIS
67	d5-NEtFOSA	531>169		11.00	19: M2PFOA	EIS
68	NMeFOSE	616>59	N/A	11.25	66: d7-NMeFOSE	
69	NEtFOSE	630>59	N/A	10.75	67: d9-NEtFOSE	
70	d7-NMeFOSE	623>59		11.25	19: M2PFOA	EIS
71	d9-NEtFOSE	639>59		10.75	19: M2PFOA	EIS
72	FTS 10:2	627>607		11.50	25: M2-8:2FTS	
73	PFDoS	699>80	99	12.50	33: M8PFOS	
74	9ClPF3ONS	531>351	353	10.23	33: M8PFOS	
75	11ClPF3OUdS	631>451	453	11.27	33: M8PFOS	
76	PFPrS	249>80		3.40	7: M3PFBS	
77	PFMPA	229>85	N/A	3.39	1: M3PFBA	
78	PFMBA	279 .85	N/A	5.75	1: M5PFPEA	
79	PFEESA	315>135	83	6.45	18: M3PFHxS	
80	NFDHA	295>201	85	6.79	11: M5PFHxA	

Table 9b: Methanol Analyte Source, Retention Times (RTs), and EIS References

#	Analyte	Transition	RT	IS	Type
1	M2PFNA	472 > 427	2.55		IS
2	M2PFUdA	213 > 169	2.87		IS
3	M8FOSA	217 > 172	2.86	1: M2PFNA	EIS
4 5	FOSA	263 > 219	2.86	3: M8FOSA	
6	D3-NMeFOSA	515>169	3.22	1: M2PFNA	EIS
7	NMeFOSA	512>169	3.22	6: d3-NMeFOSA	
8	D5-NEtFOSAA	531>169	3.41	1: M2PFNA	EIS
9	NEtFOSAA	526>169	3.41	8: d5-NEtFOSA	
10	D7-NMeFOSE	563>126	3.23	1: M2PFNA	EIS
11	NMeFOSE	556>122	3.23	10: d7-NMeFOSE	
12	D9-NEtFOSE	579>142	3.40	11: M2PFNA	EIS
13	NEtFOSE	570>136	3.40	67: d9-NEtFOSE	

APPENDIX N

Site Management Forms

ROUX

DAILY LOG	DATE			
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME:	PROJECT NO.
PROJECT LOCATION:	CLIENT:
FIELD ACTIVITY:	

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	DESCRIPTION

VISITORS ON SITE:	CHANGES FROM PLANS AND SPECIFICATIONS, AND OTHER SPECIAL ORDERS AND IMPORTANT DECISIONS:

WEATHER CONDITIONS:	IMPORTANT TELEPHONE CALLS:
A.M.:	
P.M.:	

PERSONNEL ON SITE:

SIGNATURE DATE:

(CONTINUED)

ROUX

DAILY LOG	DATE			
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

PROJECT NAME:	PROJECT NO.

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	DESCRIPTION

SIGNATURE	DATE:

(CONTINUED)

PROJECT NAME:	PROJECT NO.

ROUX

DAILY LOG	DATE			
	NO.			
	SHEET		OF	

FIELD ACTIVITY DAILY LOG

DESCRIPTION OF DAILY ACTIVITIES AND EVENTS:

TIME	DESCRIPTION

REFERENCED PROJECT FIELD FORMS:

☐ Aquifer Test Data Sheet	☐ Impacted Soil Excavation Log	☐ Soil Gas Survey Log
☐ Chain-of-Custody Form	☐ Impacted Soil Transportation Log	☐ Step-Drawdown Test Data Sheet
☐ Construction Sample Summary Log	☐ Monitoring Well Inspection Form	☐ Survey Elevation Log
☐ Corrective Measures Report	☐ Nuclear Densitometer Field Log	☐ Tailgate Safety Meeting Form
☐ Daily Drilling Report	☐ Photographic Log	☐ Test Pit Excavation Log
☐ Drilling Safety Checklist	☐ Pipe Leakage Testing Log	☐ Underground/Overhead Utility Checklist
☐ Equipment Calibration Log	☐ Post-Closure Field Inspection Report	☐ Variance Log
☐ Field Borehole Log	☐ Pressure Packer Testing Log	☐ Water Level Monitoring Record
☐ Field Borehole/Monitoring Well Installation Log	☐ Problem Identification Report	☐ Water Quality Field Collection Log
☐ Field Investigation Report	☐ Real-Time Air Monitoring Log	☐ Water Sample Collection Log
☐ Field Slug Test Log	☐ Record of Telecom Meeting	☐ Well Abandonment/Decomm. Log
☐ Groundwater Elevation Log	☐ Sample Summary Collection Log	☐ Well Completion Detail
☐ GW Well Development and Purge Log	☐ Sediment Sample Collection Log	☐
☐ Hot Work Permit	☐ Seep Sample Collection Log	☐
☐ IDW Container Log	☐ Seepage Meter Sample Collection Log	☐

SIGNATURE DATE: