November 30, 2022

Ms. Andrea Caprio, P.E.
Regional Remediation Engineer
NYSDEC Region 9
700 Delaware Avenue
Buffalo, New York 14209

Re: Work Plan for Removal of PCB-Impacted Concrete Suspended Slab
Former Trico Plant (BCP Site No. C915281)
791 Washing ton Street, Buffalo New York

Dear Ms. Caprio:

On behalf of 791 Washington Street, LLC and 847 Main Street, LLC (791 Washington), Benchmark Civil/Environmental Engineering & Geology, PLLC (Benchmark) has prepared this work plan for the removal of PCB-impacted concrete with concentrations greater than 50 micrograms per kilogram (mg/kg) that is present in the suspended concrete slab on the main floor of the Former Trico Plant Site building (see Figure 1).

BACKGROUND

Correspondence with New York State Department of Environmental Conservation (NYSDEC) for this Background discussion are included in Attachment 1, by dated and include February 21, 202, April 1, 2020, and April 8, 2020. Figures and analytical data referenced in the correspondence are also included in Attachment 1 with the associated correspondence.

Section 2.5.4 of the Site Management Plan[1] (SMP), discusses the concrete cap to be installed over the suspended concrete floor area. After the SMP was approved, both EPA and NYSDEC requested additional concrete sampling of the suspended slab area.

Benchmark had initially implemented a 5-point composite sampling strategy to assess individual grid areas as outlined in our Loading Dock Concrete & Soil Sampling Work Plan[2]. The results of the initial composite sampling identified PCBs above 50 mg/kg in the suspended concrete slab of the future interior parking area (see Figure 1). EPA had indicated that composite sampling was not their preferred method for determining the PCB concentrations in concrete that can be left behind under the 6-inch concrete cover

[1] "Brownfield Cleanup Program, Site Management Plan, Former Trico Plant, NYSDEC Site Number: C915281, Buffalo, New York". December 2019.
[2] "Loading Dock Concrete & Soil Sampling Work Plan, Former Trico Plan (BCP Site No. C915281)." November 18, 2019.

system. Toxic Substance Control Act (TSCA) regulations do not allow PCB concentrations greater than 100 mg/kg to be left under cover and would require removal. Therefore, Benchmark collected 70 discrete concrete samples from the initial locations used to create the 5-point composite grid samples. Grid areas that had 5-point composite sample results of 20 mg/kg or greater for PCBs (12 grid areas, see attached Figure 11 from the SMP in Attachment 1) were re-sampled by collecting five (5) discrete concrete samples from each grid area. Benchmark revisited the initial sample locations and collected a discrete concrete slab sample from within 2 to 3-inches of the initial locations from the upper 3-inches of the concrete slab consistent with previous sampling methodologies. The following grid areas were resampled: A4, B4, B5, C3, D6, E4, E5, E6, E7, F4, F5, and F6. Figure 1 in Attachment 1 is a summary of the discussed samples results along with our February 21, 2020 email correspondence.

Based on follow up discussions with NYSDEC regarding these results on February 25th, the Department requested additional discrete samples from three (3) more grid areas: A5, B6, and D5 to verify that total PCB concentrations greater than 50 mg/kg were identified. Fifteen (15) additional discrete samples were collected (5 per grid area) in addition to QA/QC. The PCB sample results and concrete removal area figure are included in Attachment 1 with the April 1, 2020 correspondence.

The results of the 85 additional discrete concrete samples are shown on Figure 2 along with the proposed removal areas which were approved via email by NYSDEC on April 8, 2020. A copy of the email approval correspondence is included in Attachment 1.

PCB-IMPACTED CONCRETE REMOVAL AREA

Figure 2 identifies the NYSDEC-approved suspended slab removal areas from April 2020. However, redevelopment activities at the Site were halted in Spring 2020 due to the COVID pandemic. Since that time, the redevelopment plan has changed, and the new redevelopment plan will require some additional concrete be removed from the suspended slab areas. These additional areas (grid areas A3 and A4) are shown in green on Figure 3. Therefore, this work plan has been prepared for the removal of PCB-impacted concrete areas of the suspended slab as shown on Figure 3.

PCB-IMPACTED CONCRETE REMOVAL APPROACH

791 Washington Street, LLC has subcontracted with Wargo Enterprises to remove the PCB-impacted concrete from the suspended floor area. Areas with PCB concentrations greater than 50 mg/kg and those additional areas to be removed for purposes of redevelopment (as shown in green on Figure 3) will be mechanically removed and taken to US Ecology landfill in Bellevue, Michigan for disposal as a Toxic Substance Control Act (TSCA) bulk remediation waste. A copy of the approved waste profile is included as Attachment 2.

The removal of the suspended concrete will involve saw cutting the concrete slab to cut through the rebar and allow the slab to be mechanically broken with a hydraulic breaker

hammer attached to an excavator. During the saw cutting activities, water used for cutting the concrete will be vacuumed up and placed in 55-gallon drums for off-site disposal as TSCA waste prior to breaking up the concrete mechanically. The broken concrete will be displaced into the basement underlying the suspended slab.

The removed concrete, in the basement beneath the suspended slab, will be taken to the east side of the building through the interconnected basement to the Ellicott Street side of the building to be loaded for transport to US Ecology landfill for TSCA bulk remediation waste. Once the concrete has been removed from the basement, the basement floor will be vacuumed to removed remaining debris which will be drummed for off-site disposal as TSCA waste.

Equipment operators will wear Tyvek suites in addition to googles and ½ facepiece respirators with organic vapor/P95 particulate cartridges during the mechanical removal activities. Cartridges will be changed every 8-hours. The concrete saw and equipment used to break and move the concrete will be hand wiped to remove adhered concrete material and solid surfaces wiped with an alconox/water solution and wiped again with water. Decontamination supplies will be containerized for disposal, along with PPE as TSCA waste. A copy of the contractor's health and safety plan (HASP) is included in Attachment 3.

PCB-IMPACTED CONCRETE REMOVAL

A Benchmark Scientist or Engineer will be on-site to document the PCB-impacted concrete removal activities. Such documentation will include, at minimum, daily reports of activities, community air monitoring results, photographs, and sketches. Attachment 4 contains sample project documentation forms. Benchmark's HASP is included as Appendix H of the SMP.

COMMUNITY AIR MONITORING PROGRAM

During the suspended slab removal, basement decontamination, and concrete loading activities, community air monitoring will be completed in accordance with the Community Air Monitoring Program in Appendix H of the SMP. If community air monitoring indicates the need for dust suppression or if dust is visually observed leaving the Site, the contractor will apply a water spray to the concrete removal area to dampen the working area. A water spray will also be used on interior haul roads, as necessary, to mitigate airborne dust formation and migration. Potable water is available from the existing building water service.

The CAMP data will be provided to the NYSDEC Project Manager via email on a weekly basis but notified of CAMP monitoring exceedances when they occur.

REMAINING SUSPENDED CONCRETE SLAB

The PCBs remaining in the suspended concrete slab (less than 50 mg/kg) will be addressed by placing a minimum 6-inch concrete cap over the remaining potions of the suspended concrete. The areas of concrete removed under this work plan will be infilled with decking prior to repouring the concrete in the removed areas. The concrete cap work will be completed in accordance with an EPA-approved Self-Implementing Work Plan (SIWP) prior to building occupancy. Once the SIWP approval is by EPA, NYSDEC and NYSDOH will be notified and provided a copy of the approval. The future parking area on the 1st floor will be restricted to use as a low occupancy area as defined in 40 CFR 761.3 prior to occupancy.

SCHEDULE

The PCB-impacted concrete removal is schedule to begin in late 2022 and take approximately 2 weeks to complete. NYSDEC will be notified at least 1 week prior to the start of removal activities.

REPORTING

The PCB-impacted concrete removal activities will be documented in the next Periodic Review Report (PRR) for the Site, which covers the period from April 26, 2022 through April 26, 2023.

Please contact us if you have any questions, require additional information, or would like to discuss.

Sincerely,
Benchmark Civil/Environmental Engineering & Geology, PLLC

Christopher Boron, P.G.
Sr. Project Manager

Thomas H. Forbes, P.E.
President

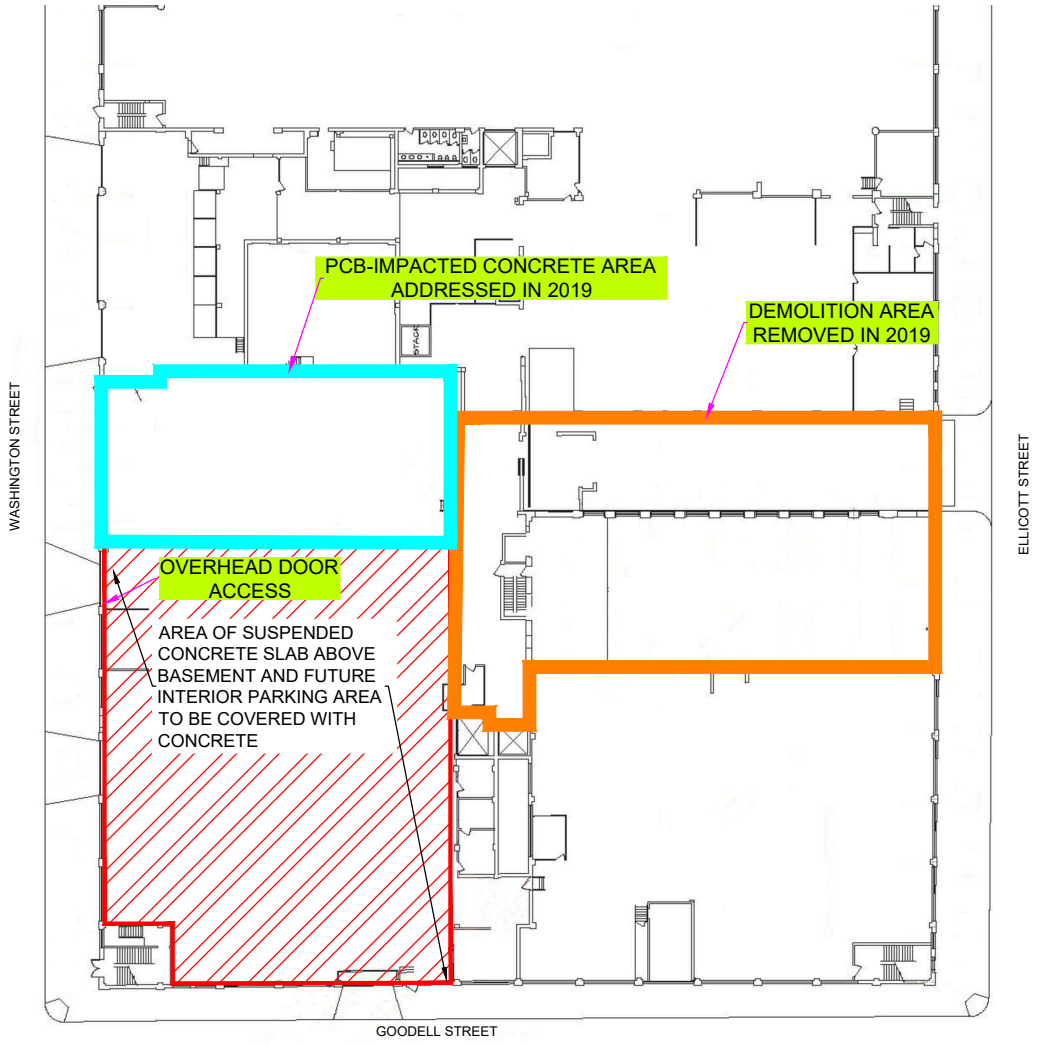
ec: Peter Krog (791 Washington Street, LLC)
M. McGuigan (Krog Group)

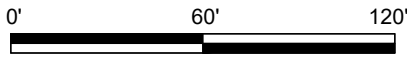
Attachments
Figure 1 – Building Floor Plan – 1st Floor
Figure 2 – PCB Analytical Results with Concrete Removal Areas (2020)
Figure 3 – 2022 Revised Concrete Removal Areas
Attachment 1 – NYSDEC Correspondence, Previous Figures and Analytical Data
Attachment 2 - US Ecology Landfill Waste Profile Approval
Attachment 3 – Wargo Enterprise Health and Safety Plan
Attachment 4 – Project Documentation Forms

FIGURES

F:\CAD\TurnKey\Krog\Former Trico Building BCP\2022 Work Plan Removal Suspended Slab\Figure 1; Building First Floor Plan.dwg, 10/10/2022 1:56:56 PM, DWG To PDF.pc3

FIGURE 1





BENCHMARK IN ASSOCIATION WITH TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

PROJECT NO.: 0092-016-013-002

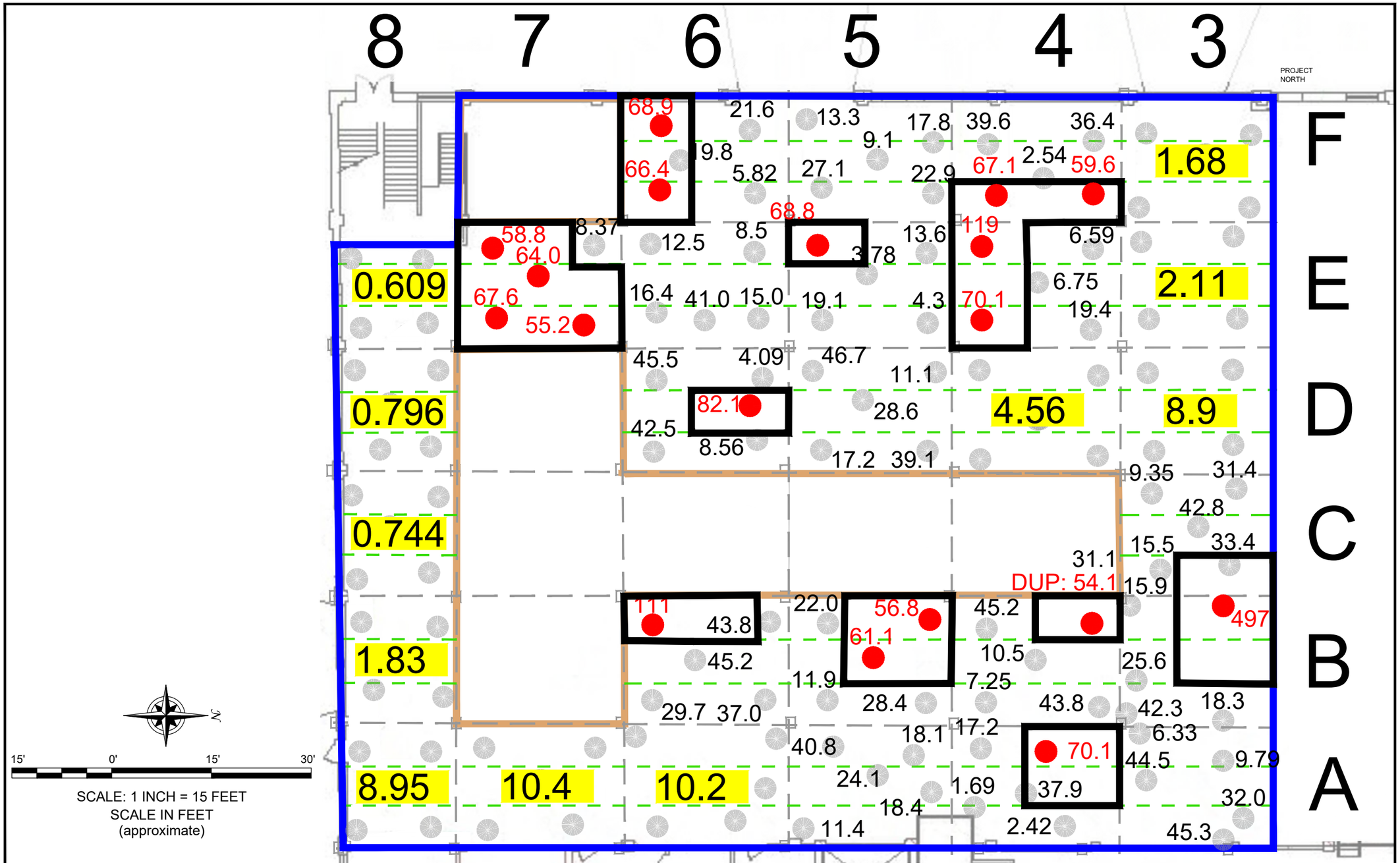
DATE: OCTOBER 2022

DRAFTED BY: RFL

BUILDING FLOOR PLAN - 1ST FLOOR

WORK PLAN FOR REMOVAL OF PCB-IMPACTED CONCRETE IN SUSPENDED SLAB

FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR
847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC



DATE: OCTOBER 2022
DRAFTED BY: RFL

TURNKEY ENVIRONMENTAL RESTORATION, LLC
IN ASSOCIATION WITH
BENCHMARK
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218,
(716) 856-0599

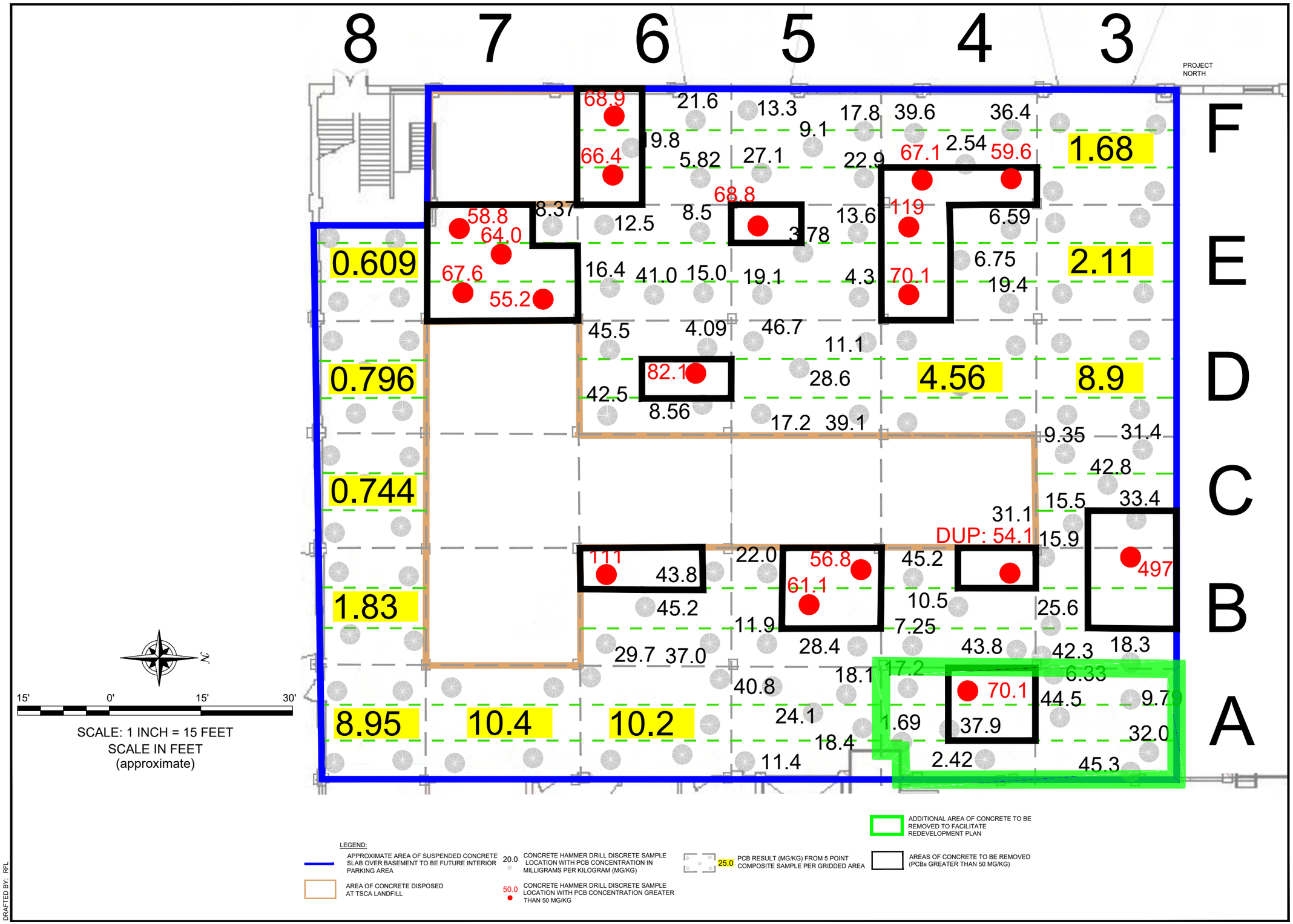
JOB NO.: 0092-016-001-013-002

PCB ANALYTICAL RESULTS WITH CONCRETE REMOVAL AREAS (2020)

WORK PLAN FOR REMOVAL OF PCB-IMPACTED CONCRETE IN SUSPENDED SLAB
FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR

847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC

FIGURE 2



F:\CAD\TurnKey\Krog\Former Trico Building BCP\2022 Work Plan Removal Suspended Slab\Figure 3; PCB Removal Areas.dwg, 10/10/2022 1:13:21 PM, DWG To PDF.pc3

DATE: OCTOBER 2022
DRAFTED BY: RFL

TURNKEY ENVIRONMENTAL RESTORATION, LLC
IN ASSOCIATION WITH
BENCHMARK
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218,
(716) 856-0599

JOB NO.: 0092-016-001-013-002

PCB ANALYTICAL RESULTS WITH CONCRETE REMOVAL AREAS (2022 REVISED)

WORK PLAN FOR REMOVAL OF PCB-IMPACTED CONCRETE IN SUSPENDED SLAB
FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR

847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC

FIGURE 3

ATTACHMENT 1

NYSDEC CORRESPONDENCE, PREVIOUS FIGURES, AND ANALYTICAL DATA

From:	Chris Z. Boron
To:	Walia, Jaspal (DEC)
Cc:	Tom H. Forbes (TForbes@benchmarkturnkey.com); Michael McGuigan
Subject:	Former Trico Plant - Additional Sampling Data from the Suspended Concrete Slab
Date:	Friday, February 21, 2020 9:25:00 AM
Attachments:	Figure 1; Discrete Sample Locations and PCB Analytical Results-11x17.pdf image001.png Figure 2; PCB Analytical Results with Removal Areas.pdf Figure 11; Future Int Parking Area-11x17.pdf

Good morning Jaspal,
Hope all is well.
We have prepared this email to provide the Department with the analytical results of additional concrete sampling that was completed in the future indoor parking area of the Former Trico Plant building, where the 1st floor concrete slab is suspended above the underlying basement.

Benchmark had initially implemented a 5-point composite sampling strategy to assess individual grid areas as outlined in our Loading Dock Concrete & Soil Sampling Work Plan. The results of the initial composite sampling identified PCBs above 50 mg/kg in the suspended concrete slab of the future interior parking area. As discussed in Section 2.5.4 of the Site Management Plan (SMP), the areas with PCB concentrations greater than 50 mg/kg were removed in December 2019 and taken to US Ecology landfill in Bellevue, Michigan for disposal as a Toxic Substance Control Act (TSCA) bulk remediation waste. Those areas removed are shown on attached Figure 11 from the SMP. The PCBs remaining in the suspended concrete slab will be addressed by placing a minimum 6-inch concrete cap over the PCB-impacted concrete, also shown on attached Figure 11, in accordance with an EPA-approved Self-Implementing Work Plan (SIWP) prior to building occupancy.

EPA has indicated that composite sampling is not their preferred method for determining the PCB concentrations in concrete that can be left behind under the 6-inch concrete cover system. TSCA regulations do not allow PCB concentrations greater than 100 mg/kg to be left under cover and would require removal. Therefore, Benchmark collected additional discrete concrete samples from the initial locations used to create the 5-point composite grid samples. Grid areas that had 5-point composite sample result of 20 mg/kg or greater for PCBS (12 grid areas, see attached Figure 11 from the SMP) were re-sampled by collecting five (5) discrete concrete samples from each grid area. Benchmark revisited the initial sample locations and collected a discrete concrete slab sample from within 2 to 3-inches of the initial locations from the upper 3-inches of the concrete slab consistent with previous sampling methodologies. The following grid areas were resampled: A4, B4, B5, C3, D6, E4, E5, E6, E7, F4, F5, and F6 (see attached Figure 1).

In addition to the 12 grid areas listed above, two (2) additional grid areas (A3 and B3) were also sampled as they had not initially been sampled using the 5-point composite method. Concrete core samples were collected from these two (1) grids and had PCB concentrations of 3.97 mg/kg (A3) and 12.4 mg/kg (B3). Therefore, in total, 14 grid areas were sampled, and 70 discrete concrete samples were collected (not including QA/QC samples) for PCB analysis.

The PCB results of the 70 discrete samples are shown on Figure 1 along with the composite sample results for the grid area which were not sampled discretely, as their composite sample results were less than 20 mg/kg. The discrete sample locations that have PCB results greater than 50 mg/kg are

shown in RED. The concrete associated with these areas will require removal to meet the concentration thresholds for PCBs that can remain in-place under the 6-inch concrete cap to be installed. Figure 2 identifies the proposed areas of the suspended concrete slab to be removed and disposed of as TSCA-regulated waste to address the PCB concentrations greater than 50 mg/kg.

We would like to discuss the results of the additional concrete sampling and the proposed areas of concrete to be removed with the Department. Please let us know when a convenient time would be to discuss this information.

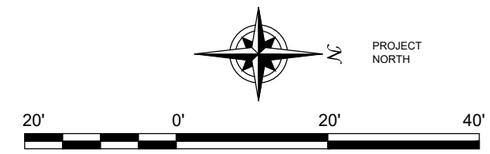
Regards,

Christopher Boron, P.G.
Sr. Project Manager

Strong Advocates | Effective Solutions | Integrated Implementation
2558 Hamburg Turnpike, Suite 300, Buffalo, NY 14218
Phone: (716) 856-0599, Cell Phone: (716) 864-2726
www.benchmarkturnkey.com

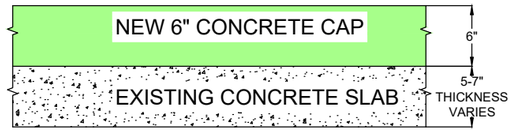
LEGEND:

- PREVIOUS CONCRETE CORE SAMPLE LOCATION
- APPROXIMATE AREA OF SUSPENDED CONCRETE SLAB OVER BASEMENT TO BE FUTURE INTERIOR PARKING AREA
- CONCRETE HAMMER DRILL SAMPLE LOCATION
- 25.0 PCB RESULT FROM 5 POINT COMPOSITE SAMPLE PER GRIDDED AREA
- CONCRETE SAMPLE RESULT; RESULTS REFLECT PCB CONCENTRATION IN MILLIGRAMS PER KILOGRAM.
- AREA OF CONCRETE DISPOSED AT TSCA LANDFILL

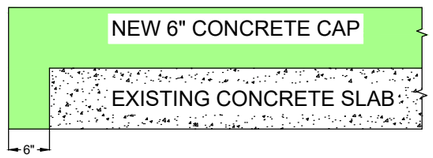


SCALE: 1 INCH = 20 FEET
SCALE IN FEET
(approximate)

CAP DETAIL
NTS



CAP DETAIL
AT EDGE
NTS



DATE: DECEMBER 2019
DRAFTED BY: RFL

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0092-016-001-009

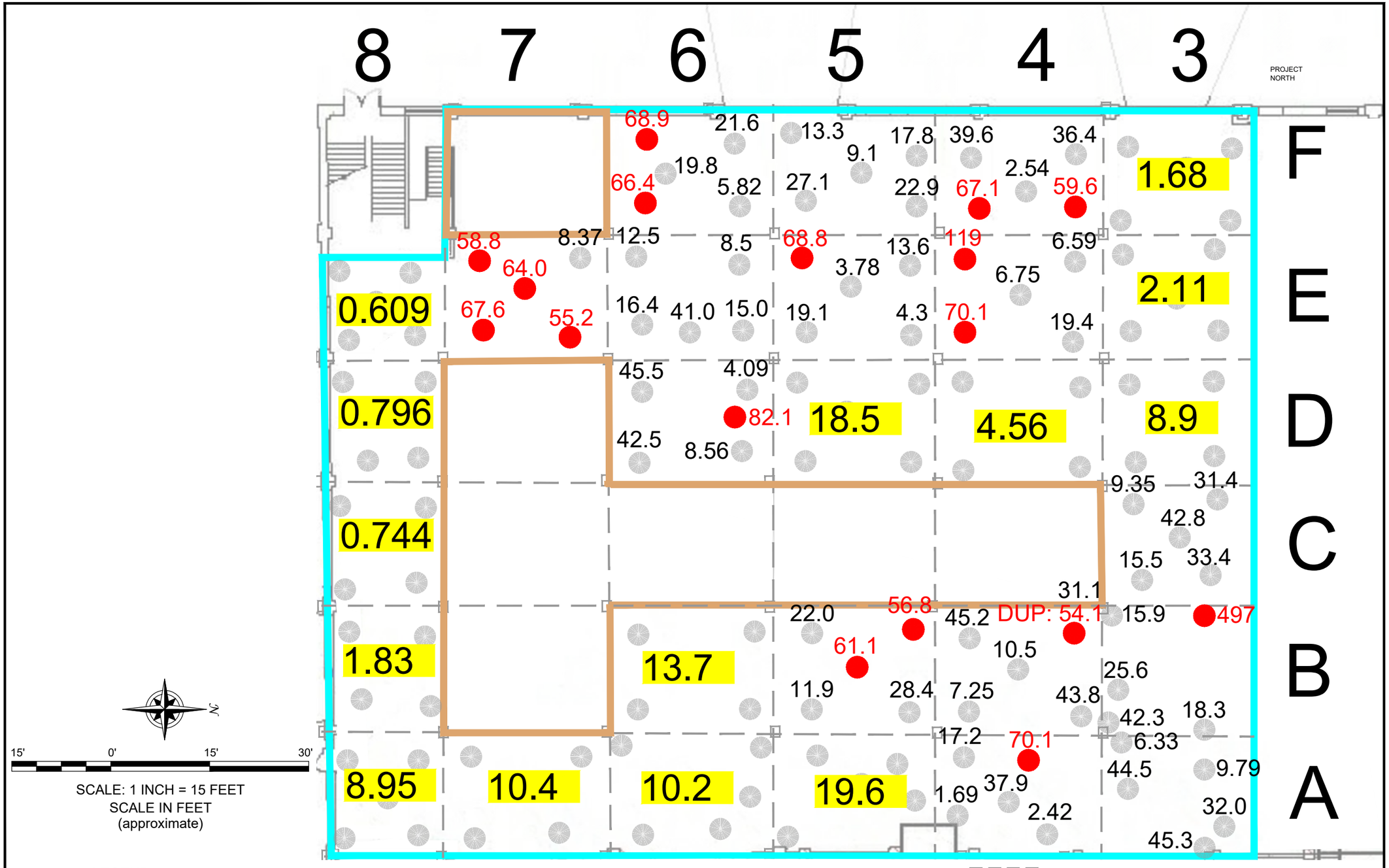
FUTURE INTERIOR PARKING AREA SAMPLE LOCATIONS, RESULTS AND COVER SYSTEM PLACEMENT AREA

SITE MANAGEMENT PLAN

FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR
847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC

FIGURE 11

F:\CAD\TurnKey\Krog\Former Trico Building BCP\02-SIP Work Plan\Figure 1: Discrete Sample Locations and Analytical Results_REV.dwg, 1/30/2020 2:51:04 PM



DATE: JANUARY 2020
DRAFTED BY: CNK

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

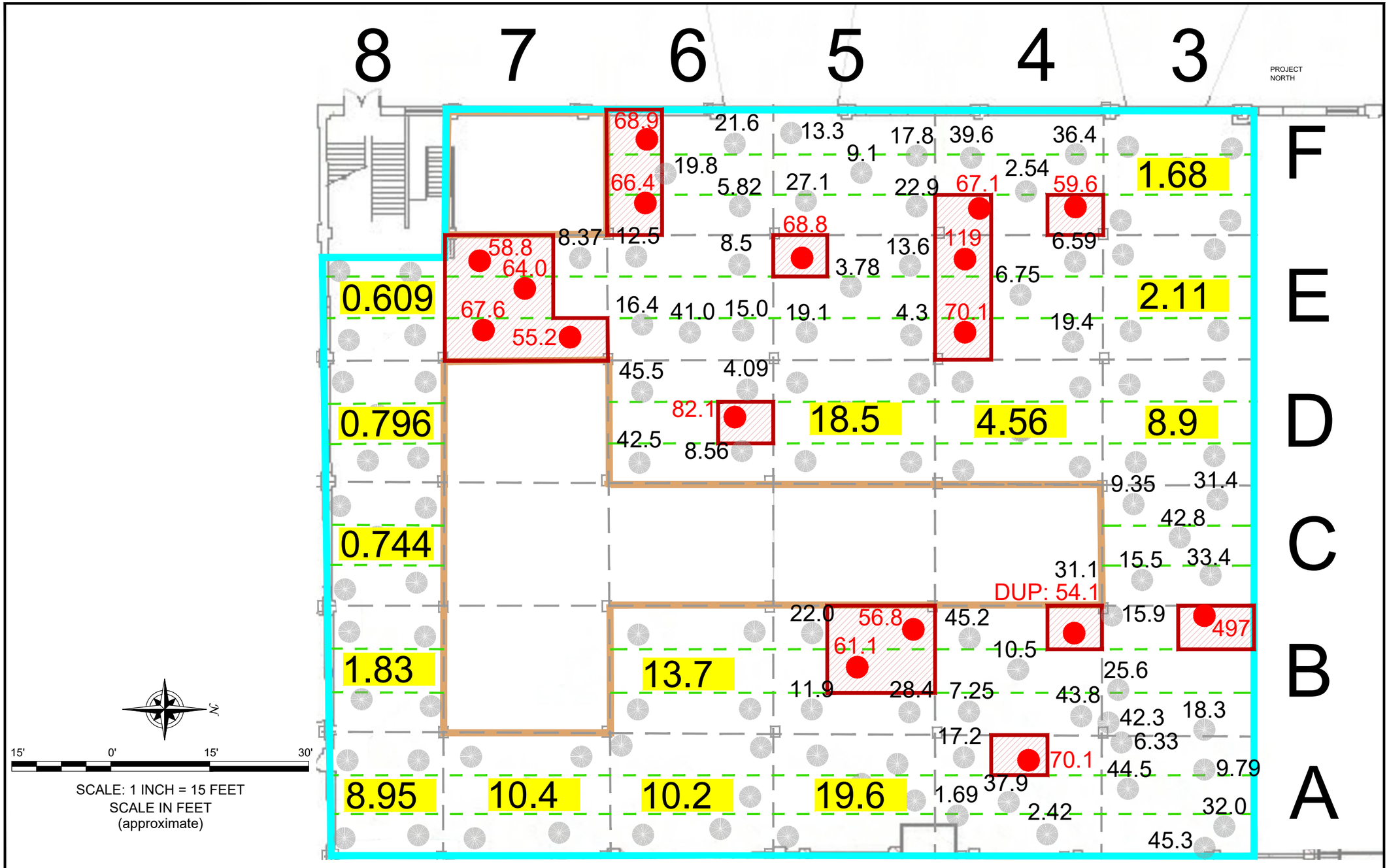
JOB NO.: 0092-016-001-009

DISCRETE SAMPLE LOCATIONS AND PCB ANALYTICAL RESULTS

FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR

847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC

FIGURE 1



LEGEND:

- APPROXIMATE AREA OF SUSPENDED CONCRETE SLAB OVER BASEMENT TO BE FUTURE INTERIOR PARKING AREA
- AREA OF CONCRETE DISPOSED AT TSCA LANDFILL
- 20.0 CONCRETE HAMMER DRILL DISCRETE SAMPLE LOCATION WITH PCB CONCENTRATION IN MILLIGRAMS PER KILOGRAM (MG/KG)
- 50.0 CONCRETE HAMMER DRILL DISCRETE SAMPLE LOCATION WITH PCB CONCENTRATION GREATER THAN 50 MG/KG
- 25.0 PCB RESULT (MG/KG) FROM 5 POINT COMPOSITE SAMPLE PER GRIDDED AREA
- AREAS OF CONCRETE TO BE REMOVED (PCBs GREATER THAN 50 MG/KG)

DATE: JANUARY 2020
DRAFTED BY: CNK

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0092-016-001-009

PCB ANALYTICAL RESULTS WITH CONCRETE REMOVAL AREAS

FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR
847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC

FIGURE 2

From:	Chris Z. Boron
To:	Walia, Jaspal (DEC); Caprio, Andrea (DEC)
Cc:	Tom H. Forbes; Michael McGuigan; Peter Krog
Subject:	Former Trico Plant - Suspended Slab Concrete Removal Area
Date:	Wednesday, April 1, 2020 12:06:00 PM
Attachments:	image001.png L2011781.pdf Figure 2; PCB Impacted Concrete Removal Areas (4-1-2020) (1).pdf Figure 2; PCB Impacted Concrete Removal Areas (4-1-2020) (2).pdf Former Trico Plant - Additional Sampling Data from the Suspended Concrete Slab.msg

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Hello Jaspal,
Hope you are well.

We previously sent you discrete PCB sample results from the suspended concrete slab of the Former Trico Plant back in February (see attached email from February 21st). Figure 2 within the attached email identified areas we proposed to remove due to the concentration of PCBs greater than 50 mg/kg. Based on our follow up conversation on February 25th, the Department requested additional discrete samples from three (3) grid areas: A5, B6, and D5. Fifteen (15) additional discrete samples were collected (5 per grid area) in addition to QA/QC. The laboratory report is attached (L2011781).

The attached Figure 1 (with today's date, 4-1-2020) contains the results of the samples collected to date from the suspended slab area. If you recall on February 25th, we also discussed evaluating the areas to be removed based on surrounding data points, once we received the additional data. The attached Figure 2 (4-1-2020) have been revised from what we previously sent over on February 21st and contains the proposed areas to be removed based on results shown on Figure 1 (4-1-2020). The areas with PCB concentrations greater than 50 mg/kg will be removed and taken to US Ecology landfill in Bellevue, Michigan for disposal as a Toxic Substance Control Act (TSCA) bulk remediation waste. The remaining areas of the suspended slab will be covered with a 6-inch concrete cap in accordance with an EPA-approved Self-Implementing Work Plan (SIWP) prior to building occupancy.

Could you give us a call to discuss after you have had a chance to review?
I am working from home, so please contact me on my cell phone 716-864-2726.

Regards,

Christopher Boron, P.G.
Sr. Project Manager

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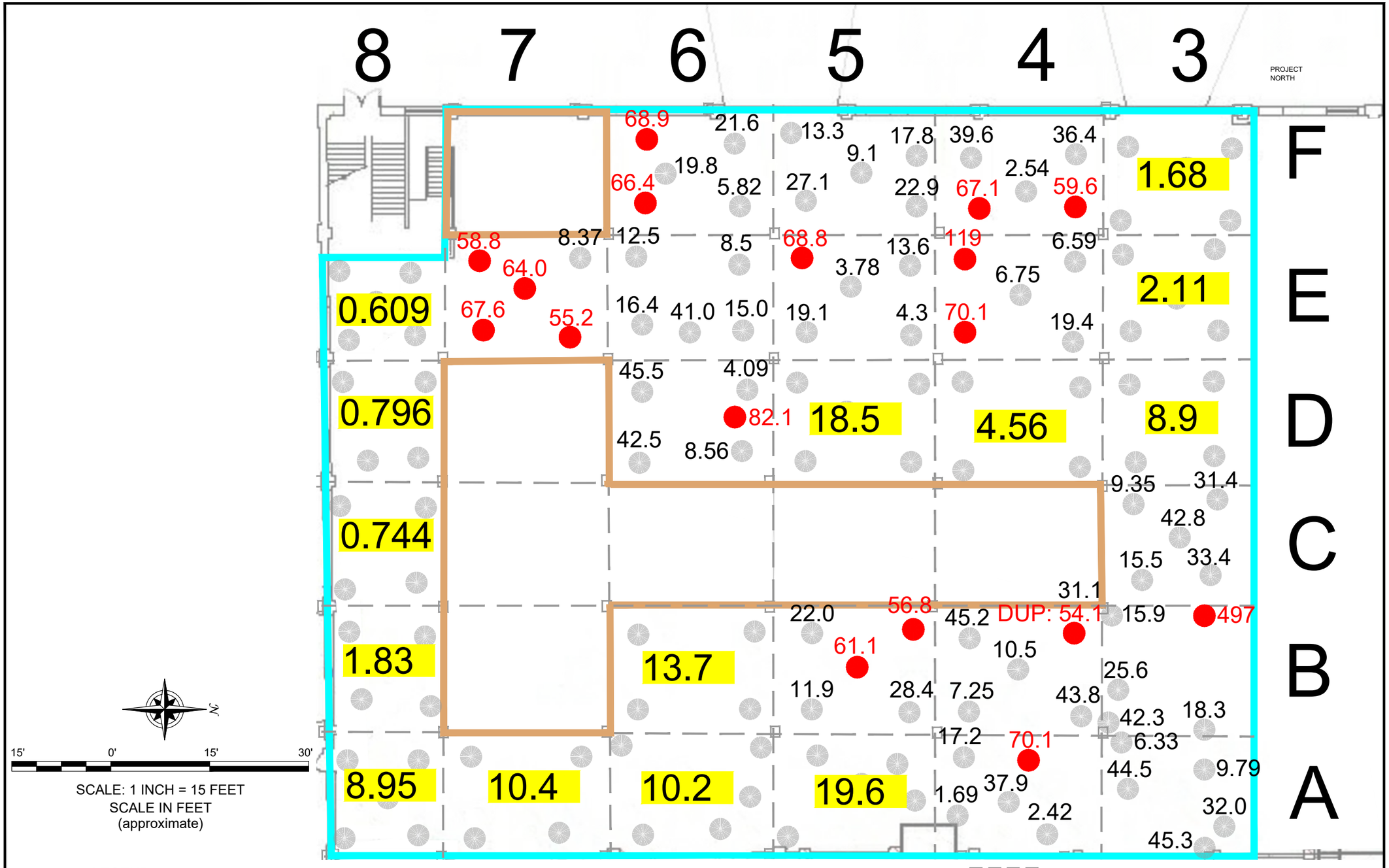
Phone: (716) 856-0599, Cell Phone: (716) 864-2726
www.benchmarkturnkey.com

F:\CAD\TurnKey\Krog\Former Trico Building BCP\02-SIP Work Plan\Figure 1: Discrete Sample Locations and Analytical Results_REV.dwg, 1/30/2020 2:51:04 PM



DATE: JANUARY 2020
DRAFTED BY: CNK

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TURNKEY ENVIRONMENTAL RESTORATION, LLC

2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0092-016-001-009

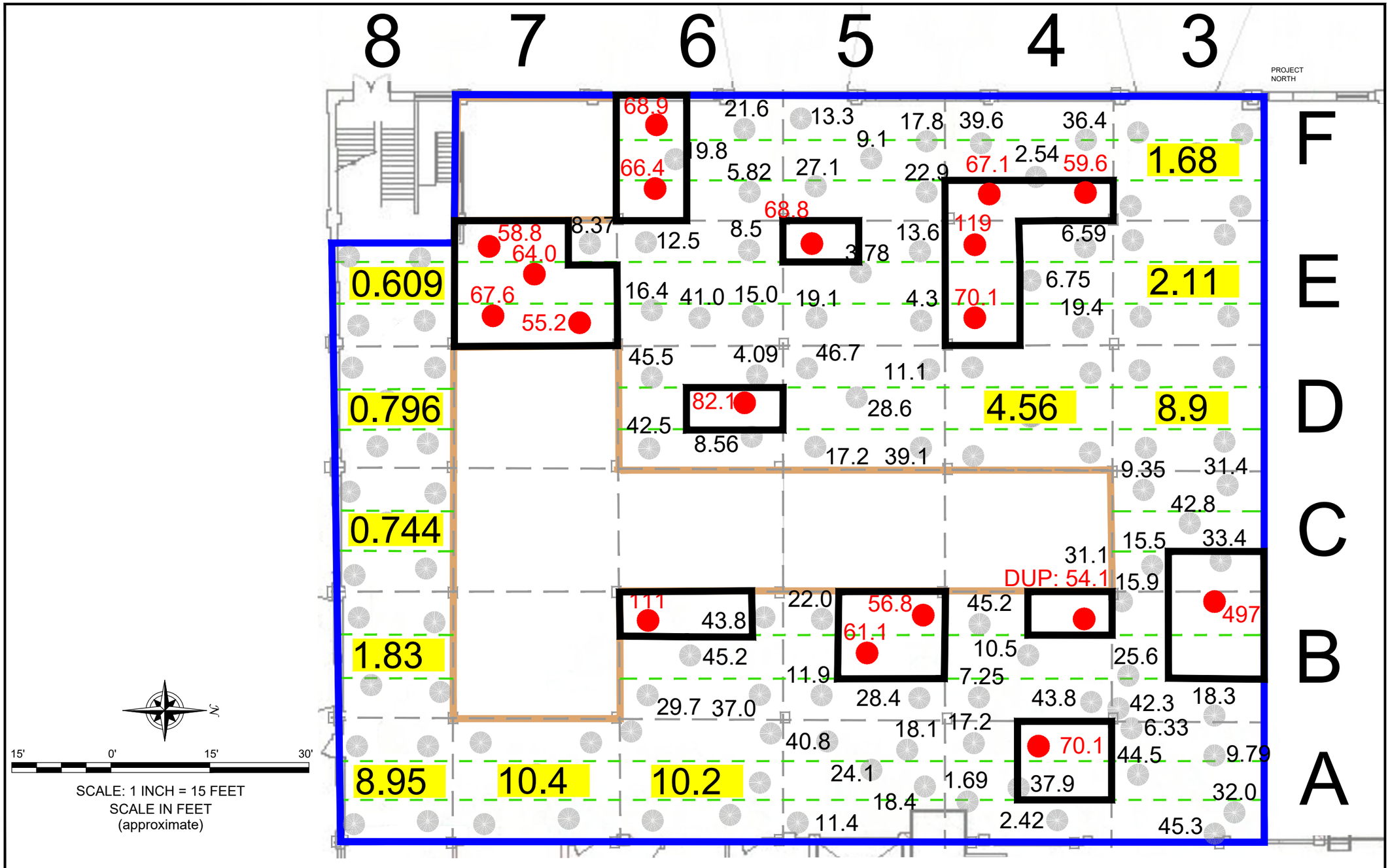
DISCRETE SAMPLE LOCATIONS AND PCB ANALYTICAL RESULTS

FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR

847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC

FIGURE 1

F:\CAD\TurnKey\Krog\Former Trico Building BCP\02-SIP Work Plan\Figure 2- PCB Removal Areas Mar 30.dwg, 3/30/2020 5:27:48 PM



DATE: MARCH 30, 2020
DRAFTED BY: RFL

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
TURNKEY ENVIRONMENTAL RESTORATION, LLC
2558 HAMBURG TURNPIKE, SUITE 300, BUFFALO, NY 14218, (716) 856-0599

JOB NO.: 0092-016-001-009

PCB ANALYTICAL RESULTS WITH CONCRETE REMOVAL AREAS

FORMER TRICO PLANT
791 WASHINGTON STREET
BUFFALO, NEW YORK
PREPARED FOR
847 MAIN STREET, LLC & 791 WASHINGTON STREET, LLC

FIGURE 2

ANALYTICAL REPORT

Lab Number:	L2011781
Client:	Benchmark & Turnkey Companies 2558 Hamburg Turnpike Suite 300 Buffalo, NY 14218
ATTN:	Chris Boron
Phone:	(716) 856-0599
Project Name:	FORMER TRICO BLDG
Project Number:	B0092-016-001-009-00
Report Date:	03/19/20

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2011781-01	A5-C	SOLID	BUFFALO, NY	03/13/20 15:01	03/16/20
L2011781-02	A5-NE	SOLID	BUFFALO, NY	03/13/20 14:55	03/16/20
L2011781-03	A5-SE	SOLID	BUFFALO, NY	03/13/20 14:29	03/16/20
L2011781-04	A5-NW	SOLID	BUFFALO, NY	03/13/20 14:38	03/16/20
L2011781-05	A5-SW	SOLID	BUFFALO, NY	03/13/20 14:20	03/16/20
L2011781-06	B6-C	SOLID	BUFFALO, NY	03/13/20 14:05	03/16/20
L2011781-07	B6-NE	SOLID	BUFFALO, NY	03/13/20 13:33	03/16/20
L2011781-08	B6-NW	SOLID	BUFFALO, NY	03/13/20 13:42	03/16/20
L2011781-09	B6-SW	SOLID	BUFFALO, NY	03/13/20 13:49	03/16/20
L2011781-10	B6-SE	SOLID	BUFFALO, NY	03/13/20 13:56	03/16/20
L2011781-11	D5-C	SOLID	BUFFALO, NY	03/13/20 12:08	03/16/20
L2011781-12	BLIND DUP #5	SOLID	BUFFALO, NY	03/13/20 07:00	03/16/20
L2011781-13	D5-NW	SOLID	BUFFALO, NY	03/13/20 12:41	03/16/20
L2011781-14	D5-SW	SOLID	BUFFALO, NY	03/13/20 11:54	03/16/20
L2011781-15	D5-NE	SOLID	BUFFALO, NY	03/13/20 12:34	03/16/20
L2011781-16	D5-SE	SOLID	BUFFALO, NY	03/13/20 12:17	03/16/20

Project Name:	FORMER TRICO BLDG	**Lab Number:**	L2011781
Project Number:	B0092-016-001-009-00	**Report Date:**	03/19/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	FORMER TRICO BLDG	**Lab Number:**	L2011781
Project Number:	B0092-016-001-009-00	**Report Date:**	03/19/20

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

PCBs

L2011781-01 through -16: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

WG1352005: An MS/MSD was not analyzed because the dilution required by the native sample would have caused the spike compounds to be diluted below the range of calibration.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 03/19/20

ORGANICS

PCBS

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00
Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-01 D
Client ID: A5-C
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 15:01
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 01:18
Analyst: HT
Percent Solids: 95%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	10200	909.	100	A
Aroclor 1221	ND		ug/kg	10200	1020	100	A
Aroclor 1232	ND		ug/kg	10200	2170	100	A
Aroclor 1242	ND		ug/kg	10200	1380	100	A
Aroclor 1248	24100		ug/kg	10200	1540	100	A
Aroclor 1254	ND		ug/kg	10200	1120	100	A
Aroclor 1260	ND		ug/kg	10200	1890	100	A
Aroclor 1262	ND		ug/kg	10200	1300	100	A
Aroclor 1268	ND		ug/kg	10200	1060	100	A
PCBs, Total	24100		ug/kg	10200	909.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-02 D
Client ID: A5-NE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:55
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 01:30
Analyst: HT
Percent Solids: 94%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9070	805.	100	A
Aroclor 1221	ND		ug/kg	9070	909.	100	A
Aroclor 1232	ND		ug/kg	9070	1920	100	A
Aroclor 1242	ND		ug/kg	9070	1220	100	A
Aroclor 1248	18400		ug/kg	9070	1360	100	A
Aroclor 1254	ND		ug/kg	9070	992.	100	A
Aroclor 1260	ND		ug/kg	9070	1680	100	A
Aroclor 1262	ND		ug/kg	9070	1150	100	A
Aroclor 1268	ND		ug/kg	9070	940.	100	A
PCBs, Total	18400		ug/kg	9070	805.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-03 D
Client ID: A5-SE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:29
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 02:29
Analyst: HT
Percent Solids: 95%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	2010	179.	20	A
Aroclor 1221	ND		ug/kg	2010	202.	20	A
Aroclor 1232	ND		ug/kg	2010	426.	20	A
Aroclor 1242	ND		ug/kg	2010	271.	20	A
Aroclor 1248	9600		ug/kg	2010	302.	20	A
Aroclor 1254	ND		ug/kg	2010	220.	20	A
Aroclor 1260	1810	J	ug/kg	2010	372.	20	A
Aroclor 1262	ND		ug/kg	2010	256.	20	A
Aroclor 1268	ND		ug/kg	2010	208.	20	A
PCBs, Total	11400	J	ug/kg	2010	179.	20	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-04 D
Client ID: A5-NW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:38
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 01:42
Analyst: HT
Percent Solids: 86%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	10300	914.	100	A
Aroclor 1221	ND		ug/kg	10300	1030	100	A
Aroclor 1232	ND		ug/kg	10300	2180	100	A
Aroclor 1242	ND		ug/kg	10300	1390	100	A
Aroclor 1248	18100		ug/kg	10300	1540	100	A
Aroclor 1254	ND		ug/kg	10300	1130	100	A
Aroclor 1260	ND		ug/kg	10300	1900	100	A
Aroclor 1262	ND		ug/kg	10300	1310	100	A
Aroclor 1268	ND		ug/kg	10300	1070	100	A
PCBs, Total	18100		ug/kg	10300	914.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00
Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-05 D
Client ID: A5-SW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:20
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 01:54
Analyst: HT
Percent Solids: 96%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	10000	889.	100	A
Aroclor 1221	ND		ug/kg	10000	1000	100	A
Aroclor 1232	ND		ug/kg	10000	2120	100	A
Aroclor 1242	ND		ug/kg	10000	1350	100	A
Aroclor 1248	30400		ug/kg	10000	1500	100	A
Aroclor 1254	ND		ug/kg	10000	1100	100	A
Aroclor 1260	10400		ug/kg	10000	1850	100	A
Aroclor 1262	ND		ug/kg	10000	1270	100	A
Aroclor 1268	ND		ug/kg	10000	1040	100	A
PCBs, Total	40800		ug/kg	10000	889.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-06 D
Client ID: B6-C
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:05
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 02:05
Analyst: HT
Percent Solids: 94%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	10200	905.	100	A
Aroclor 1221	ND		ug/kg	10200	1020	100	A
Aroclor 1232	ND		ug/kg	10200	2160	100	A
Aroclor 1242	ND		ug/kg	10200	1370	100	A
Aroclor 1248	45200		ug/kg	10200	1530	100	A
Aroclor 1254	ND		ug/kg	10200	1110	100	A
Aroclor 1260	ND		ug/kg	10200	1880	100	A
Aroclor 1262	ND		ug/kg	10200	1290	100	A
Aroclor 1268	ND		ug/kg	10200	1060	100	A
PCBs, Total	45200		ug/kg	10200	905.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-07 D
Client ID: B6-NE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:33
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 00:43
Analyst: HT
Percent Solids: 95%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9750	866.	100	A
Aroclor 1221	ND		ug/kg	9750	977.	100	A
Aroclor 1232	ND		ug/kg	9750	2070	100	A
Aroclor 1242	ND		ug/kg	9750	1310	100	A
Aroclor 1248	37000		ug/kg	9750	1460	100	A
Aroclor 1254	ND		ug/kg	9750	1070	100	A
Aroclor 1260	ND		ug/kg	9750	1800	100	A
Aroclor 1262	ND		ug/kg	9750	1240	100	A
Aroclor 1268	ND		ug/kg	9750	1010	100	A
PCBs, Total	37000		ug/kg	9750	866.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00
Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-08 D
Client ID: B6-NW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:42
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 00:54
Analyst: HT
Percent Solids: 94%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9160	813.	100	A
Aroclor 1221	ND		ug/kg	9160	918.	100	A
Aroclor 1232	ND		ug/kg	9160	1940	100	A
Aroclor 1242	ND		ug/kg	9160	1230	100	A
Aroclor 1248	37400		ug/kg	9160	1370	100	A
Aroclor 1254	ND		ug/kg	9160	1000	100	A
Aroclor 1260	6420	J	ug/kg	9160	1690	100	A
Aroclor 1262	ND		ug/kg	9160	1160	100	A
Aroclor 1268	ND		ug/kg	9160	949.	100	A
PCBs, Total	43800	J	ug/kg	9160	813.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00
Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-09 D
Client ID: B6-SW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:49
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 01:06
Analyst: HT
Percent Solids: 85%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	10100	896.	100	A
Aroclor 1221	ND		ug/kg	10100	1010	100	A
Aroclor 1232	ND		ug/kg	10100	2140	100	A
Aroclor 1242	ND		ug/kg	10100	1360	100	A
Aroclor 1248	111000		ug/kg	10100	1510	100	A
Aroclor 1254	ND		ug/kg	10100	1100	100	A
Aroclor 1260	ND		ug/kg	10100	1860	100	A
Aroclor 1262	ND		ug/kg	10100	1280	100	A
Aroclor 1268	ND		ug/kg	10100	1040	100	A
PCBs, Total	111000		ug/kg	10100	896.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-10 D
Client ID: B6-SE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:56
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 02:53
Analyst: HT
Percent Solids: 90%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9900	879.	100	A
Aroclor 1221	ND		ug/kg	9900	992.	100	A
Aroclor 1232	ND		ug/kg	9900	2100	100	A
Aroclor 1242	ND		ug/kg	9900	1330	100	A
Aroclor 1248	29700		ug/kg	9900	1480	100	A
Aroclor 1254	ND		ug/kg	9900	1080	100	A
Aroclor 1260	ND		ug/kg	9900	1830	100	A
Aroclor 1262	ND		ug/kg	9900	1260	100	A
Aroclor 1268	ND		ug/kg	9900	1020	100	A
PCBs, Total	29700		ug/kg	9900	879.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-11 D
Client ID: D5-C
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:08
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 03:05
Analyst: HT
Percent Solids: 91%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9600	852.	100	A
Aroclor 1221	ND		ug/kg	9600	961.	100	A
Aroclor 1232	ND		ug/kg	9600	2030	100	A
Aroclor 1242	ND		ug/kg	9600	1290	100	A
Aroclor 1248	28600		ug/kg	9600	1440	100	A
Aroclor 1254	ND		ug/kg	9600	1050	100	A
Aroclor 1260	ND		ug/kg	9600	1770	100	A
Aroclor 1262	ND		ug/kg	9600	1220	100	A
Aroclor 1268	ND		ug/kg	9600	994.	100	A
PCBs, Total	28600		ug/kg	9600	852.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-12 D
Client ID: BLIND DUP #5
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 07:00
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 03:17
Analyst: HT
Percent Solids: 95%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9200	817.	100	A
Aroclor 1221	ND		ug/kg	9200	922.	100	A
Aroclor 1232	ND		ug/kg	9200	1950	100	A
Aroclor 1242	ND		ug/kg	9200	1240	100	A
Aroclor 1248	40700		ug/kg	9200	1380	100	A
Aroclor 1254	ND		ug/kg	9200	1010	100	A
Aroclor 1260	ND		ug/kg	9200	1700	100	A
Aroclor 1262	ND		ug/kg	9200	1170	100	A
Aroclor 1268	ND		ug/kg	9200	953.	100	A
PCBs, Total	40700		ug/kg	9200	817.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-13 D
Client ID: D5-NW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:41
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 02:41
Analyst: HT
Percent Solids: 90%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	2120	188.	20	A
Aroclor 1221	ND		ug/kg	2120	212.	20	A
Aroclor 1232	ND		ug/kg	2120	449.	20	A
Aroclor 1242	ND		ug/kg	2120	285.	20	A
Aroclor 1248	11100		ug/kg	2120	318.	20	A
Aroclor 1254	ND		ug/kg	2120	232.	20	A
Aroclor 1260	ND		ug/kg	2120	391.	20	A
Aroclor 1262	ND		ug/kg	2120	269.	20	A
Aroclor 1268	ND		ug/kg	2120	219.	20	A
PCBs, Total	11100		ug/kg	2120	188.	20	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-14 D
Client ID: D5-SW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 11:54
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 03:28
Analyst: HT
Percent Solids: 95%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9440	838.	100	A
Aroclor 1221	ND		ug/kg	9440	946.	100	A
Aroclor 1232	ND		ug/kg	9440	2000	100	A
Aroclor 1242	ND		ug/kg	9440	1270	100	A
Aroclor 1248	46700		ug/kg	9440	1420	100	A
Aroclor 1254	ND		ug/kg	9440	1030	100	A
Aroclor 1260	ND		ug/kg	9440	1740	100	A
Aroclor 1262	ND		ug/kg	9440	1200	100	A
Aroclor 1268	ND		ug/kg	9440	978.	100	A
PCBs, Total	46700		ug/kg	9440	838.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-15 D
Client ID: D5-NE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:34
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 03:40
Analyst: HT
Percent Solids: 98%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	9230	820.	100	A
Aroclor 1221	ND		ug/kg	9230	925.	100	A
Aroclor 1232	ND		ug/kg	9230	1960	100	A
Aroclor 1242	ND		ug/kg	9230	1240	100	A
Aroclor 1248	39100		ug/kg	9230	1380	100	A
Aroclor 1254	ND		ug/kg	9230	1010	100	A
Aroclor 1260	ND		ug/kg	9230	1700	100	A
Aroclor 1262	ND		ug/kg	9230	1170	100	A
Aroclor 1268	ND		ug/kg	9230	956.	100	A
PCBs, Total	39100		ug/kg	9230	820.	100	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-16 D
Client ID: D5-SE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:17
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid
Analytical Method: 1,8082A
Analytical Date: 03/19/20 02:17
Analyst: HT
Percent Solids: 96%

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/kg	1950	173.	20	A
Aroclor 1221	ND		ug/kg	1950	196.	20	A
Aroclor 1232	ND		ug/kg	1950	414.	20	A
Aroclor 1242	ND		ug/kg	1950	263.	20	A
Aroclor 1248	17200		ug/kg	1950	293.	20	A
Aroclor 1254	ND		ug/kg	1950	214.	20	A
Aroclor 1260	ND		ug/kg	1950	361.	20	A
Aroclor 1262	ND		ug/kg	1950	248.	20	A
Aroclor 1268	ND		ug/kg	1950	202.	20	A
PCBs, Total	17200		ug/kg	1950	173.	20	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	A
Decachlorobiphenyl	**0**	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	**0**	Q	30-150	B
Decachlorobiphenyl	**0**	Q	30-150	B

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00
Lab Number: L2011781
Report Date: 03/19/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 03/18/20 22:26
Analyst: HT

Extraction Method: EPA 3540C
Extraction Date: 03/17/20 14:25
Cleanup Method: EPA 3665A
Cleanup Date: 03/18/20
Cleanup Method: EPA 3660B
Cleanup Date: 03/18/20

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-16 Batch: WG1352005-1						
Aroclor 1016	ND		ug/kg	89.4	7.94	A
Aroclor 1221	ND		ug/kg	89.4	8.96	A
Aroclor 1232	ND		ug/kg	89.4	19.0	A
Aroclor 1242	ND		ug/kg	89.4	12.0	A
Aroclor 1248	ND		ug/kg	89.4	13.4	A
Aroclor 1254	ND		ug/kg	89.4	9.78	A
Aroclor 1260	ND		ug/kg	89.4	16.5	A
Aroclor 1262	ND		ug/kg	89.4	11.4	A
Aroclor 1268	ND		ug/kg	89.4	9.27	A
PCBs, Total	ND		ug/kg	89.4	7.94	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	67		30-150	A
Decachlorobiphenyl	62		30-150	A
2,4,5,6-Tetrachloro-m-xylene	67		30-150	B
Decachlorobiphenyl	57		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER TRICO BLDG

Project Number: B0092-016-001-009-00

Lab Number: L2011781

Report Date: 03/19/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-16 Batch: WG1352005-2 WG1352005-3									
Aroclor 1016	94		96		40-140	2		50	A
Aroclor 1260	78		82		40-140	5		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		72		30-150	A
Decachlorobiphenyl	64		66		30-150	A
2,4,5,6-Tetrachloro-m-xylene	68		70		30-150	B
Decachlorobiphenyl	57		59		30-150	B

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-01
Client ID: A5-C
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 15:01
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-02
Client ID: A5-NE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:55
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.4		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-03
Client ID: A5-SE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:29
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.4		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-04
Client ID: A5-NW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:38
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-05
Client ID: A5-SW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:20
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.0		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-06
Client ID: B6-C
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 14:05
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.2		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-07
Client ID: B6-NE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:33
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-08
Client ID: B6-NW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:42
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-09
Client ID: B6-SW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:49
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-10
Client ID: B6-SE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 13:56
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-11
Client ID: D5-C
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:08
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.1		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-12
Client ID: BLIND DUP #5
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 07:00
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.5		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-13
Client ID: D5-NW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:41
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.6		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-14
Client ID: D5-SW
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 11:54
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.4		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-15
Client ID: D5-NE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:34
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	97.6		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

SAMPLE RESULTS

Lab ID: L2011781-16
Client ID: D5-SE
Sample Location: BUFFALO, NY

Date Collected: 03/13/20 12:17
Date Received: 03/16/20
Field Prep: Not Specified

Sample Depth:
Matrix: Solid

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.1		%	0.100	NA	1	-	03/17/20 10:41	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER TRICO BLDG

Project Number: B0092-016-001-009-00

Lab Number: L2011781

Report Date: 03/19/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16 QC Batch ID: WG1351916-1 QC Sample: L2011781-14 Client ID: D5-SW						
Solids, Total	95.4	94.6	%	1		20

Project Name: FORMER TRICO BLDG
Project Number: B0092-016-001-009-00

Lab Number: L2011781
Report Date: 03/19/20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2011781-01A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-02A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-03A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-04A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-05A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-06A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-07A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-08A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-09A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-10A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-11A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-12A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-13A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-14A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-14A1	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-14A2	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-15A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)
L2011781-16A	Glass 120ml/4oz unpreserved	A	NA		2.5	Y	Absent		TS(7),NYTCL-8082-CNCRT(14)

*Values in parentheses indicate holding time in days

Project Name:	FORMER TRICO BLDG	**Lab Number:**	L2011781
Project Number:	B0092-016-001-009-00	**Report Date:**	03/19/20

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

Project Name:	FORMER TRICO BLDG	**Lab Number:**	L2011781
Project Number:	B0092-016-001-009-00	**Report Date:**	03/19/20

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers

Project Name:	FORMER TRICO BLDG	**Lab Number:**	L2011781
Project Number:	B0092-016-001-009-00	**Report Date:**	03/19/20

Data Qualifiers

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

Project Name:	FORMER TRICO BLDG	**Lab Number:**	L2011781
Project Number:	B0092-016-001-009-00	**Report Date:**	03/19/20

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 2

Date Rec'd in Lab: 03/17/20

ALPHA Job #: L2017781

Client Information
Client: Benchmark Env
Address: 2558 Hamburg Turnpike
Lackawanna NY 14218
Phone: (716) 828-8358
Fax: (716) 856-0583
Email: TBehrendt

Project Information
Project Name: Former Trico Bldg
Project Location: Buffalo NY
Project #: B0092-016-001-009-004
(Use Project name as Project #)
Project Manager: Chris Baron
ALPHAQuote #:

Turn-Around Time
Standard: X
Rush (only if pre approved): ☐
Due Date:
# of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

CAT B

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	T, PCBs	Sample Specific Comments	Total Bottle
L1781-01	A5-C	3/13/20	1501	Concrete	TAB	X		1
-02	A5-NE		1455			X		1
-03	A5-SE		1429			X		1
-04	A5-NW		1430			X		1
-05	A5-SW		1420			X		1
-06	B6-C		1405			X		1
-07	B6-NE		1333			X		1
-08	B6-NW		1342			X		1
-09	B6-SW		1349			X		1
-10	B6-SE		~~1429~~ 1356			X		1

Container Type: A
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	3/16/20		3/16/20 1738
			3/17/20 0055

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 2

Date Rec'd in Lab: 03/17/20

ALPHA Job #: L2011781

Project Information
Project Name: Former Tires Plant
Project Location: Buffalo NY
Project #: B0092-016-001-009-004
(Use Project name as Project #) ☒
Project Manager: Chris Boron
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: Benchmark Eng
Address: 2558 Hamburg Turnpike
Lackawanna NY Suite 300
Phone: (716) 818-8358
Fax:
Email: TBehrendt@Turnkey llc.com

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:
CAT B

Please specify Metals or TAL.

ANALYSIS: T. PCBs

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	T. PCBs	Sample Specific Comments	Total Bottles
11781-11	D5-C	3/13/20	1208	Concrete	TAB	X		1
-12	Blind Dup #5	↓	0700	↓	↓	X		1
-13	D5-NW	↓	1241	↓	↓	X		1
-14	D5-SW (MS/MSD)	↓	1154	↓	↓	X		1
-15	D5-NE	↓	1234	↓	↓	X		1
~~-~~	~~D5-SW~~	~~-~~	~~-~~	~~-~~	~~-~~	~~X~~		~~-~~
-16	D5-SE	↓	1217	↓	↓	X		1

Container Type: A
Preservative: A

Preservative Code	Container Code
A = None	P = Plastic
B = HCl	A = Amber Glass
C = HNO_3	V = Vial
D = H_2SO_4	G = Glass
E = NaOH	B = Bacteria Cup
F = MeOH	C = Cube
G = $NaHSO_4$	O = Other
H = $Na_2S_2O_3$	E = Encore
K/E = Zn Ac/NaOH	D = BOD Bottle
O = Other	

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	3/16/20	[signature] AAL	3/16/20 1238
[signature]		[signature]	3/17/20 00:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

From:	Caprio, Andrea (DEC)
To:	Chris Z. Boron
Cc:	Walia, Jaspal (DEC)
Subject:	C915281 - Former Trico Plant
Date:	Wednesday, April 8, 2020 1:04:27 PM
Attachments:	image001.jpg image002.png image003.png image004.jpg

---

Chris,

We have reviewed your proposal to remove concrete containing PCBs greater than 50 mg/kg from the suspended slab areas shown in Figure 2 and dispose it off-site at a TSCA approved facility. It is our understanding that the remaining areas of the suspended slab showing PCBs less than 50 mg/kg will be covered with a 6-inch concrete cap prior to building occupancy.

Based upon the concrete sampling data presented, the Department approves the proposed plan.

Should there be any questions relative to this matter please call me or Jaspal S. Walia at (716) 851-7220.

Thanks,

Andrea

Andrea Caprio, P.E.
Regional Remediation Engineer, Division of Environmental Remediation

New York State Department of Environmental Conservation
270 Michigan Ave, Buffalo, NY 14203
P: (716)851-7220 | andrea.caprio@dec.ny.gov
www.dec.ny.gov | | |

professional opinion if and when provided by principals of the Companies to authorized representatives of the organization with which we have an active client-engineer relationship and when directly pertaining to a binding contract scope of work.

ATTACHMENT 2

US ECOLOGY LANDFILL WASTE PROFILE APPROVAL

Approval Letter

DISPOSAL CONNECTIONS INC
6569 HEATHER DRIVE
LOCKPORT, NY, 14094-1152

October 19, 2022

RE:	**Generator:**	**THE KROG CORPORATION (FORMER TRICO BLDG)**
	Generator EPA ID:	**NYR000242131**
	Site Address:	**791 WASHINGTON STREET, BUFFALO, NY, 14203**
	Waste Common Name:	**Concrete Contaminated With PCB's**
	Expiration Date:	**08/31/2023**

David

We are excited to report that the above mentioned material has been approved for acceptance into the following US Ecology facilities which are authorized to accept and have all of the appropriate permits necessary to manage the material described in the submitted waste/material profile form.

Approval Code(s)	Facility
K190070WDI	US Ecology Michigan – Landfill

Special Considerations

- It is important that each shipment be scheduled at least 48 hours in advance. Unscheduled loads will be offloaded as time permits but may be subject to delay or rejection.
- The driver is required to have all necessary personal protective equipment (PPE), including an appropriate respirator, in order to offload the waste.

If you have any questions or need additional information, please feel free to contact your Customer Service Specialist or reach out to our Customer Support line at (800) 592-5489.

*Additional Terms of Agreement may apply. Please refer to your original price confirmation and or generator notification letter.

ATTACHMENT 3

WARGO ENTERPRISE HEALTH AND SAFETY PLAN

BENCHMARK

WARGO
ENTERPRISES

SITE SPECIFIC HEALTH & SAFETY PLAN

FOR

KROG CORP.
TRICO BUILDING
ABATEMENT & DEMOLITION
BUFFALO, NY

5055 HAVENS RD
AKRON, NY 14001

716-542-1333 (OFFICE)
716-542-6060 (FAX)

CORPORATE SAFETY STATEMENT

WARGO ENTERPRISES, INC. PLACES TOP PRIORITY ON THE SAFETY AND WELL BEING OF ALL PERSONNEL. NOTHING TAKES A HIGHER PRIORITY TO WARGO ENTERPRISES' MANAGEMENT THAN:

* **ACCIDENT / INJURY PREVENTION**
* **WORKER SAFETY & HEALTH**
* **VISITOR SAFETY & HEALTH**
* **PUBLIC SAFETY & HEALTH**
* **ENVIRONMENTAL RESPONSIBILITY**

For Wargo Enterprises' Safety Program to be effective, Wargo Enterprises' management expects every person to participate in all aspects of safety, with the belief and understanding that **ALL ACCIDENTS / INJURIES ARE PREVENTABLE.** Wargo Enterprises creates a safe attitude in a cooperative effort to continuously maintain an excellent safety record. Wargo Enterprises expects everyone, including officers, management, supervisors, foreman, operators, laborers, and drivers to participate and contribute, proactively, in the implementation and enforcement of the Wargo Enterprises Safe Work Ethic. No unsafe acts are acceptable, nor will they be tolerated on any Wargo Enterprises job sites.

WARGO ENTERPRISES' GOAL IS "ZERO-INJURIES"
SAFETY PERFORMANCE

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1.0 HEALTH & SAFETY PLAN (HASP) INTRODUCTION

Wargo Enterprises Health and Safety Program is guided by the belief that our employees are our greatest asset and that every employee's health and safety must receive top priority and support. Prevention of occupational related injuries and illnesses is an integral part of the firm's goals for quality service to our clients.

Wargo will maintain a Health and Safety Program designed to minimize the number of injuries and illnesses, with an ultimate goal of zero accidents and injuries. Wargo's program will be equal or superior to the standard of practice in our industry. The firm, guided by management, shares responsibility for health and safety and will provide the appropriate supervision, training and protective equipment (PPE) to keep its employees safe. Employee owned PPE is not required. Full participation by all Wargo employees is crucial to the overall success of the program.

Health & Safety Principals:

To guide our employees in understanding and adherence to Wargo's Health and Safety Program, our health and safety goals can be summarized by the following principles. Wargo believes that:

- Occupationally caused injuries and illnesses are preventable.
- Preventing occupationally caused injuries and illnesses is one of our highest responsibilities.
- Providing safe working conditions in the office and in the field requires commitment from all involved parties.
- Employees have a right to information and training.
- Working safely is a condition of employment and a shared responsibility between management and staff.
- Neither Wargo, nor its projects, can succeed unless injuries and exposures are mitigated, managed and prevented.

Employee Guidance:

A copy of this Health and Safety Plan will be provided to all Wargo personnel upon initial hiring and upon request. This will provide an up-to-date reference guide for personnel and minimize potential legal or administrative actions against Wargo for noncompliance.

Wargo will also develop Site-Specific Health and Safety Plans (HASPs) to reflect client, contract, or site-specific requirements. These documents are required to be maintained onsite and will be made available to all Wargo project personnel upon request.

HASP Considerations:

While a primary consideration for all of Wargo operations is the health and safety of its personnel, the protection of the general public and the environment is also important in developing and implementing the Health and Safety Program. The application of standardized health and safety procedures by trained personnel reduces the possibility of injury or exposure. To be effective, Wargo health and safety procedures must be:

- Based on available and current information, operational principles and technical guidance;
- Field tested, reviewed and revised, when appropriate, by the HSO and relevant safety personnel;
- Adjusted to site or task specific situations and conditions;
- Understandable, feasible and appropriate for site conditions;
- Available to site personnel who have been briefed on their use; and
- Performed, implemented and used by individuals appropriately trained.

To be successful, the program will embody a proactive and concerned attitude toward injury exposure and illness prevention on the part of managers, supervisors and employees. Wargo also requires employee cooperation in all health and safety matters. Only through such a cooperative effort can a safety program, in the best interest of all, be established and preserved.

HASP Implementation:

Implementation of Wargo Health and Safety Program is the responsibility of the HSO. It is to be accomplished through the identification and designation of responsibilities to individuals assigned to each project location.

The successful implementation of Wargo Health and Safety Program depends upon the following primary factors:

- Management Commitment: Wargo management is committed to the policy that health and safety is an integral part of all the firm's operations.
- Assignment of Accountability: All Wargo employees are identified and held accountable for the development and reinforcement of proper health and safety attitudes in the performance of all tasks and operations.
- Employee Involvement: All employees are continuously encouraged to participate and contribute to the overall Health and Safety Program effort.

1.1 SITE BACKGROUND

Project Name: Trico Building Abatement & Demolition Project

Site Address: 791 Washington St
Buffalo, NY 14203

Nearest Intersection: Goddell St
Township/Municipality: Buffalo, NY
County: Erie

Scope of Work:
Contractor shall provide all labor and supervision:

- Mobilize and demobilize equipment and personnel to the site.
- Perform asbestos abatement.
- Remove light bulbs and ballasts.
- Remove electrical conduits and panels.
- Remove hockey pucks from ceilings.
- Perform interior select demolition / cleanup.
- Remove 50,000sqft floor coating.
- Remove all paint from walls and ceilings.
- Remove roofing materials.
- Perform mass demolition.
- Remove transformers.
- Remove all windows.

Wargo Enterprises, Inc. Contacts

Wargo Office	Listed Number	716-542-1333
Wargo Office	Fax Number	716-542-6060
John Wargo	President	716-984-3345
Lew Wargo	VP/SEC	716-984-3340
Richard D'Arcy	Controller	716-542-1333
Jeff Crewson	Sr. Project Mngr	716-474-1214
Todd Vanderwalker	Site Supervisor	716-984-3341

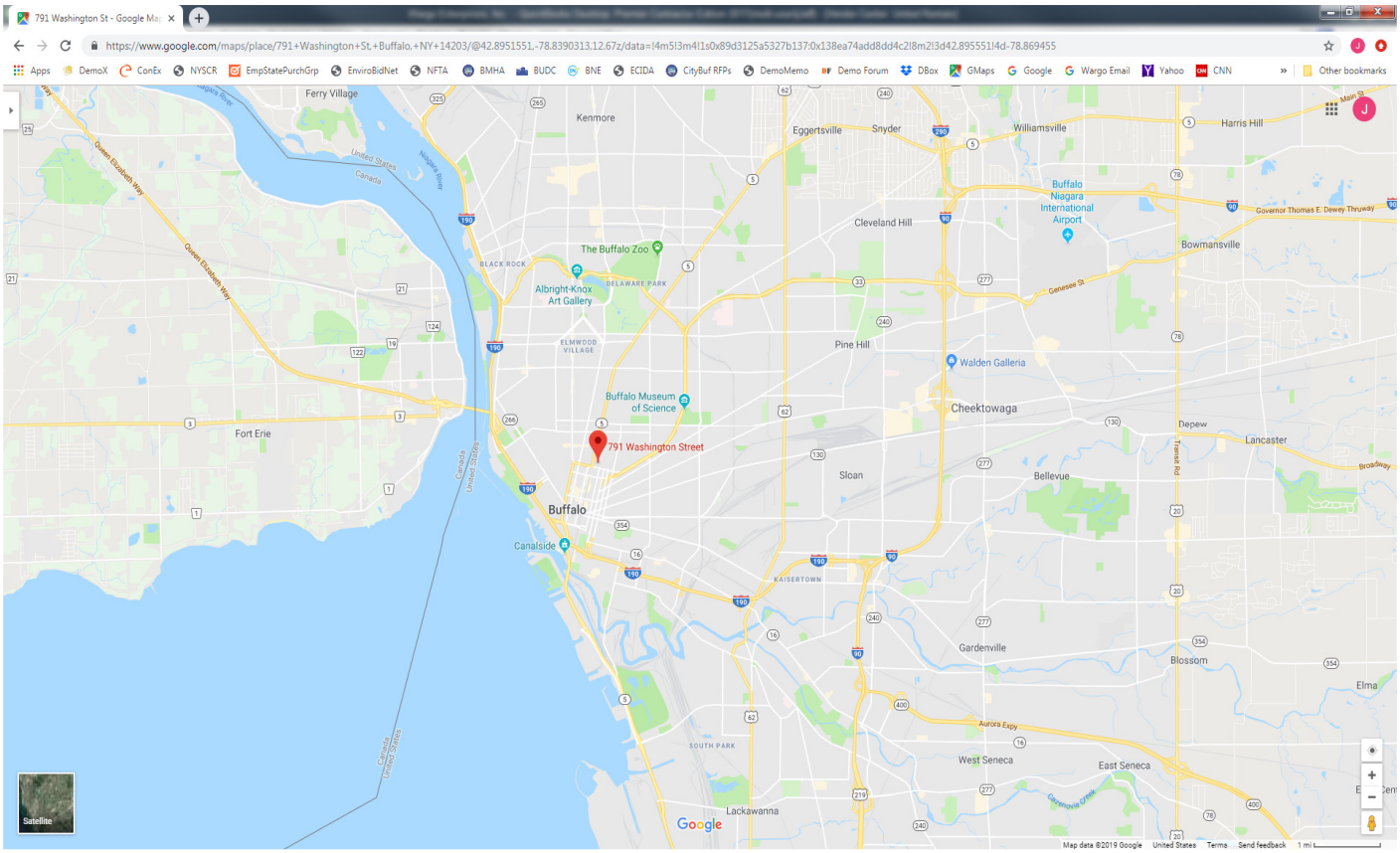
HASP Prepared By: Jeff Crewson – Sr. Project Mngr
John Wargo – President

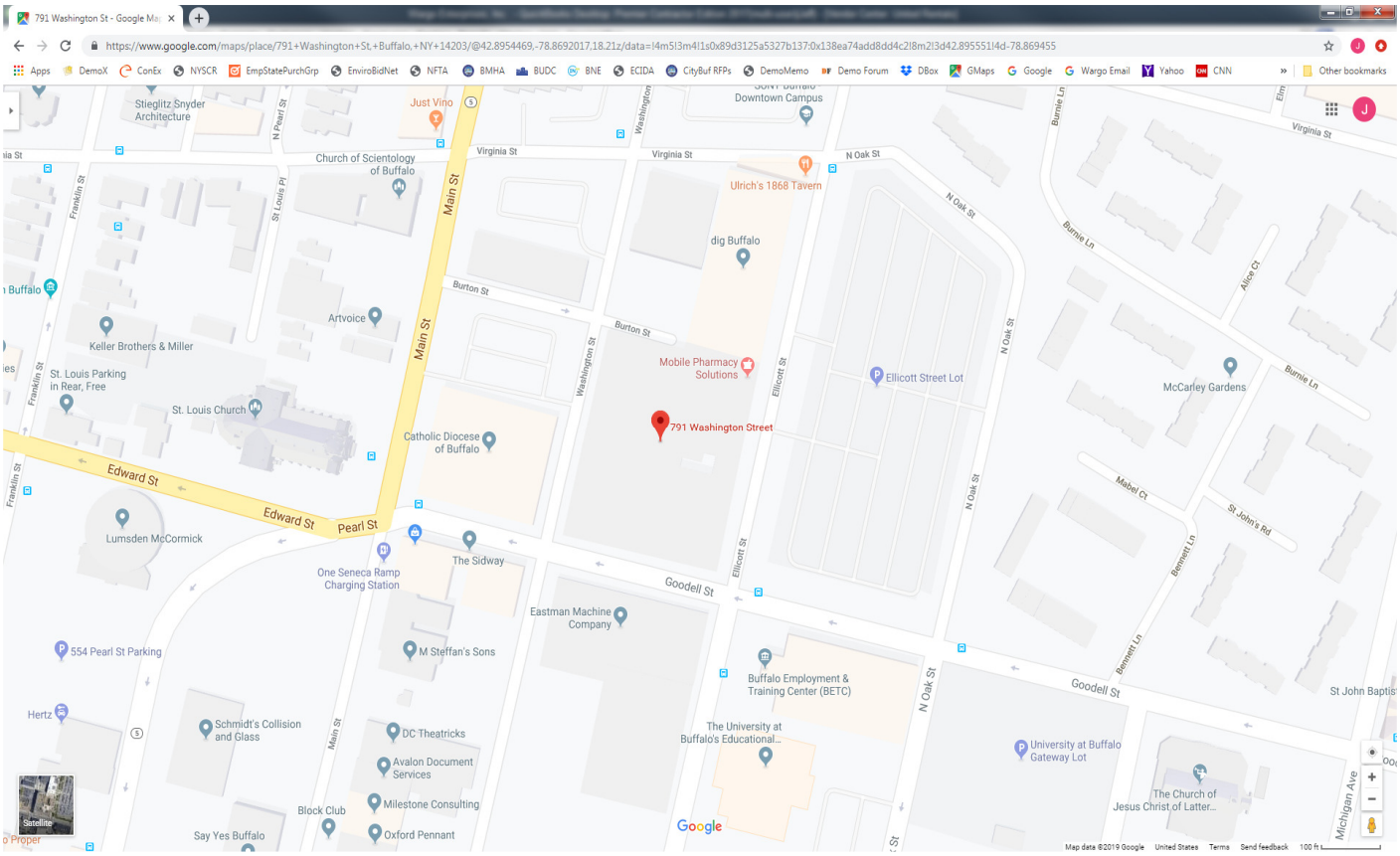
HASP Reviewed By: John Wargo – President

Krog Contacts

Tim Peters	Site Superintendent	716-818-6714

PROJECT ADDRESS & MAP:
791 Washington St, Buffalo, NY 14203

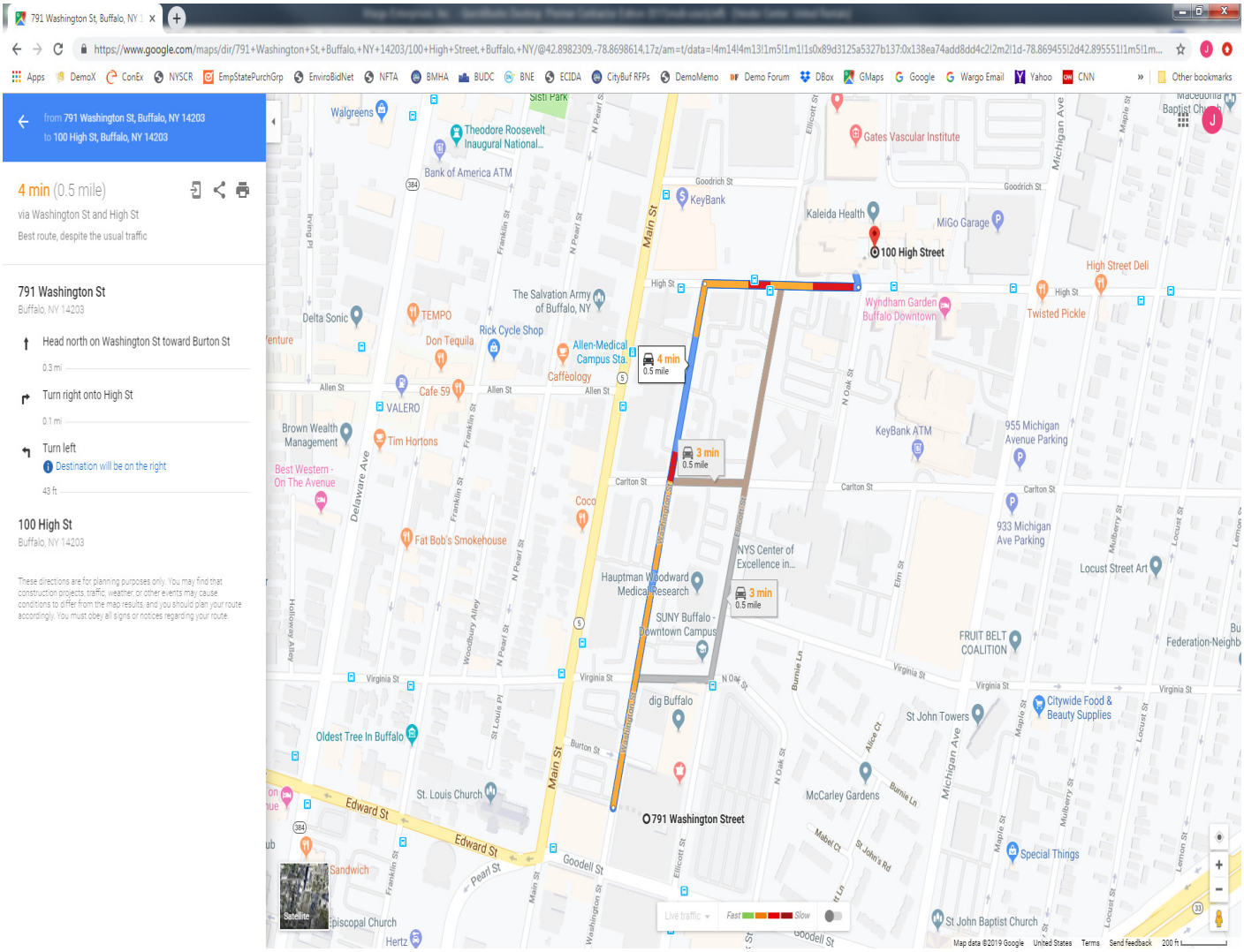




NEAREST HOSPITAL:

Buffalo General Hospital 716-859-5600
100 High St
Buffalo, NY 14203

0.5 mile away



2.0 PROJECT ORGANIZATION & RESPONSIBILITIES

Title	***Name***	***Responsibilities***
Sr. Project Mngr / H&S Coordinator	Jeff Crewson	Project Management & Implementation of HASP
President / H&S Officer	John Wargo	Overall oversight of H&S, Project Mgrs & Supervisors Overall implementation of HASP & All Daily Operations

3.0 STANDARD OPERATING PROCEDURES & WORK PRACTICES

3.1 WORK PERMITS

Work permits will be required for Hot Work and Confined Space Entry. These permits must be obtained from the Local Health and Safety Officer prior to the work. These forms are attached to this HASP under Form section.

3.2 GENERAL FACILITY RULES

The following general facility rules apply to all personnel while at the facility:

- All personnel will wear steel-toe safety boots. Hard hats will be worn when working near heavy equipment, when individuals are working overhead, or when required in the Job Safety Analysis (JSA).
- Eye protection will be worn at all times.
- Possession of illegal substances is strictly prohibited. Possession of, or consumption of, alcohol during hours of operations is strictly prohibited.
- Food and/or beverages are permitted in designated areas.
- Smoking and/or chewing tobacco are permitted in designated areas.
- Employees are expected to wear suitable clothing for the job to be performed. Tank tops, cut off shirts, or shorts are not authorized to be worn.
- Do not wear loose clothing or jewelry.
- Always walk rather than running, and avoid horseplay.
- Immediately report any injuries or suspected dangers.
- Observe all safety signs and placards where they are visible.
- Be vigilant of moving equipment, trucks, etc.
- Keep facility, both inside and out, clean and organized.
- Place things back where they belong when you take them. Everything has a place.
- Clean tools and equipment when you are finished using it, or at the end of each day.
- Park all equipment, trucks and trailers in their designated place.
- Place all implements and attachments in their designated place.
- Dispose of garbage in its designated garbage place of containment.

First Aid Kit(s) and Fire Extinguisher(s) will be available in several locations around the facility:

- Work area will be kept clean and orderly throughout the task.
- Portable eyewash bottles will be kept by Wargo in the service trucks, shop and main office.
- Fall protection will be utilized for work above six feet.
- Conduct facility inspections.
- Maintain MSDS sheets for any material located at the facility (fuel, oils, etc.).

Any revisions to the Health and Safety Plan must be reviewed and/or approved by the Health and Safety Officer or Project/Facility Manager.

3.3 TRAFFIC CONTROL PLAN

NA for this project.

4.0 TRAINING REQUIREMENTS

4.1 GENERAL TRAINING REQUIREMENTS

See Wargo's Safety & Health Training Policy attached herein.

All personnel performing activities covered by this HASP Plan must be trained in at least one, or all, of the following in accordance specific project requirements. The HSO or HS Coordinator will verify and document that all Wargo personnel meet the applicable training requirements prior to the start of the work, including but not limited to:

- OSHA 29 CFR 1926 - 10HR
- OSHA 1910.120 Initial 40HR Hazmat Training with necessary OSHA Annual 8HR Refresher Training
- NYSDOL Asbestos Supervisor or Handler
- Radiological Worker
- CSX and Norfolk Southern Railroad Worker
- At least one Wargo employee will have first aid and CPR training.
- Other certifications available on request

Wargo utilizes Interactive Safety Services (ISS) as our outside safety and training consultant led by well-known owner David Bissonette. Mr. Bissonette is a highly accomplished Health, Safety and Environmental professional, author and speaker with over twenty years of leadership experiences in diverse industrial organizations. ISS is a safety company that has a combined experience of more than 50 years in the safety and emergency management industries. Their trainers provide safety compliance training, personalized business consultations and customized presentations. The General Industry working environments vary widely and can result in a variety of risk exposures for employees. ISS specializes in identifying those exposures and assisting in the reduction or elimination of these at risk conditions through a variety of route cause tools. ISS is committed to a zero loss culture using more than 50 years of field experience and proven results. ISS has a number of Emergency Management specialists who have extensive experience and training in EMS, Fire Service and Disaster Management. They provide hands on training exercises and facilitate drills. Their proven tactics and strategies offer assistance and ideas that can be implemented into any operations plan.

Documentation for training certification will be maintained by the Local HSO. Subcontractors chosen to perform any facility activities where the potential exists for contact with contaminants must provide written documentation of HAZWOPER training for each of their employees who will be involved in activities. Documentation must be provided prior to the commencement of any work activities.

Training & Safety Affiliations: Wargo is part of ISNetworld, which is the global resource for connecting corporations with safe and reliable contractors/suppliers from several industries. ISNetworld also provides an online contractor management database. In addition, it collects health, safety, procurement, quality and regulatory information designed to meet governmental record keeping and Owner Client requirements. Through its Review and Verification Services (RAVS), ISNetworld's subject matter experts review and verify contractors' self-reported information. Contractors also use ISNetworld to manage internal training and record keeping requirements. This allows corporations to select those resources that best meet internal and governmental requirements, while providing contractors/suppliers the opportunity to centralize their conformance information, save time and gain presence in the marketplace.

Wargo Enterprises is also a member of the National Demolition Association. This Association represents more than 1,000 U.S. and Canadian companies that offer standard demolition services and related products. They provide members information on the latest advances in equipment and services as well as educational programs and tools to stay abreast of regulatory and safety matters. It helps keep regulators informed about issues in the industry while also increasing public awareness of the economic and societal benefits of demolition.

4.2 PRE-ENTRY SITE MEETING

A Pre-Entry meeting to review the Corporate Health & Safety Plan for all new personnel shall be held and documented in this HASP and in the office records. This meeting shall take place prior to the commencement of facility work activities.

A briefing shall be provided to all facility visitors who enter this facility beyond the entry point. For visitors, the briefing provides information about facility hazards, the facility lay-out including work zones, places of refuge, any emergency alarm system(s), emergency evacuation procedures, and other pertinent health and safety requirements as appropriate.

4.3 FIRST AID - CPR - AED TRAINING

At least one member of the Wargo staff shall have American Red Cross (or equivalent) First Aid, Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillator (AED) training. At least one trained individual shall be present at all times. The Local HSO Coordinator will maintain all training documentation. Portable first aid/medical units will be made available on every job site.

4.4 SUBCONTRACTOR MANAGEMENT & TRAINING

All subcontractors will be selected through a pre-qualification process. This process includes reviewing their EMR and DART; as well as, evaluating their Health and Safety program, verifying their training records and assessing their background screening processes. Subcontractors are expected to have a safety program at least as stringent as the Wargo's Health and Safety Program and are expected to adhere to applicable federal, state, and local safety regulations pertaining to their work. Site specific HASP's, SOPs, and or safety manuals may be requested from subcontractors by Wargo for review prior to allowing subcontractors to work on site.

Subcontractors hired by a Wargo subcontractor are the responsibility of the Wargo subcontractor hiring them. Wargo subcontractors are responsible for enforcing safety requirements with all their subcontractors. Subcontractors will be included in pre-job meetings or kick-off meetings, and safety orientations.

Subcontractors are solely responsible for ensuring appropriate training for their employees, agents, and lower tier subcontractor employees.

On some projects, subcontractors may be similarly affected by general site conditions and procedures, such as emergency response, and will be trained accordingly. When one site health and safety procedure can be written and be applicable to all subcontractors, Wargo may choose to prepare and institute one site procedure for Wargo and site subcontractors. For example, a large construction project with several subcontractors and several ongoing tasks may need only one procedure for emergency response. In this case, Wargo would prepare one emergency response procedure and all subcontractors would be trained on that procedure and partake in drills.

As needed, subcontractors are also required to designate competent individuals that comply with OSHA standards.

Following completion of work onsite, a Wargo competent person will conduct a post-job safety performance review. Subcontractors will be included in tailgate safety meetings, job safety analysis or hazard assessments, and on the job safety inspections. This review will analyze the performance of the subcontractor in regards to their compliance with Wargo H&S protocol.

5.0 MEDICAL SURVEILLANCE

5.1 GENERAL MEDICAL SURVEILLANCE REQUIREMENTS

All Wargo field personnel will be provided with a thorough, initial medical examination to assess fitness for the job and provide baseline health data for subsequent reference. Examinations will be repeated every other year unless abnormal test results, annual “questionnaire” answers or other problems dictate more frequent observation. During the medical examination, employees will be evaluated for their ability to wear respiratory protection and other protective equipment. This evaluation will also include an examination of the cardiopulmonary system. When indicated by the physician, other tests of the respiratory and cardiovascular systems will be performed on the basis of an individual's past history, findings of the above evaluation, and/or the type of equipment the individual may be required to use.

All personnel performing activities requiring the use of an air-purifying respirator covered by this plan must be active participants in an ongoing medical monitoring program in accordance with the requirements of 29 CFR 1910.120(f). Other contractors chosen to perform selected-facility-activities must provide written-documentation of such, for each employee who will be involved in activities at the facility, before the commencement of work.

5.2 BASELINE MEDICAL EXAMINATION

The baseline medical examination is conducted to determine whether an employee is physically and mentally suitable to perform work requirements and assignments as outlined in the job description; to provide baseline values for comparison with later test results; and to evaluate the employee's ability to utilize personal respiratory protection and other protective equipment. The baseline medical examination will include, at a minimum a:

- Medical and work history
- Physical examination, which includes vital signs and an evaluation of all major organ systems
- Audiogram
- Vision screening
- Chest X-ray, only if there was no X-ray within 12 months
- Blood chemistry screen and profile (for either DOT or non-DOT)
- Urinalysis (for either DOT or non-DOT)

5.3 ANNUAL & INTERIM MEDICAL EXAMINATIONS

Annual and interim medical examinations will be given at least every 12 months unless indicated by substandard performance, evidence of particular stress or difficulty in using personal respiratory protection, signs or symptoms of illness commonly associated with chemicals present at the site, or unprotected exposure. Employees experiencing signs and symptoms or having complaints must immediately report the problem to the HSO. Employees having abnormal test results will also be monitored and rested by the physician at intervals prescribed in appropriate federal codes (i.e., 29 CFR, 1926.52, 1910.134, 1910.1001, 1910.1025, 1910.1018, and 1910.120).

Components of the annual medical exam are similar to the baseline examination. Following the annual or interim examination, the physician will submit in writing to Wargo any medical and safety restrictions required, and the physician will inform the employee of the test results. The physician will indicate the reasons for restricting work and will submit an appropriate plan of medical supervision for any work-related illnesses or injuries.

5.4 RETURN TO WORK EXAMINATIONS

An employee desiring to return to work following a leave of absence due to injury or illness, or return to full status from a restricted work period resulting from an injury or illness will have to obtain clearance by means of a physical examination. Extent

of the physical examination will be determined by the occupational physician and will be performed at the locally established medical service provider.

5.5 ACCESS TO MEDICAL RECORDS

All Wargo employees and their designated representatives have access to their own medical records developed as part of this program. Employees must request the records in writing and specify the name, address, and telephone number of the physician who is to receive the records. Such requests are to be sent to the HSO. The Request for Medical Records Form is included in this HASP.

5.6 DRUG & ALCOHOL COMPLIANCE

See Wargo's Substance Abuse & Alcohol Policy in Exhibits section. All personnel performing activities covered by this policy must have had a negative drug and-alcohol screen performed within the last 12 months.

5.7 ACCIDENT or INCIDENT MEDICAL SURVEILLANCE

As a follow-up to a work-related injury, all employees are entitled and encouraged to seek medical attention. All accidents and potential exposures must be reported immediately to the Local HSO, who will arrange for appropriate medical attention. Depending on the type of incident, it may be critical to perform tests within 24 to 48 hours. Failure to report an injury or incident immediately will result in disciplinary action. The Wargo Incident/Injury Case Management Procedure can be found in Section 5.8. Events surrounding near-miss accidents/injuries will be recorded in the daily log and documented in accordance with the Wargo Incident Reporting Procedures.

5.8 INCIDENT & INJURY CASE MANAGEMENT

See Wargo's Illness & Injury Prevention Policy in Exhibits section.

ALL accidents, injuries, property damages or releases (Loss or Near Loss) shall be reported to a company manager or supervisor ASAP but no later than the end of the shift.

Injury Case Management is a collaborative process which:

- Helps ensure prompt, adequate, and appropriate medical care is provided
- Assesses, plans, implements, coordinates, monitors, and evaluates options
- Can minimize the impact of an impairment (resulting from potentially work-related injury or illness)
- Preserves as much as practicable the individual's functional capacity.

Medical injuries or emergencies within each field location will be managed by the following method:

- If an injury or medical condition occurs that cannot be treated by providing basic first aid to the individual, the Wargo PM and Operations Manager are notified by the Wargo Oversight person.
- Onsite, individuals who are certified in cardiopulmonary resuscitation (CPR) /First Aid will be requested to respond to the individual's location.
- Following this evaluation the Wargo HSO must be contacted regarding the individual's condition and injury management approach onsite and offsite.

Following an assessment of the individual's condition, if responding Wargo personnel feel that outside medical response personnel (emergency care) are necessary:

- The 911 emergency response system will be activated, if necessary.
- Provide the 911 emergency operator all of the information that is requested.
- The injured individual (Wargo or subcontractor employee) will be accompanied by other Wargo staff (i.e.,
- PM, HSO, Site Supervisor) so that desired injury management information will be communicated to the attending physician.

If an individual requires medical treatment beyond basic first aid, but the initial assessment determines that the individual does not require emergency care, then:

- The Operations Manager, or HSO, will be contacted PRIOR to leaving the facility, or site.
- The individual will be scheduled for an appointment at the occupational clinic near each office.
- If the injured individual is a subcontractor, then the individual will be directed to visit an occupational clinic established by the subcontracting company.
- If there is no clinic established, the individual will be scheduled at another available clinic.

The individual will be accompanied to their examination by the Wargo HSO or other Wargo manager or subcontractor management staff. Desired injury management information will be communicated to the attending physician that will include but not be limited to:

- Any required or alternative medication (over the counter medication).
- Any workplace restrictions versus lost time are discussed with the attending physician.
- The Wargo HSO will also contact the attending physician regarding the examination, diagnosis and the Wargo injury management approach.

5.9 MEDICAL & FIRE EMERGENCY

DIAL 911 - When calling for emergency, help communicate the following:

- Give the nature of the emergency.

- Give the location either by building and/or location address of the job site.
- Do not hang up the phone until told to do so by the Emergency Operator.
- Station someone near the roadway or building to direct emergency vehicles to the scene.
- Do not move injured unless absolutely necessary to prevent further injury or death.

ALL INCIDENTS, INCLUDING NEAR MISS INCIDENTS, MUST BE REPORTED TO WARGO ENTERPRISES, INC. IMMEDIATELY.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 GENERAL

The activities performed by Wargo frequently require the use of clothing and equipment that shields employees from chemical and physical hazards that may be encountered.

Use of personal protective equipment is required by OSHA regulations contained in 29 CFR 1910 and 29 CFR 1926, and is reinforced by EPA regulations in 40 CFR Part 300. These regulations include all individuals who may perform work at hazardous, or potentially hazardous, waste sites, when applicable.

In order to prescribe personal protective equipment requirements effectively, the nature and extent of potential chemical and physical hazards associated with various activities need to be assessed. Prior to mobilization, Wargo performs a detailed review of the project site. This includes a review of the site history, types and quantities of materials handled at the site, types of operations performed at the project site, and types of activities to be performed during the course of the project.

From this review, personal protective equipment is selected based on the reasonable anticipation of exposure to the chemical and physical hazard exposure potential.

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.
The level of protection worn by site personnel will be enforced by the Site Supervisor. Levels of protection may be upgraded or downgraded at the discretion of the HSO, based on real-time air monitoring data and prior site experience. Any changes in the level of protection will be documented. Levels of protection less than those designated in this HASP must first be approved by the HSO.

Proper training will be conducted to include at least, when PPE is necessary, what PPE is necessary, how to properly don, doff, adjust & wear PPE, the limitations of PPE, the proper care, maintenance, useful life & disposal of PPE. Fitting, including proper donning, doffing, cleaning, and maintenance will is also part of the training.

Retraining of the employee is required when the workplace changes, making the earlier training obsolete, the type of PPE changes or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding.

The training records must include the employee name, the dates of training, and the certification subject. These records will be kept in the main office.

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 wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.

If employee-owned equipment is permitted, the employer must be responsible for the assurances of its adequacy, maintenance & sanitation.

The hazard assessment must indicate a determination if hazards are present or are likely to be present, which necessitate the use of PPE.

Defective or damaged PPE shall not be used. Notify a project manger or supervisor immediately for replacement PPE.

6.2 LEVEL "D" PROTECTION

Level "D" PPE provides minimal protection against chemical hazards. A respirator is not required. Level "D" PPE includes:

- Cotton coveralls or long pants and a shirt with sleeves.
- Reflective safety vest or hi-visibility shirt.
- Safety glasses.
- Steel-toe/steel-shank work boots.

- Work gloves.
- Hearing protection (as required by task).
- Hard Hat (as required by task).
- Chemical resistant gloves (as required by task).

6.3 MODIFIED LEVEL "C" PROTECTION

Modified Level "C" PPE includes the items listed in Section 7.2 above, and the following items:

- Full-face AR or Half-face APR respirator equipped with the appropriate chemical cartridges.

6.4 LEVEL "C" PROTECTION

Level "C" PPE provides a higher level of respiratory and skin protection against chemical hazards than Level "D". Level "C" PPE includes the items listed in Section 7.2 above, and the following items:

- Poly-coated Tyvek (yellow) or Saranex® (shiny white).
- Steel-toe/steel-shank work boots and chemical resistant over-boots, or chemical resistant steel-toe/steel shank Boots.
- Chemical resistant inner gloves.
- Chemical resistant outer gloves.
- Seal arm, leg, and zipper joints with tape, as required.
- Half-face or full-face, air-purifying respirator equipped with appropriate cartridges.

6.5 LEVEL "A" & "B" PROTECTION

Level "A" PPE should be worn when the highest level of respiratory and skin protection is needed, or if the contaminants of concern are unknown. Level "B" PPE should be worn when the highest level of respiratory protection is required, but a lesser level of skin protection is needed. The tasks covered under this HASP do not require the use of Level "A" or "B" PPE.

Separate Health and Safety Plans will be developed for Level "A" / Level "B" investigations and for Emergency Responses, which may involve the use of Level "A" and/or Level "B" health and safety measures.

6.6 NOISE/HEARING EXPOSURE

Employees shall use hearing protection when noise levels exceed the allowable limit, or ***OSC's*** requirement of 85db TWA in an 8 hour period. Whenever noise levels are measured or anticipated to exceed a time-weighted average (TWA) Action Level of 85 decibels as measured on the A scale (dBA), worker protection against the effects of noise exposure will be provided in accordance with 29 CFR 1910.95 or 29 CFR 1926.52 as appropriate and at no cost to the employee. At times double protection may be required. Employees will be property trained on the use and cleaning of their hearing protectors.

6.7 RESPIRATORY PROTECTION PROGRAM

Respiratory protective equipment can be effective in protecting you from the inhalation of hazardous amounts of airborne contaminants. However, this effectiveness is dependent on the respirator being properly fitted, maintained in good condition and most importantly on you knowing the proper uses and limitations, if the contaminants in your work environment require you to wear a respirator, then wear it: the alternatives are not worth the risk.

As a user of respiratory protective equipment you have the right to:

- To know what hazards you are being exposed to and the reason why a particular respirator was provided.
- To be instructed in the use of the equipment.
- To be allowed to wear the equipment in a test atmosphere to check for leakage and proper fit.
- To be advised of the explanation and limitations of the equipment and
- To be instructed in the proper maintenance of the respiratory protective equipment.

RESPIRATORY PROTECTION PROGRAM

PURPOSE: Contracting has established this respiratory protection program to ensure that employees are protected from exposure to respiratory hazards in the workplace, and to ensure compliance with OSHA's Respiratory Protection Standard Employees shall not be exposed to air contaminants, -which exceed the limits detailed in OSHA Regulation CFR 1910.1000. When there is a probability of exposure to air contaminants exceeding these limits, proper respiratory protection will be required.

Engineering and administrative controls are the preferred methods of controlling hazards; however, respirators will be used under the following conditions:

- When other controls cannot adequately control hazards.
- Where other controls are infeasible.
- While other controls are being implemented.
- During emergencies.

Employees who are not required to wear respirators, but wish to do so will be permitted to voluntarily wear respirators if wearing a respirator will not create a hazard.

SCOPE & APPLICATION

This program applies to all employees who are required to wear respirators during normal operations, during non-routine tasks, or during emergencies.

Wargo will provide respirators, training, and medical evaluations as required at no cost to employees.

Employees, who voluntarily wear respirators when respirators are not required, are covered by the medical evaluation, and cleaning, maintenance, and storage elements of the program. They will also be provided with the information in Appendix B of the OSHA Standard CFR 1910.134.

PROGRAM PERSONNEL & RESPONSIBILITIES

Jeff Crewson is responsible for administering the respiratory protection program.

Program Administrator Responsibilities:

The Program Administrator has overall responsibility for the respiratory protection program. Duties include the following:

- Evaluating the workplace to identify areas, processes, and tasks that require workers to wear respiratory protection.
- Selecting the appropriate respirators.
- Conducting or arranging training.
- Conducting or arranging fit testing.
- Administrating the medical surveillance program.
- Maintaining records required by the respiratory protection program.
- Evaluating the program and its effectiveness.
- Updating the program as necessary to reflect changes in workplace conditions that affect respirator use.

Supervisors Responsibilities:

Supervisors are responsible for ensuring that the respirator program is implemented in their departments and on work sites they are supervising. Supervisor duties include the following:

- Knowing which tasks require the use of respiratory protection.
- Ensuring that the appropriate respirators and accessories are available for use.
- Ensuring that employees wear the required respirators.
- Ensuring that respirators are properly cleaned, maintained and stored.
- Monitoring areas, tasks and operations to identify respiratory hazards.

Employees Responsibilities:

Employees are responsible for properly wearing respirators when and where required. Employees' duties include:

- Putting on, fit-checking, wearing, and removing respirators according to the training received.
- Reporting to work clean shaven each day.
- Cleaning and maintaining respirators as instructed.
- Storing respirators in a clean and sanitary location.
- Reporting to their supervisor if their respirator no loner fits well, or if they experience any problems or difficulties while using and wearing respirators.
- Reporting any respiratory hazards that they feel are not adequately addressed, as well as any other concerns they have about the program.

RESPIRATOR SELECTION

The program administrator, with the assistance of a Certified Industrial Hygienist as needed, will select respirators based on hazards to which workers are exposed. A hazard evaluation will be completed for each operation, process, or work area where employees may be exposed to airborne contaminants under routine or emergency conditions. Prior to project start-up, respiratory protection required for each site task will be identified and communicated to the site supervisor.

Respirators shall be selected according to the hazard(s) to which workers are exposed, keeping in mind the physical and chemical properties of the air contaminant(s) and concentration(s) likely to be encountered.

Prior to donning the respirator, Wargo employees are required to be medically evaluated and fit- tested. After successfully passing the medical examination and fit-test respirators will be provided by Wargo and permanently assigned to employees that require their use routinely. Respirators for operations involving short-term use will be temporarily assigned to employees and returned to the superintendent upon completion of the task. They will be cleaned and properly stored for future use. Replacement air-purifying respirators will be issued when needed.

The respirators utilized by the MCS are N1OSH approved APR's (air purifying respirators), which remove particulate or gaseous contaminants, by passing ambient air through the cartridge or canister. APR's must not be used in atmospheres containing less than 19.5% oxygen by volume.

In cases where APR's are not utilized due to the presence of a hazardous atmosphere, contaminant hazards have not been identified or employee exposure and protection has not been identified or reasonably estimated, the atmosphere shall be considered Immediately Dangerous to Life and Health (1DLH). In these circumstances, a full-face pressure demand Self Contained

Breathing Apparatus (SCBA) or a combination full face pressure demand Supplied Air Respirator (SAR) with auxiliary self contained air supply will be utilized.
NOTE: Respiratory protection can be achieved through good work practices and the use of air purifying half-face or full-face respirators, provided that respirator limitations are not exceeded. In cases where the use of a SCBA or SAR is required, the employee(s) who will be required to don the respirator will receive the necessary medical evaluation, fit-testing and associated training prior to wearing a SCBA or SAR.

Respirator Approval:
Only NIOSH (National Institute for Occupational Safety and Health) and MSHA (Mine Safety and Health) approved respirators should be used. Respirators shall be utilized only for the substances for which they are designed.

MEDICAL EVALUATION
Before being permitted to wear a respirator, each employee who is required to wear one, or voluntarily wears a respirator other than a filtering face piece, will be given a confidential medical evaluation to establish that he/she is able to perform that work while wearing the respirator.
Wargo Enterprises will provide the medical evaluations through Health Works of Western New York. The office utilized is located at 6199 Transit Rd in Depew, NY 14043. Their phone number is 716-206-0390.

Methodology:
The initial medical evaluation will consist of a of the respiratory protection standard; employees will be permitted to fill out the questionnaire on company time. As necessary, the company will provide assistance in reading the questionnaire to employees who have difficulty doing so on their own.

The medical exams will be provided to employees as required by the standard, or as deemed necessary by the occupational health provider.
Any employee who asks to speak to the occupational health provider about his/her medical evaluation will be given an opportunity to do so.

The program administrator will provide the physician with the following information:
- A list of hazardous substances found in the workplace.
- The employee's work area or job title.
- Type and weight of respirator(s) the employee will be wearing.
- Potential temperature/humidity extremes.
- Type of protective clothing to be worn.
- A copy of this respirator program.
- A copy of the respiratory protection standard.

An employee who has passed the medical evaluation will be provided with a further evaluation under the following circumstances:
- The employee reports signs and/or symptoms related to the ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
- The occupational health provider or the employee's supervisor informs the program administrator that the employee needs to be evaluated.
- Information from this respiratory protection program, including observations made during fit-testing and program evaluation, indicated the need for re-evaluation.
- Change occurs in workplace conditions, such as physical effort, temperature or personal protective equipment, which may increase the physiological burden of the employee.

The examinations and questionnaires will remain confidential between the employee and the physician.

RESPIRATOR SELECTION
Respirators provide an adequate margin of safety when properly used within the range of limitations for that for that particular respirator. It is important that the proper respirator be chosen for the type of work and anticipated exposure level which the worker will normally encounter and to provide a margin of safety if unexpected exposure situations develop.

The Wargo Program Administrator, or designated person, will evaluate the potential respiratory hazards of each job site, to include: site conditions, potential contaminants and potential exposures. As necessary these people will then propose and insure implementation of engineering controls and institute a sampling program for potentially exposed employees.

Filters & Cartridges:
Filters and/or cartridges will be selected on the basis of the known or suspected contaminants for each job site. Dual purpose filter/cartridges will be used as applicable.

Respirators Selection Guidelines:
The following guidelines will be used when selecting the proper respiratory protection for potentially exposed employees:
- Half face, negative pressure, air purifying respirators can be used when anticipated exposures are less than 10 times the Permissible Exposure Limit (PEL).
- Full face, negative pressure; air purifying respirators can be used when anticipated exposures are less than 50 limes the Permissible Exposure Limit (PEL).

- Pressure demand mode or other positive pressure mode can be used when anticipated exposures are less than 100 times the Permissible Exposure Limit (PEL).
- Full face piece, self contained breathing apparatus operated in the pressure demand mode will be used when anticipated exposures are greater than 100 times the Permissible Exposure Limit (PET) or when anticipated exposures are unknown or cannot be determined.

Disposable Respirators:
It is the policy of is that disposable respirators will not be used for protection from any contaminant disposable respirators are acceptable on a job site, only when it has been proven that no respiratory hazard exists.

FIT TESTING
Employees who are required to wear respirators will be fit tested before being allowed to wear the respirators in the workplace. The fit test will be repeated annually, as well as any time an employee experiences a change in physical condition that could affect the respirator's fit (for example, obvious change in body weight, facial scarring or dentures). This is done to ensure that each employee is able to obtain a good face piece to face seal. The fit test will be performed by the respiratory program administrator following protocol to OSHA CFR 1910.134; Fit Testing Procedures.

Each employee will be tested with the make, model, and size of respirator that he/she will actually wear. Employees will be provided with several models and sizes of respirators to find the best fit powered air purifying respirators will be fit tested in the negative pressure mode.

Record Keeping:
Documentation of fit tests performed will be maintained at the main office. The records will contain information in accordance with the record keeping requirements set forth in CFR 1910.134(m). Testing remits will document the type, model and size of respirator for which each employee has been tested, as well as the fit test protocol used.
Positive and Negative Pressure Tests:
Respirator users shall be trained in how to perform positive and negative pressure tests and should use them each time the respirator is donned as a means of quickly checking respirator fit.

Positive Pressure Test:
The positive pressure test is performed, by closing off the respirator exhalation valve, using the palm of the hand and exhaling gently into the face piece. The fit is considered satisfactory if slight positive pressure can be built up inside the face piece.

Negative Pressure Test:
The negative pressure test is performed by closing off the air inlet of the respirator by covering it so that it cannot pass air, inhales gently, so that the face piece collapses slightly. Hold the breath for 10 seconds. If the face piece remains slightly collapsed and no inward leakage is detected, a suitable fit exists.

RESPIRATOR USE
Employees will use respirators under the conditions specified in the program, according to training that they receive. Respirators shall not be used in any manner for which they are not certified by NIOSH.

Each employee shall conduct positive and/or negative fit checks each time he/she puts on a respirator.
Employees shall be permitted to leave the work area to wash their faces and perform limited respirator maintenance (clean or inspect the respirator, change filters or cartridges, or replace parts) in an area that is free of respiratory hazards. The following are examples of acceptable reasons for leaving the work area:
- To prevent eye or skin irritation.
- The respirator is interfering with the employee's ability to work.
- The respirator is not functioning properly.
- The respirator is damaged.

Employees must notify their supervisor before leaving the work area. No employee may wear a tight-fitting respirator if any condition, such as facial scarring, facial hair, or missing dentures prevents him/her from achieving a good face-to-face piece seal.

Employees may not wear any apparel or hairstyles that interfere with the face-to-face piece seal.

Emergency Procedures:
Respirators are not anticipated to be utilized for emergencies either within the office, or on remote job sites. Per Wargo's Emergency Action Plan, employees evacuate in the event of emergencies, including fire, uncontrolled spill, or other chemical reaction which creates unknown respiratory hazards.

However, Wargo maintains two pressure demand SCBAS at all times. These are inspected and cleaned between users, and at the end of each day of use, and are therefore available if a site emergency requires an atmosphere supplied respirator. They are intended for use on remote job sites where chemical contaminants, or their concentrations, are known, and are utilized until atmospheric conditions can be fully characterized.

RESPIRATOR MAINTENANCE AND CARE

Wargo will ensure that employees properly clean and maintain respirators. Employees will be permitted to leave work areas to perform limited cleaning and the maintenance in an area free of respiratory hazards. Employees must inspect their respirator each day it is used for proper function, including checking inhalation and exhalation valves, face piece and wear and condition of head snaps. Rubber elastomer parts shall be inspected for pliability and signs of deterioration.

Filter, cartridge or canister life must not be exceeded. Gas and vapor cartridges must be equipped with ELSI (end of service life indicator) certified by NIOSH. When this type of cartridge is not available, they must be replaced before the end of their service life. This will be determined by the Safety Director.

Respirators permanently assigned, must be thoroughly cleaned with a sanitizing solution by the employee after each use. Respirators issued for temporary use will be cleaned when they are returned. Respirator cleaning procedures will follow the manufacturer's guidelines.

Clean respirators should be stored either in a clean bag or a .clean storage cabinet Respirators should not be stored in tool boxes, unless they are in carrying cases or cartons. Respirators must be stored properly to prevent deformation of the face piece and exhalation valve. Also, protect respirators from dust, sunlight, extreme temperatures, excessive moisture and damaging chemicals. A selection of replacement parts, cartridges and filters is available from the program administrator. Any repairs or replacement of parts must be done in accordance with the manufacturer's specifications.

When repairs are made on respirators, NIOSH approved parts must be used, which are designed for the specific respirator. Interchanging between different models will void the respirator's certification and my cause dangerous air leaks or equipment failure.

Cleaning:

- Respirators are to be regularly cleaned and disinfected.
- Respirators issued for the exclusive use of an individual employee shall be cleaned at the end of each day of use, or more often if it is necessary.
- Respirators which may be used by more than one person (for example, atmosphere supplying and emergency use respirators) shall be cleaned and. disinfected between users and at the end of each day of use.
- The following procedure will be used for cleaning and disinfecting respirators:
    - Completely disassemble the respirator, removing any filters, canisters or cartridges.
    - Closely inspect each of the components for signs of wear or damage, such bit-ad-ling, distortion, cracking, stickiness, brittleness or corrosion.
    - Immerse the face piece and all components (except filters, canisters, or cartridges) in warm water (120-130 degrees Fahrenheit) with mild soap or detergent. Do not use organic solvents.
    - Gently scrub components with a soft scrubber or bristle brush. Do not use wire brushes.
    - Rinse all components in clean warm water.
    - If disinfection is required, wipe with 70% isopropyl alcohol, or immerse all components in a respiratory disinfectant solution diluted according to the directions on the package.
    - Air dry in a clean area.
    - Reassemble the respirator. Replace any defective or worn our parts.
    - Place in a clean, dry plastic bag or other airtight container. Store away from excessive heat, cold, sunlight and chemicals. Do not place any items on top of the respirator.

Inspection:

- Respirators used for routine and other non-emergency tasks shall he inspected by the wearer at the time of cleaning and immediately before each use.
- Respirators to be used for emergencies shall be inspected monthly by the program administrator or designee.

Respirator Inspection Checklist:

- Face piece:
  - Cracks, tears, holes
  Distortion
  - Cracked, cloudy or loose lenses/face shields Sticky, tacky, brittle
  - Dirty
- Head straps or harness:
  - Broken, torn, stretched out Buckles broken, missing
- Valves:
  - Cracked, torn Sticky, tacky, brittle Missing Dirty
- Filters/cartridges/canisters:
  - Approved for the hazardous atmosphere Approval matches face piece Housing cracked or dented Gaskets missing or defective Dirty.
- Air supply systems and self-contained breathing apparatus:
  - Breathing air quality/grade
  - Hoses
  - Connectors
  - Regulators and valve settings
  - Alarms

- Self-contained breathing apparatus (SCBA):
  - Cylinder pressure
- Miscellaneous: End of service life indicators

Change Schedules:
Employees wearing air purifying respirators or powered air purifying respirators shall change the cartridges and filters according to the following schedule:

- Immediately if they experience increased resistance to breathing while wearing the respirator.
- Immediately if they detect chemical breakthrough (Le. the can taste or smell the - contaminants or experience mouth, throat, or lung irritation) or begin to experience signs and symptoms of exposure.
- At a minimum, Wargo employees will change respirator cartridges or filters one week after they were installed. To assist in determining the change schedule, employees should write the installation date on the cartridge or filter itself.

Storage:
All respirators will be stored in a dean, dry location, away from sunlight, chemicals or temperature extremes.

Defective Respirators:

- Any employee who discovers a defective respirator must immediately notify his or her supervisor or the respirator program administrator.
- Respirators which are defective or have defective parts that cannot be replaced by the employee shall be immediately taken out of service.
- Supervisors will give defective respirator(s) to the program administrator who will decide whether to repair the respirators) or discard it.

BREATHING AIR QUALITY & USE
Breathing air used in atmosphere-supplying respirators shall meet the minimum requirements for grade D breathing air described in ANSI/Compressed Gas Association Commodity Specifications for Air, G-7.1-1989.
The program administrator shall ensure the following:

- Purchased air has &certificate of analysis.
- Cylinders are tested and maintained in accordance with DOT Regulations (49 CFR Parts
- 173 and 178).
- Oxygen or air containing more than 233% oxygen is not used in compressed air systems.
- Any compressors used as a breathing air supply will be marked with a tag indicating the most recent change or servicing of the compressor and sorbent beds, signed by the person who performs the service.
- Oil lubricated compressors have high temperature alarms and carbon monoxide monitors.
- Air fittings are incompatible with all other gas fittings.

GENERAL TRAINING AND INFORMATION
Employees will receive training and information before being assigned to any task requiring the use of respiratory protection. Training will be repeated at least annually, and may be part of the annual training agenda per the Hazwoper or Asbestos standards. Classroom training may be supplemented by interoffice memorandums instructing employees about new or modified respiratory procedures. Annual training will be supplemented with additional training when:

- Changes in the workplace or the type of respirator used make earlier training obsolete or inadequate.
- The employee's use of, knowledge about, the respirator indicates insufficient understanding or skill.
- Any other situation occurs for which retraining appears necessary.

Training records will include the dates of training, employee names, the trainer's name and the type of training conducted.

Basic advisory information (Respiratory Protection Standard in this section) will be provided to employees who choose to wear respirators when respirator use is not required.
Annual Training:
Annual training will include at least the following topics:

- Why the respirator is necessary (the type of hazard and potential health effects of exposure as a result of non-use or improper use of the respirator).
- Engineering and administrative controls, if any, being used in addition to the respirator.
- How improper fit, use or maintenance can comprise the respirator's protection.
- The limitations and capabilities of the respirator, as well as reasons for selecting the particular type respirator.
- How to effectively use the respirator in emergency situations, including procedures to follow if the respirator malfunctions.
- How to inspect, put on, check the seals of wear, and remove the respirator.
- How to maintain, clean and store the respirator.
- Medical signs and symptoms that may prevent effective use of a respirator.
- Instruction to employees who voluntarily use the filtering face pieces (dust masks) when not required to do so.
- Instructions from respirator manufacturer.
- General requirements of the respiratory standard.

PROGRAM EVALUATION
Wargo will conduct periodic evaluations of the workplace to ensure that the provisions of the current written respiratory protection program are being effectively carried out, and that the program itself continues to be effective. For ease of ensuring evaluations are

conducted, the cover page of this program will note the most recent evaluation date. The following will be considered in the program evaluation:

- Respirator fit, including the effects of respirator use on workplace performance.
- The appropriateness of the respirators for the hazards to which the employees are exposed.
- Proper use of the respirators under the various conditions encountered in the workplace.
- Proper respirator maintenance. Any other factors that the program administrator considers necessary.

RECORD KEEPING

The Program Administrator will maintain the following records:

- Training and fit test records will be updated as necessary and maintained.
- Copies of the occupational health provider's written opinion as to each employee's ability to wear a respirator. However, supplemental and confidential medical records, including the completed medical questionnaire required by this standard, will be maintained by the occupational health provider.
- A written copy of this respirator program shall be maintained.

7.0 HAZARD ASSESSMENT (for facility or site)

Job Safety Analyses (JSA's) are required for all appropriate facility or site activities. Each JSA must identify and quantify the health and safety hazards associated with each task and site operation, and to evaluate risks to workers. Using this information, appropriate control methods are selected to mitigate or (preferably) eliminate the identified risks.

7.1 JOB SAFETY HAZARD ANALYSIS

The following major hazards are listed as starting points for evaluating of demolition activities and are not meant to be all inclusive or limiting:

- Struck by hazards – mobile equipment, excavators, trucks, etc.
- Struck against stationary objects and mobile equipment.
- Caught on protruding equipment parts, rebar, jagged edges, cut/torn metal, etc.
- Contact with mobile equipment, attachments, dropping/falling debris, etc.
- Caught between crushing hazards.
- Strain/overexertion – handling loads too heavy (get help) heat stress, conditions, doing by hand activities tools are designed to do.
- Fall hazards – working on elevated areas, creating or exposing yourself, or other personnel, to fall hazards due to removal of flooring, walls, holes caused by heavy equipment, etc.
- Hazards from falling walls, bricks, etc. caused by the demolition or a weakened condition of the building caused by the work activity.
- Exposure hazards – not wearing appropriate PPE for the task, failure to survey the area for hazardous conditions prior to demolition.
- Contact with live utilities directly or indirectly.
- Failure to maintain communications with all personnel working on the site. (2-way radio communications must be maintained at these times).
- Hazards from local traffic in or near the job area. May require a flagman.
- Hazards from piled salvaged timbers. Need to be sure piles are secure.
- Dust hazards from the demolition activity. Requires use of water injected air turbines to control dust. Must stay alert to downwind exposures.

For jobs that requires digging, a shoring system must be used or the sides of the dig (if over 4' deep) must be tapered 45 degrees (usually done in steps).

When loading out trucks, care must be taken with truck traffic entering and leaving the site. Also, the operator must be careful not to spill any material while loading. There is a danger of people in the area and debris should be kept clear of the trucks so as not to damage the truck or its tires.

When performing clearing work, caution must be taken for flying or snapping branches.

If using a chain saw the operator must wear chaps, hearing protection, and a hard hat with a face guard.
When loading or unloading equipment one employee should be positioned in a place to observe the entire operating area to make sure it is safe and to signal the equipment operator.

When equipment is no longer going to be used it should be put away cleaned, lubricated (if necessary) and ready for reuse.

7.2 FIRE PREVENTION PROTECTION PLAN

Inherent with torch cutting and spark producing activities is the risk of fire on or within the material being cut, around the general area of the cutting area, in adjacent buildings/floors/areas due to migration of sparks and or slag through unprotected holes, stairwells, grating, etc. Also, embers or concealed "small fires" can re-ignite into larger fires after torch cutting producing activity.

REQUIREMENTS PRIOR TO TORCH CUTTING OR SPARK PRODUCING ACTIVITIES:
Prior to any torch cutting or spark producing activities, the work area will be evaluated for fire hazards and these hazards shall be mitigated prior to starting work.

At a minimum, the following fire protection and prevention measures will be in place prior to the start of any hot operations:

- Evaluation and removal /mitigation of the work area for combustibles, flammable materials shall be removed from the work area or if they can not be removed then they shall be protected from sparks and slag with fire blankets or other suitable engineering controls as approved by the Supervisor.
- Evaluation and removal/mitigation of the work area for potential hazards that may be created as a result of fire fighting activities. Evaluate items that may cause arcing or shock if sprayed with water. Be aware of heavy accumulations of grease or oil-laden sludge that may explode or spread if sprayed with water.
- All equipment or structures to be torch cut shall be evaluated for potential "Hidden" hazards such as hydraulic accumulator tanks, residual fuels, or oils in lines, electrical conduits or wiring running through or into a component, duct work that may contain debris, which when ignited, can easily fires into adjacent areas; flues or chimneys which can conduct burning embers or sparks to rooftops or other buildings.
- Maintain a fire-watch for hot activities.
- When possible, maintain a charged fire hose in the immediate vicinity of the hot work area. There must be enough hose attached to the hydrant or water source to reach the work area and the stream shall be of sufficient strength to reach a potential fire (a fire hose is no good if the water can not reach the fire).
- At minimum, compressed water, CO2 or dry chemical fire extinguishers are to be within reach of the fire watch. Fire extinguishers are to be evaluated prior to work start, as to their suitability for materials being protected.
- There are always to be at least two types of fire prevention equipment in the area of the hot work and within reach of the fire watch.
- Proper PPE is to include standard PPE plus flame resistant coveralls, dark face shield, burning gloves and respirators (for hot work on painted and galvanized metal).
- Any fire extinguisher that has been used shall be removed from the work area and recharged prior to being placed back into service.
- Work areas shall be wet down (when feasible) prior to the start of hot work activities and at the conclusion of hot work activities.

REQUIREMENTS DURING AND AFTER TORCH CUTTING OR SPARK PRODUCING ACTIVITIES:
If a fire starts and can not be controlled during its initial stage, all work is to stop and the following measures are to be taken:

1) Dial 911
2) State the nature of the problem
3) Give the location of the problem
4) Don't hang up until told to do so
5) Send someone outside to direct additional help to the scene
6) If safe to do so, shut off all propane and oxygen supplies to torches
7) If safe to do so, relocate materials and equipment from the immediate area

Fire hoses if used, shall be shut off at the hydrants after the conclusion of fire watch activities and placed out of the way of heavy equipment or sharp objects. Routing of fire hoses into hot work areas shall also take into account traffic patterns, potential pinch points, and snags; mitigation of or protection for fire hoses shall be established in these areas.

Employer shall provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved in incipient stage fire fighting. This training will be completed by our local fire department or Wargo Enterprises outside safety consultants; who are used for other various training. The program shall address training and be conducted prior to initial project/site visit/office location and at least annually thereafter.
Employer shall ensure that all portable fire extinguishers are subjected to monthly visual inspections and an annual maintenance check. This is performed by an outside company Wargo Enterprises utilizes; who are also used by our local fire department.

7.3 EQUIPMENT INSPECTIONS

Prior to the start of every shift, operators shall perform an inspection of their equipment to verify that the equipment is in proper working order. This inspection must be documented by the operator on a daily basis. Any exceptions must be noted immediately and reported to the supervisor.

Laborers, operators and mechanics shall inspect their hand tools and equipment prior to use and at least once each shift. Any damaged equipment will be taken out of service, tagged and given to the safety manager for disposition. Broken or defective tools shall not be used.

Inspections records are to be maintained by the Job Supervisor.

7.4 CHEMICAL HAZARDS

7.4.1 Contaminant Characterization and Potential Routes of Exposure
The main routes of exposure for field personnel include:

- Inhalation of contaminant vapors;
- Inhalation of contaminated particulate matter;

- Ingestion of contaminated material;
- Dermal absorption of contaminated material; and
- Injection of contaminated material.

Site personnel can reduce their exposure potential by:
- Using the proper PPE;
- Practicing contamination avoidance;
- Following proper decontamination procedures; and
- Observing good personnel hygiene.

7.4.2 General Chemical Data

In order to protect site personnel from the hazards associated with site contaminants of concern found during projects at Wargo Sites, an Exposure Monitoring Program will be implemented to control potential chemical exposures. Section 11 contains this program along with data tables on the contaminants of concern. These tables provide information on each contaminant's characteristics, such as routes of exposure, health hazards, ionization potentials, exposure limits, etc. All hazardous chemicals brought onsite by Wargo personnel or its subcontractors will be managed in accordance with 29CFR 1910.1200 and the Wargo Hazard Communication Program. This will include: proper labeling, an inventory list of all hazardous materials brought onsite, and a copy of each chemical's Material Safety Data Sheet (MSDS) will be maintained on-site. See Wargo's HAZCOM plan with all MSDS Sheets.

7.5 PHYSICAL HAZARDS

A variety of physical hazards may be present, but these hazards are similar to those associated with any field project.

7.5.1 Slips/Trips/Falls/Cuts
- Utilize proper housekeeping practices, such as removal of debris and tools from the work area to keep the area clear of trip hazards.
- Use caution tape or barricade fencing where warranted keeping unauthorized personnel from entering the work area.
- Replace manhole covers securely to prevent tripping and vehicle accidents.
- Use hose cutters when cutting piping.
- Walkways and work spaces will be kept clear of cords, hoses, pipes, etc. that cause trip hazards.
- If trip hazards cannot be removed from the work area, they shall be taped down and cones shall be placed to identify the hazard.

7.4.2 Excessive Noise
- Use hearing protection during loud mechanical operations such as drilling, Geo-probing and excavating operations, inside a remedial shed when equipment is operating loudly or in other high decibel situations in accordance with the Wargo Hearing Protection Policy.

7.5.3 Airborne Particulate (ears, eyes, nose, mouth, inhalation)
- Eye protection is to be worn at all times on site.
- Respiratory protection is to be worn when site activities cause excessive particulates, such as performing carbon change-outs.

7.5.4 On-Site Traffic
- Safety vest shall be worn and safety cones placed around the worksite as specified in the Wargo Traffic Control Procedures.
- Use caution tape or barricade fencing where warranted keeping unauthorized personnel from entering the work area.

7.5.5 Ladder Safety
- Ladders must be inspected prior to use. Any damaged ladder will be discarded immediately.
- Painted ladders are forbidden.
- Never stand on the top step of the ladder.
- Extension ladders must extend 36" beyond work area.
- Pitch ladders at a 4:1 ratio.
- Extension and straight ladders must be tied off.
- Fall protection must be worn when working at heights six (6) feet or more above ground.
- Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond the manufacturer's rated capacity.
- Ladders shall be used only for the purpose for which they were designed. Never use ladder in a horizontal position or as scaffolding, do not place ladders on top of boxes, barrels, crates, etc.

7.5.6 Air Compressor
- Eye protection is to be worn at all times on site.
- Hot steam will burn skin upon contact.
- Use proper pressure relief valves before performing O&M on an air compressor.

7.5.7 Electrical

- Inspect all electrical equipment and extension cords prior to use.
- All electrical circuits-and-equipment must be grounded in accordance with the NEC regulations.
- Spark producing equipment is not to be used in operating remedial system sheds.
- Lockout/Tagout procedures will be in effect if equipment is to be repaired. Refer to the Wargo Lockout Tagout Procedures for full details.
- Use three-pronged plugs and heavy-duty extension cords.
- A GFCI is required when using an extension cord.
- Workers must not have wet hands or be standing in water while plugging/unplugging energized equipment.
- Plugs and receptacles will be kept out of water (unless they are approved for submersion).

7.5.8 Power Tools

- Equipment will be inspected for defects prior to use.
- Eye protection is to be worn at all times on site.
- Employees using tools that may subject their hands to an injury, such as cuts, abrasions, punctures, or burns will wear protective gloves.
- Loose or frayed clothing, dangling jewelry, or loose long hair will not be worn when working with power tools.
- A GFCI will be used with all power tool operations.
- Shielding or guarding will be in effect if applicable.

7.5.9 Back Strain

- Utilize proper lifting procedures when loading and unloading heavy equipment. Bend down at the knees rather than bending the back. Use a mechanical lifting device or a lifting aid such as hand carts, drum dollies or lift gates when lifting heavy objects.

7.5.10 Site Security

- Do not permit anyone who is not properly trained and outfitted with the appropriate PPE to enter the Exclusion or Contamination Reduction Zones (this includes Wargo personnel, clients, etc.)
- Use caution tape or barricade fencing where warranted to keep unauthorized personnel from entering the work area.
- On sites where it is believed that security is an issue, two employees will be used for all field work. The "buddy-system" will be in place and the two employees will be in constant communication and within each others line of sight. There will be a cellular phone available to call 911 if a violent condition presents itself.
- When acts of violence occur or when an employee(s) feels that they are being placed in a threatening position they must immediately leave the site.
- All potential acts of violence or threats by non-Wargo personnel must be immediately reported to the Site Operations Manager and the Local Health and Safety Officer. The situation will be discussed to determine future action on the site in question.
- If any Wargo employee notices suspicious persons or activities in a Wargo office or in the vicinity of a work area, he or she should immediately report the observation to his or her supervisor or Site Operations Manager.

7.5.11 Biological Hazards (insects, snakes, poisonous plants and animals)

- Do not touch or contact poisonous plants, such as poison ivy/poison oak.
- If available, apply an over-the-counter barrier cream to prevent contact with plant oils.
- Wash hands and arms immediately with soap and water if skin contacts the plants.
- Wear long pants with socks pulled over legs to prevent skin contact with plants and insects.
- Inspect yourself carefully for insects or ticks after being outdoors.
- Spray any wasp/hornet nests with an insect repellant from a safe distance recommended by the product's manufacturer.
- Do not antagonize snakes or wild animals.

7.5.12 Heat Stress

- Know and recognize the signs and symptoms of heat-related illnesses, as follows:
  Heat cramps
  - Heat exhaustion:
    Cool, moist, pale, or flushed skin
    Headache
    Nausea
    Dizziness, weakness and exhaustion
  - Heat stroke:
    Red, hot, dry, skin
    Changes in consciousness
    Rapid, weak pulse
    Rapid, shallow breathing
- Adjust work schedules to provide time intervals for intake of juices, juice products and water in an area free from contamination.

7.5.13 Cold Stress

- Know and recognize the signs-- and symptoms- of old-related illnesses, as follows:

- Frostbite:
    - Lack of feeling in the affected area
    - Skin that appears waxy, is cold to the touch or is discolored (flushed, white, yellow or blue)
- Hypothermia:
    - Shivering
    - Numbness
    - Glassy stare
    - Apathy
    - Loss of consciousness

- Have appropriate clothing available and dress in layers to protect against cold weather.
- Adjust work schedules to provide sufficient rest periods in a heated area for warming up during operations conducted in cold weather.

7.5.14 Fall Hazards

- OSHA-approved man-lifts and ladders will be used for access to elevated locations.
- Employees must wear a safety belt with a lanyard attached to the boom or basket when working from a man-lift.
- If the elevated location is inaccessible by a man-lift, CHSSE shall be contacted to determine the appropriate fall protection.
- Complete details are found in the Wargo Fall Protection Program.

7.5.15 Hot Work

- A hot work permit will be completed prior to the start of the work.
- The Site Supervisor will conduct a safety briefing on hot work rules and procedures, and all hot work participants will sign the permit.
- Hot work will not be performed if there is a possibility of an explosive atmosphere or an oxygen-enriched atmosphere.
- The Site Supervisor will designate a person for fire watch duty, who will have access to a properly rated fire extinguisher and will remain on-duty for one-half hour after the hot work is complete.
- All hot work equipment will be inspected daily, prior to use. If the equipment is found-to-be-defective, it will be removed from the site, or tagged with a "Do Not Use" sign until it is repaired.
- All welding and cutting personnel will be trained in the safe operation of their equipment.
- Assigned fire watchers must be trained in the use of fire extinguishing equipment and familiar with the facilities for sounding an alarm in the event of a fire.
- If the object being welded or cut cannot be moved immediately, all fire hazards should be removed, as applicable.
- If the object being welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards, shields or fire blankets shall be used to confine the heat, sparks and slag to protect the immovable fire hazards.
- Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints not listed here shall have proper ventilation or respiratory protection.
- Equipment operators must report any defects in equipment and discontinue its use until such repairs have been made. Repairs shall be made only by qualified personnel.

7.5.16 Trenching – Shoring - Excavations

- For exposure to public traffic, all employees shall be provided reflective vests as part of the daily required PPE.
- Underground installation locations shall be pre-determined before commencement of any excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours, or cannot establish exact location of these installations, the employer may proceed, provided the employer does so with caution and provided detection equipment or other acceptable means to locate utility installations are used. Wargo Enterprises will wait for verification from the utility companies to ensure our employees safety.
- All trenching excavations shall have ramps, ladders, stairs, etc.; as a means of egress. This egress must be within 25 feet of lateral travel for employees. In the event of water infiltration, or rain/weather conditions, employees must be protected from water accumulation, including the use of shields, and must be inspected by a competent person before work begins.
- Among the many of the project manager's duties, they also include: inspections prior to entry, atmospheric testing, removal of workers if conditions dictate.
- Upon excavation, or trenching, accommodations should be made for protect against falls. The use of a temporary "railings" should be installed for additional protection to the employees and the public.
- All employees should be vigilant of work being performed for a given excavation. Under no circumstances shall an employee work under loads of digging equipment where these loads have the potential to fall or collapse.
- Prior to commencement each work day, and during the course of the work day, the project manager should examine the possibility of cave-ins, failures or protective systems, etc. If problems are found, provisions should be made for immediate personnel removal. Prior to excavation, adequate tests should be conducted for air contaminants to include but not limited to oxygen, flammable gases, etc. and provide ventilation where necessary.
- Soil and Ground Conditions also need to be considered for all excavations and trenching. Soil classifications must be determined by testing and protective systems designed according to soil classifications.
    - "Cemented Soil" means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.
    - "Cohesive Soil" means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive

soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

- "Dry Soil" means soil that does not exhibit visible signs of moisture content.
- "Fissured" means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.
- "Granular Soil" means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.
- "Layered System" means two or more distinctly different soil or rock types arranged in layers. Miraculous seams or weakened planes in rock or shale are considered layered.
- "Moist Soil" means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.
- "Plastic" means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.
- "Saturated Soil" means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or sheer vane.
- "Soil Classification System" means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the characteristics of the deposits and the environmental conditions of exposure.
- "Stable Rock" means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
- "Submerged Soil" means soil which is underwater or is free seeping.
- "Type A" means cohesive soils with an unconfined, compressive strength of 1.5 ton per square foot or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:
  - The soil is fissured; or
  - The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or
  - The soil has been previously disturbed; or
  - The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or
  - The material is subject to other factors that would require it to be classified as a less stable material.
- "Type B" means:
  - Cohesive soil with an unconfined compressive strength greater than 0.5 sqft but less than 1.5 sqft ; or
  - Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.
  - Previously disturbed soils except those which would otherwise be classed as Type C soil.
  - Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or
  - Dry rock that is not stable; or
  - Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.
- "Type C" means:
  - Cohesive soil with an unconfined compressive strength of 0.5 sqft or less; or
  - Granular soils including gravel, sand, and loamy sand; or
  - Submerged soil or soil from which water is freely seeping; or
  - Submerged rock that is not stable, or
  - Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.
- "Unconfined compressive strength" means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.
- "Wet soil" means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

- Classification of soil and rock deposits. Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C.
- Basis of classification. The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses shall be conducted by a competent person using tests described in paragraph (A) below, (3) Visual and manual analyses. The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of this appendix, shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

- Layered systems. In a layered system, the system shall be classified in accordance with its weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer.
- Reclassification. If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumstances.
- (A) Acceptable Visual and Manual Tests:
  (1) Visual tests. Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.
    - Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.
    - Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.
    - Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.
    - Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.
    - Observed the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.
    - Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.
    - Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

  (2) Manual tests. Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.
    - Plasticity. Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as 1/8-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of 1/8-inch thread can be held on one end without tearing, the soil is cohesive.
    - Dry strength. If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered un-fissured.
    - Thumb penetration. The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488 - "Standard Recommended Practice for Description of Soils (Visual - Manual Procedure).") Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.
    - Other strength tests. Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.
    - Drying test. The basic purpose of the drying test is to differentiate between cohesive material with fissures, un-fissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:
      (i) If the sample develops cracks as it dries, significant fissures are indicated.
      (ii) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as an unfissured cohesive material and the unconfined compressive strength should be determined.
      (iii) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

7.5.17 Forklift & Equipment Operation and Certification

- Employees are required to be trained and certified prior to operating each specific type of equipment.
- Formal instruction includes lecture, discussion, interactive computer learning, videos, and written materials. Practical training involves instructor demonstrations and trainee exercises. Operator evaluation - critiques required.
- Company will provide a qualified trainer that will have the knowledge and ability to teach and evaluate operators. Training will include, but not limited to, operating instructions, controls, capacity/stability, refueling, load stability and any additional pertinent information for the safe operation of that equipment.

- Refresher training shall be provided if or when an accident has occurred, unsafe operations are observed, if operation a different vehicle type, changes in conditions, etc.
- Operators are required to be re-evaluated by a qualified person every two years.
- All equipment shall be examined before being placed in service. Such examination shall be made at the start of every shift. Defects when found shall be immediately reported. The equipment is to be placed out of service immediately until repaired by a qualified person.
- All employees are expected to follow these rules for safety:
  - Check all fluids prior to starting equipment. Document any fluids that are low or need to be changed.
  - Be aware of your surroundings while operating equipment. Be aware of your swing radius.
  - Clean any trash out of any equipment you have used.
  - Clean any mud out of any equipment you have used.
  - Clean the tracks on all equipment at end of each day.
  - Trailers must be chocked and secured.

7.5.18 Trucks and Trailers

- All employees are expected to follow these rules:
  - Always wear a seat belt when driving, or riding in, a company vehicle.
  - Do not use cell phones, or any other device, while driving a company vehicle.
  - Check all fluids prior to starting any truck. Document any fluids that are low or need to be changed.
  - Check to make sure all lights are working properly.
  - Check to make sure license plates are on the truck.
  - Grease trucks and trailers when you have used them.
  - Be sure to hang up chains and binders where they belong.
  - Clean any trash out of any truck you have used.
  - Clean any mud out of any equipment you have used.
  - Fuel the trucks up at the end of each day when you bring it back.
  - Be honest if you have broken something, whether small or large. Anything that you break, you need to tell a manager, whether it is a machine, an attachment, a tool, etc. Fill out a "Damaged Tool Sheet" found in the office, or the shop desk. It cannot be repaired if it is not known that the item is broken. Do not create a problem for the next employee who may go to use that broken item, as it just might be the owner. Take responsibility for your actions.
  - If a properly licensed employee transports a piece of equipment, that employee is responsible to ensure they have the proper paperwork/permits from the office if the equipment is oversized.
  - If a properly licensed employee transports a piece of equipment, that employee is responsible to ensure they have properly and legally secured their load.
  - If a properly licensed employee transports a piece of equipment that is not owned by Wargo Enterprises, Inc., that employee must fill out a Wargo Enterprises, Inc. Ticket found in each truck. This ticket is utilized for invoicing purposes.
  - Park trucks where all other trucks and trailers are parked. If you are unsure then simply ask. Specific parking area allows for full video surveillance 24-7 of the trucks and trailers.

7.5.19 Cranes

- Crane must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the crane manufacturer's specifications for adequate support and degree of level of the crane are met.
- When assembling and disassembling crane, the manufacturer's procedures and prohibitions must be complied with when assembling and disassembling crane.
- The assembly/disassembly of crane must be directed by a competent and qualified person.
- 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 crane up to the maximum working radius. The hazard assessment must determine if any part of the crane could get closer than 20 feet to a power line.
- If it is determined that any part of the crane, 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:
  1) Ensure the power lines have been de-energized and visibly grounded
  2) Ensure no part of the crane, load line or load gets closer than 20 feet to the power line
  3) Determine the line's voltage and minimum approach distance
- A competent person must conduct a visual inspection of crane prior to each shift. The inspection must consist of observation for apparent deficiencies. Some inspection items shall include control mechanisms, pressurized lines, hooks and latches, wire rope, electrical apparatus, tires (when used), and ground conditions.
- Crane must be inspected monthly by a competent person. The inspection must be documented. Documentation must include the following: items checked, results of inspection, and name and signature of the inspector. Documentation must be retained for 3 months. Documented monthly inspection not required if the daily inspection is documented and records are retained for 3 months.
- Safety devices are required to be on all cranes and must be in proper working order before operations begin. If any of the devices are not in proper working order the crane must be taken out of service and operations must not resume until the device is working properly again. Examples of safety devices may include: crane level indicator, boom stops, jib stops, foot pedal brake locks, horns, etc.

- All manufacturer procedures applicable to the operational functions of crane, including its use with attachments, must be complied with.
- The operator shall have access to procedures applicable to the operation of the crane. Procedures include rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions and operator's manual.
- 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.
- A signal person must be provided for the following situations:
    1) The point of operation is not in full view of the operator
    2) The view is obstructed when the crane is traveling
    3) The operator or the person handling the load determines it is necessary due to site specific concerns
- Safety measures to be used when the crane has the potential to strike and injure an employee or pinch/crush an employee against any other object is as follows:
    1) Stop work immediately
    2) Assess situation. Ensure emergency care is provided immediately if an employee is inured due to crane.
    3) Once situation under control, gather employees to discuss what was cause of injury, if there was one, and how to prevent in the future.
- Only those employees qualified by training or experience shall be allowed to operate crane and machinery. Employers must ensure operators be qualified/certified by one of the following methods:
    1) Certification by an accredited crane operator testing organization
    2) Qualification by an audited employer program
    3) Qualification by the U.S. military
    4) Licensing by a government entity
- The manufacturer must approve all modifications/additions in writing. A registered professional engineer must be qualified with respect to the crane involved, and must ensure the original safety factor of the crane is not reduced.
- All individuals using rigging with the crane shall be trained in rigging handling and safety and must a competent person.

7.5.20 Aerial Lifts

- Only authorized persons shall operate an aerial lift.
- Aerial lifts may be "field modified" for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any equivalent entity.
- 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.
- An approved fall restraint system shall be worn when working from an aerial lift.
- An approved fall restraint system shall be attached to the boom or basket when working from an aerial lift and is not permitted to be attached to adjacent poles or structures.
- Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition. 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.
- Boom and basket load limits specified by the manufacturer shall not be exceeded.
- 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.
- For lines rated 50 kV. or below, minimum clearance between the lines and any part of the equipment or load shall be at least 10 feet. If the aerial lift is insulated for the voltage involved, and the work is to be performed by a qualified person.

7.6 FALL PROTECTION PROGRAM

PURPOSE: To provide safety standards specifically designed to cover fall protection on Wargo Enterprises job sites in compliance with 29 CFR 1926, Subpart M.

- To plan work activities ahead of foreseeable fall hazard occurrence.
- To provide regular training to Wargo Enterprises employees on the use, inspection, and limitations of fall equipment capabilities.
- To provide swift rescue of fallen workers suspended from their equipment.

SCOPE: This program applies to all Wargo Enterprises job-sites. A fall protection check-list is to be completed weekly to insure compliance with this program.

POLICY: Wargo Enterprises, Inc. is dedicated to the protection of its employees from on-the-job injuries. All employees of Wargo Enterprises have the responsibility to work safely on the job.

When fall hazards cannot be eliminated through design and engineering controls such as OSHA compliant work platforms / hand-rail systems, the fall arrest systems discussed in this program must be used to control falls.

Wargo Enterprises shall conduct 100% tie-off measures, which will include the use of two lanyards. Workers will attach the second lanyard clasp to a new anchorage point prior to removing the clasp from the original work area anchorage point.

Personal fall arrest systems, when stopping a fall, shall be rigged such that an employee can neither free fall more than 6', nor contact any lower level.

The on-going monitoring of a fall protection system is an important responsibility because it is easy for the system to lose its integrity almost immediately, even as it is first used. Careless installation, unnecessary abrasion to ropes or cables, and improper hook-up are the key factors facing supervision of a fall protection system.
Since the fall protection system is composed of various parts, capability of the individual pieces must be insured. Non-professional fall protection equipment has no place in an organized fall protection program.

Without job safety planning and training, supervision and enforcement of the fall protect program will become lax. The responsibility for the planning and training of this program is shared by the site supervisor, foreman, and Wargo. The company has ultimate responsibility administering and documenting this program. The responsibility for the proper use and acceptance of the program is with the work force. The potential for an employee fall accident is the number one hazard in the construction industry. In order to reduce this potential, both supervision and the work force must function together as a team for fall protection.

The fall protection program for a site specific project shall be prepared by a qualified person.

All employees must be vigilant and keep clear of loads about to be lifted or suspended for safety.

PERSONAL LIFELINE SYSTEM
The following represents the several different parts, which comprise the portable lifeline system designed to arrest the fall of one person. This system must be used by each Wargo Enterprise employee who is working at an elevated level in which the potential exists for a free fall of longer than six feet.

Anchoring Points: The critical requirement in all fall protection, is the anchor point. It is the position of an independent structure to which the fall arrest device or lanyard is securely attached. The current OSHA requirement of an anchorage is 5,000 pound minimum static load strength. A fixture point above head height should be planned where feasible.

Examples of suitable anchorage points include structural steel (I/H beam) supports, lifts rings, and beam clamps. Non-structural steel such as door hinges and handles are not to be used.
Tag Lines: Tag lines shall be used unless its use creates an unsafe condition.

Horizontal Lifeline: A horizontal lifeline is an anchorage cable designed to be rigged between two fixture anchor points on the same level which are independent of the work surface. The purpose is to provide a continuous anchorage point for the attachment of lanyards and/or retractable lifelines when no supporting steel or existing structure anchorage points are available. Care must be taken to insure the following factors: able type lifelines must be at least one-half inch in diameter and capable of supporting a 5,000 pound deadweight load per person at the center of the lifeline; Anchorage points must also be capable of supporting 5,ooo pounds per employee attached; A minimum safety factor of 2:1 is required; The cable must have an adequate degree of sag; support every 20 to 50 feet; And sufficient shock absorption and designed strength of at least twice the force calculated for the dynamic fall of an anticipated number of workers who may use the line. Extremely careful engineering is required for all horizontal lifelines.

Body-Harness: A Body Harness is the only safety support authorized to be worn by Wargo Enterprises employees with a fall protection system. The body harness should be nylon or web belt system designed to spread the shock load of an arrest fall over the shoulders, thighs, and seat area. The D-ring must be positioned on the upper back straps, will it will also provide a practical means of raising or lowering the wearer in a rescue operation. Wargo Enterprises policy requires the Body Harness must be used in all fall protection applications where the potential for a free fall of more than (6) feet is possible.

Lanyard: The lanyard is a short flexible rope, steel cable or strap webbing, having a minimum strength of 5,000 pounds, which is used to connect a worker's safety harness to either an anchorage point or lifeline. The lanyard is designed to absorb the shock of a free fall of up to 6 feet. The "Shock absorber" lanyard used by Wargo Enterprises is typically a web-tearing system, which activates during the fall arrest to absorb the energy developed.

Self-Retracting Lifeline Devices: The self-retracting lifeline devices, which do not automatically limit free fall distance to two feet or less, must be capable of sustaining a minimum load of 5,000 pounds. For those devices that do not restrict the fall limit to 2 feet or less, the lanyard must be capable of withstanding a load of 3,000 pounds when fully extended. These portable, self contained devices are fixed to an anchorage point above the work area. The lifeline rope, webbing or cable is attached directly to the worker's safety harness. NOTE: Since this device is an enclosed, self-retracting mechanism, consideration should be given to the fact that requirements for inspection and maintenance will be much greater and more difficult than other fall protection systems.
Hardware Connections: This consists of bolts, shackles, D-Rings, snap hooks, and metal links, which connect parts of the lifeline system together. Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used.

NETS
Nets can provide passive fall protection.

Personal Nets: Personal nets should be used where large areas are exposed at heights of 25 feet or more. Net usage, installation and testing must comply with OSHA Standard in 29 CFR 1926.105.

Debris Nets: Debris nets are designed to catch falling debris, and to protect workers and the general public. Mesh openings on these nets are much smaller than on the personal nets. Nets must be cleared of debris on a regular basis to help insure a falling workers safety.

RESCUE PLANNING

When a project will require the use of fall protection systems for employees, pre-planning of the project must include methods for prompt rescue of employees in event of a fall.

EMPLOYEE TRAINING

Since falls are a major source of job-site injury, instruction in fall protection must be an important part of employee training. Training is key to the successful use of any emergency fall protection system.

Emergency fall protection equipment must be safe, reliable, visible, simple to operate and thoroughly familiar to the workers whose lives may depend on it. Periodic formal training with the actual equipment is absolutely necessary and it must include, how to conduct daily inspections of equipment, how the belts are to be put on and taken off, how the lanyards and snap hooks are used, the proper hook-up methods, anchoring and tie-off techniques, the limitations of the system, and how to clean and store the equipment.

In general inspections and cleaning of fall protection equipment should follow manufactures instructions, the manufactures instructions are reviewed as part of the training applications.

Documented certification records must be maintained and show the following:

- Employees/personnel trained – to include training dates.
- Employees/personnel signature to acknowledge training.
- Signature of person providing training & date of training.

Re-training shall be provided when the following takes place:

- There are deficiencies in current training.
- Work place environment changes.
- Fall protection systems or equipment changes that prove all previous training to be obsolete.

Accident investigations must be conducted to evaluate the fall protection program for potential updates to practices, procedures or training in order to prevent reoccurrence.

INSPECTION AND USE

Prior to first time usage, a qualified / competent person, together with the persons who will be using the equipment, must make a detailed inspection of the fall protection program and its equipment in order to be sure that it meets the requirements of the job and is acceptable by the workers. This type of inspection must be repeated at regular intervals as part of a maintenance program.

Users must be informed that they are required to conduct visual inspections at least once a day, and any indication of tearing rubbing, weather corrosion, dry rot, damage, cuts, pinched, etc., will be sufficient cause to have the equipment immediately removed from service and destroyed. Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe.

Upon inspection, all defective equipment must not be used and must be removed from service/use immediately. Rigging equipment not in service/use must be removed from the immediate work area not to present a hazard to employees.

Rigging equipment must not be loaded beyond its recommended safe working load. Identification markings, indicating rated capacity for the type(s) of hitch(s) used, angle upon which it is based, and number of legs if more than one, shall be permanently affixed to the rigging.

All fall protection systems and/or equipment shall meet ANSI, ASTM or OSHA requirements.

Safety Harness Inspection: Beginning at one end, holding the body side of the harness toward you, grasp the harness with your hand six to eight inches apart. Bend the harness into an inverted “U”. The surface tension resulting will make damaged fibers or cuts much easier to see. Any broken, cut or burned stitches will be readily seen. Inspect for loose, distorted or broken grommets. Rivets should be tight and unmovable with the fingers.

Lanyard and Hardware Inspection: When inspecting lanyards begin at one end and work to the other end. Slowly rotate the lanyard so the entire circumference is checked.

Snap Hooks: Snap hook-latching mechanisms must be inspected carefully for corrosion, dirt, damage, or abuse.

CLEANING OF EQUIPMENT

Wipe off all surface dirt from the harness with a sponge dampened in plain water. Wipe the entire harness and hang freely to dry. Do not place in excessive heat.

Basic care of the harness and lanyard will prolong the life of the unit and contribute toward the performance of its vital safety function. Proper storage and maintenance after use are as important as cleaning. Storage areas should be clean, dry and free of exposure to fumes or corrosive elements.

RESTRICTIONS
Safety harness lanyards and lifelines are to be used only for employee fall protection and for absolutely no other use. Once used to arrest a free fall, regardless of distance, the fall protection equipment involved must be immediately removed from service and destroyed to insure that they can never be re-used.

7.7 CONFINED SPACE ENTRY PROGRAM

To provide Wargo Enterprises, Inc. employees with clear and consistent procedures when working in or around confined spaces. These procedures, along with training requirements, are intended to assist users in understanding the hazards and corresponding safe work practices in "confined space" environments.

All employees must be trained prior to the assignment, prior to any change in the assignment, if an additional hazard has been created or any other special deviations have occurred.

The following must be adhered to before any confined space is entered:

- Entry into a confined space is prohibited without approval of the Project Manager.
- Confined space activities must be performed by at least two persons. At least one person must remain outside of the confined space area at all times during entry and exit. There will be only person at each confined space area. This person will not cover multiple confined space areas/entry.
- The project manager, or designee, is responsible for informing the employees of the existence, location, and dangers known to be present in the workplace. A danger sign or other equally effective means may be used to identify permit-required confined spaces.
- A written Confined Space Entry Permit is required for safe entry of permit-required confined spaces.
- Provisions must be implemented for pedestrian, vehicle & other barriers as needed to protect confined space entrants from any external hazards. This will vary based upon site/project conditions and must be implemented by the Entry Supervisor.
- Entry Supervisor shall also be responsible to verify that all conditions in the permit space are acceptable for entry during its duration.
- Monitoring of the space must inform the entrants of the potential hazards and results; they must participate in the permit review and signing. Ventilation must be used & testing must be conducted before entry & during work.
- Radio's for communication must be onsite and readily available for use if a rescue is needed.

DEFINITIONS
Attendant: an individual stationed outside a permitted space who monitors the authorized entrants.

- Know the hazards. In the case of the attendant, this can often include using air monitoring equipment to keep a close watch on the atmospheric conditions inside the confined space and communicate any changes observed.
- Know the behavioral effects of the hazards.
- Be able to identify the authorized entrants.
- Remain outside until relieved.
- Communicate with entrants through out the work period.
- Monitor and evacuate entrants if necessary.
- Summon rescue, if needed.
- Warn away unauthorized persons.
- Warn away unauthorized persons.

Authorized Entrant: an employee who is authorized to enter a permit space.

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 includes all three of the following:

- 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, silos, storage bins, hoppers, vaults, and pits).
- Is not designed for continuous employee occupancy.

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

Engulfment: the surrounding and effective capture of a person by a liquid (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.

Entrant: The person who passes through the opening into a permit required confined space.

- Know the hazards associated with confined space entry, and in particular, the hazards associated with the space being entered.
- Know how to use all required equipment.
- Know the procedures for communication with the attendant.
- Know how to alert the attendant of hazardous or prohibited conditions.

- Know how to exit the space if necessary (that is, self rescue).

Entry: the action by which a person passes through an opening into a permit-required 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 Supervisor: the person (such as the project manager, lead man, foreman) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

- Know the hazards.
- Verify safe entry conditions.
- Terminate entry and cancel permit.
- Verify availability and effectiveness of rescue services.
- Remove unauthorized persons.
- Ensure acceptable entry conditions are maintained.

Note: An entry supervisor also may serve as an attendant as long as that person is trained and equipped as required by this section for each role filled. Also, the duties of entry supervisor may not be passed from one individual to another during the course of an entry operation. It is the responsibility of the Project Manager to identify/authorize entry supervisors.

Hazardous Atmosphere: an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability of self-rescue (that is escape unaided from a permit 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.
- Airborne combustible dust at a concentration that meets or exceeds its flammable limit.
- *Note: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.*
- Atmospheric oxygen concentration below 19.5% percent or above 23.5% percent.
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G. Occupation Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances of this part and which could result in employee exposure in excess of its dose or permissible exposure limit.

Host Employer: the owner of a confined space who arranges to have Wargo Enterprises employees or subcontractors perform work that involves permit space entry.

Isolated: the process by which a permit 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.
Non-Permit Confined Space: a confined space not classed as a permit required confined space.

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

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a 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.

Responsible Party: individual responsible for the activities and employees assigned to a specific building, office, plant, or other location. This person may be an employee responsible for shift work or an employee responsible for an entire building. This person will be specific to each location and shall be determined by the most senior employee at the specific location i.e. project manager, construction manager, etc.

Retrieval Systems: 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 permit spaces.

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

Note: Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to and during entry.

<u>GENERAL PROCEDURES</u>
A Wargo Supervisor is responsible for implementing the program when necessary and is responsible for:

- The responsible party or designee will evaluate the workplace to identify confined spaces that are going to be, or may be entered.
- Ensuring the evaluations will be recorded on the Confined Space Evaluation Form.
- Upon the review of the Confined Space Evaluation Form, the Project Manager will categorize the confined spaces into permit-required confined space or non-permit confined spaces.

- Prior to entry, the entry supervisor will have the employees review and initial the Confined
- Space Evaluation Form.
- For entry into permit required spaces the Confined Space Entry Permit and Confined Space Evaluation Forms must be posted at a confined space during entry operations.
- The entry supervisor shall re-evaluate changes in the use or configuration of confined spaces as follows:
    - The reevaluation will be documented on the Confined Space Evaluation Form.
    - A permit-required space may be reclassified as a non-permit confined space under the following conditions:
    - If the permit space hazards have been eliminated without entry, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated. Use of forced air ventilation does not constitute elimination of the hazard.
    - The procedure for reclassifying these spaces will be in accordance with 29 CFR 1910.146(c) (7). The steps taken to comply with OSHA Part 90 will be documented and certified in writing by the Plant Manager or designee.
    - If a hazardous atmosphere is detected during entry, the entrants shall leave the space immediately and will not be permitted to reenter until the space has been reevaluated and the cause has been determined and protective measures implemented.
- This confined space entry procedure must be available to the employee via the entry supervisor or Project Manager.
- Coordination of entry operations for multiple companies will be the responsibility of the Entry Supervisor. This will alleviate the potential of an employee(s) of one company to endanger the employee(s) of any other company.
- Employees, or their representatives, are given an opportunity to request the space be re-evaluated at any time for safety.

PERMIT REQUIRED CONFINED SPACE PREPARATION

Prior to any entry into a permit space, a Confined Space Evaluation Form must be submitted to the responsible party (or designee) for approval. The entry supervisor is responsible for implementing the pre-entry preparations listed on the Confined Space Evaluation Form and the following before authorizing entry:

- Notify the appropriate rescue companies. Advance notice of 24hours is the required to ensure a rescue team will be available.
- The approved Confined Space Evaluation Form must be reviewed in order to plan for the entry.
- The entry supervisor must record the pre-entry preparations listed on the Confined Space Evaluation and Entry Permit forms.
- The entry team members must review the Confined Space Evaluation Form and Confined Space Entry Permit before entry operations begin. Every member of the entry team must confirm that pre-entry preparations listed on the Confined Space Entry Permit have been made by initialing the Confined Space Entry Permit.

USE

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the Confined Space Entry Permit or one work shift, whichever is less.

At the time of entry, the completed forms will be posted at the entry portal in a conspicuous location or made available by any other equally effective means.

Entry Termination: The entry supervisor will terminate the entry operation when either of the following apply:

- The entry operations covered by the Confined Space Entry Permit have been completed.
- A condition that is not allowed under the Confined Space Entry Permit arises in or near the permit space.

Procedure Review: When there is reason to believe that the measures taken under the permit space program are not protective, the entry operations will be reviewed by the entry supervisor. The project manager will be notified if deficiencies are found. The entry supervisor will correct the Deficiencies.

The following circumstances are examples of when a review of the permit-required confined space program is warranted:

- Unauthorized entry into a permit space.
- Detection of a hazard not covered by the permit.
- Detection of a condition prohibited by the permit.
- Occurrence of an injury or near miss during entry.
- A change in the use or configuration of a permit space.
- Employee complaints about the effectiveness of the program.

Authorization: The following provisions are required before entry into a permitted confined space can be authorized:

- Completion of the Confined Space Evaluation Form.
- Written approval on the Confined Space Evaluation Form by the Project Manager.
- Review of the Confined Space Evaluation Form and the Confined Space Permit Form by each member of the entry team.
- The Confined Space Permit Form initialed by each member of the entry team.
- Written authorization by the entry supervisor.

Testing and Monitoring: Continued safe entry conditions will be maintained through testing and monitoring of the confined space. Such a program will require the attendant to visually monitor the continued isolation of physical hazards and to test for hazardous atmospheres. The following procedures will be used to monitor the entry:

- The confined space will be tested initially (pre-entry) as directed by the entry supervisor to determine if acceptable entry conditions exist.
- Conditions within the confined space will be monitored with the following frequency:
  - Entry conditions will be monitored periodically for isolated confined spaces.
  - Entry conditions will be monitored continuously when it is infeasible to isolate the space because it is too large or is part of a continuous system (such as a sewer).
  - The minimum monitoring frequency will be performed in accordance with the Confined Space Evaluation Form.
  - Monitoring frequency must be sufficient to determine if acceptable entry conditions are being maintained during entry operations.
- When entries involving a descent into atmospheres that may be stratified are monitored, the atmospheric envelope should be tested a distance of 4 feet in the direction of travel and to each side.
- When duties involving hot work (welding, cutting, open flame, etc.) are performed, an atmospheric envelope of 30 feet radius from the point of operation shall be tested for explosive vapors immediately before the hot work is performed. Fuel tanks are not permitted in the permit space.
- The results of all monitoring must be documented on the Confined Space Entry Permit.

ALL ENTRANTS MUST BE TRAINED PRIOR TO ENTRY

- Knowing the hazards that may be faced during entry, including mode, signs, or symptoms and consequences of exposure.
- Knowing the proper use of monitoring, venting, communications, and personal protective
- equipment; lighting barriers; shields, ladders and other ingress/egress equipment; and rescue and emergency equipment.
- Communicating methods with attendant to allow the attendant to monitor entrant status and to enable attendant to alert entrant of need to evacuate.
- Alerting procedures from entrant to attendant when the entrant:
  - Recognizes warning sign or symptom of exposure to dangerous situation.
  - Detects any prohibited condition.
- Exiting When:
  - Ordered to by attendant/entry supervisor.
  - Entrant recognizes any warning sign/symptom of exposure to dangerous situation.
  - Entrant detects a prohibited condition.
  - An evaluation alarm is activated.

PERMIT RECORD KEEPING

The original completed permit for each permit space entry will be kept in the facility/site filing system, labeled (Confined Space Entry Permits). These permits will be kept for at least the one-year as required by the OSHA Permit-Required Confined Spaces standard.

The following procedures will be followed:

- Copies of the permits must be submitted to the Project Manager as soon as possible after an entry operation is terminated.
- The permit records will be reviewed by the Project Manager to determine if the employees participating in entry operations are protected from the permit space hazards.
- Deficiencies in the program will be corrected by revising these procedures.

RESCUE AND EMERGENCY SERVICES

Use 911 for rescue during a permit-required confined space entry: Rescue service must be on-site for immediate action to life and health conditions while work is being performed.

Rescue requiring entry will be performed by the organization(s) listed above. These rescue arrangements are required to be noted on the Confined Space Evaluation Form. If a material safety data sheet is required to be kept at the worksite, it must be easily accessible at all times.

Rescue retrieval systems or methods will be used to facilitate non-entry rescue whenever entrants enter a permit space, unless the retrieval system would increase the risk of entry or would not contribute to the rescue of the entrants. Prior to entry, the entry supervisor will review with the entry team the proper use of the retrieval system. Retrieval systems shall meet the following requirements:

- Entrant shall use a chest or full body harness, with a retrieval line attached at the center of the back near the shoulders or above the entrant's head.
- Wristlets may be used if it can be demonstrated that the use of a harness is infeasible or
- creates a greater hazard, and that wristlets are the safest and most effective alternative. The demonstration must be documented on the Confined Space Entry Permit.
- The other end of the retrieval line is attached to a mechanical device or fixed point in such a manner that the rescue can begin as soon as possible.
- A mechanical device (manual, non-motorized) shall be used to retrieve personnel from a vertical space more than 5 feet deep.

During entry, the attendant or entry supervisor will be immediately available to render first aid or cardiopulmonary resuscitation.

Training: Only trained employees will be authorized to participate in a confined space entry. Classroom or field training will be provided to Wargo Enterprises employees who have the potential to participate in a permit space entry. Training will be designed to:

- Establish proficiency in duties.
- Provide the understanding, knowledge, and skills necessary to perform duties.
- Introduce new or revised procedures.

Training will be provided:

- Before the employee is first assigned duties.
- Before there is a change in their duties.
- Whenever there is a change in permit space operations that presents a hazard for which an employee has not previously been trained.
- Whenever there is reason to believe either that there are deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

Training in the hazards and entry duties that are specific to the permit space about to be entered will be provided by the entry supervisor prior to entry. Training will usually take place in the form of a "toolbox meeting." Verification of training will be documented on a training sign in sheet.

Review of the confined space permit program, referencing the canceled permits retained within 1 year after each entry, will be conducted to see if revisions to the program as necessary, to ensure that employees are protected.

7.8 LEAD EXPOSURE CONTROL PLAN

WARNING - Removing lead-containing paint without proper controls can generate lead dust. Lead enters the body when the dust is inhaled or ingested (swallowed). Once it is in the bloodstream, lead can be carried throughout the body. Lead exposure can cause a number of health effects, including weakness, headaches, stomach cramps, muscle and joint pain, and memory problems.

HEALTH HAZARDS FROM LEAD EXPOSURE

- Lead interferes with many body processes and is poisonous to most organs and tissues, including the bones, intestines, kidneys, nervous system, and reproductive organs.
- Acute lead poisoning (high exposure over a short period of time) can cause fatigue, anemia, constipation, and damage to the nervous system.
- Chronic lead poisoning (exposure over a longer period of time) can cause fatigue, joint pain, and weakness.
- Lead poisoning can damage the fetus in pregnant female workers, and impair fertility in male workers.
- Workers are exposed to lead when they inhale lead-containing dust or ingest lead residue from their hands (for example, when eating, chewing gum, or smoking).

PURPOSE & RESPONSIBILITIES

- Wargo Enterprises, Inc. has a duty to protect our workers from lead exposure during the removal of lead-containing paints and coatings. Studies show that these operations generate airborne lead dust well in excess of safe levels. Effective controls are available to protect workers from harmful exposure.
- 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 lead exposure control plan (LECP), are followed at our worksites.
- The work procedures we establish will protect not only our workers but also any other workers on-site who are not involved in these operations.

EMPLOYER RESPONSIBILITIES

- The employees should be informed of the specific nature of the operations which could result in exposure to lead above the action level, the purpose, proper selection, fitting, use, and limitation of respirators, engineering controls, purpose and a description of the medical surveillance program and the medical removal program.
- Warning signs must be posted in the work area where the PEL is exceeded for safety to others.
- Ensuring that the materials (for example, tools, equipment, personal protective equipment [PPE]), and other resources (for example, worker training) are readily available to fully implement and maintain this LECP.
- Ensuring that supervisors and workers are educated in the hazards of lead exposure, and trained to work safely during the removal of lead-containing paints and coatings.
- Ensuring that workers follow the requirements of the Occupational Health and Safety Regulation.
- Maintaining written records of training (for example, proper use of respirators), fit-test results, crew talks, and inspections.
- Conducting an annual review (or more often if conditions change) of the effectiveness of the LECP.
- Coordinating work with the prime contractor and other employers to ensure a safe work environment.

SUPERVISOR RESPONSIBILITIES

- Providing adequate instruction to workers on the hazards of lead exposure.
- Selecting and implementing the appropriate control measures.
- Ensuring that workers using respirators have been properly trained and fit-tested, and that the results are recorded.
- Ensuring that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls and wear the necessary PPE.
- Immediately correcting unsafe acts and conditions.

WORKER RESPONSIBILITIES

- Participating in all required health and safety education and training.
- Using the assigned protective equipment in an effective and safe manner.
- Following established work procedures as directed by the supervisor.
- Reporting any unsafe conditions or acts to the supervisor.
- Reporting to the employer any exposure incidents or any signs or symptoms of lead illness.

HAZARD IDENTIFICATION & RISK ASSESSMENT

- Lead-containing paints can contain anywhere from 0.009% to 50% lead by weight. Studies have shown that removal of paint with a lead content as low as 0.06% can generate airborne concentrations of lead that approach the occupational exposure limit.
- Removing lead-containing paint without the use of proper controls and PPE can expose workers to levels of airborne lead dust that are above the exposure limit listed in the Regulation.
- Unprotected workers or other persons may be exposed to the hazards of lead. All lead work locations will be enclosed by barriers or barrier tape and identified with signs or placards.

EXPOSURE LIMIT

- No employee should be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air averaged over an 8-hour period.
- The occupational exposure limit (OEL) for inorganic lead is 0.05 milligrams per cubic metre (mg/m^3).
- Because lead is a suspected human carcinogen and linked with cancer in animals, workplace exposures must be reduced to levels that are As Low As Reasonably Achievable (ALARA) below the OEL.
- 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.
- Affected employees shall be notified of the results of any monitoring performed within 15 working days, either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the permissible exposure limit, in the written notice shall be included a statement that the permissible exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

LEAD DUST CONTROLS

- Regulations require employers to select lead dust controls based on the following hierarchy:
  - Engineering controls (for example, barriers, enclosures, general ventilation, local exhaust ventilation)
  - Administrative controls (for example, wash stations, separate eating and changing areas, and limiting the time workers are exposed to lead)
  - Personal protective equipment (such as respirators and disposable coveralls)
- Respirators will be used in conjunction with other controls to reduce worker exposure to lead, unless air monitoring information suggests otherwise.
- A HEPA vacuum will be used for cleanup and decontamination as necessary.

ACCEPTABLE CONTROL METHODS FOR REMOVING LEAD-CONTAINING MATERIAL

- The work methods in the following table are acceptable, provided that the respirator selection, dust suppression, and other controls are adhered to.
- The following control options will be used to eliminate or reduce the risk to workers from the hazards of lead dust exposure, unless air monitoring information suggests otherwise.

Work activity	Dust suppression	Other controls	Respirator type
Manual (hand) sanding or scraping	• Peeling paint will be misted with water before scraping. • Debris will be misted before sweeping or vacuuming. • A HEPA vacuum will be used to remove debris.	• Disposable drop sheets will be placed below the work area. • Barriers (for example, a tape barrier) will be installed to restrict access to the work area. • Signs will be posted at every entrance to the work area. • Workers will use disposable coveralls.	• NIOSH-approved single-use N95, N99, or P100 respirator • Half-face respirator with HEPA P100 series filters
Manual scraping using heat guns	• The heat gun temperature must be kept as low as practicable. • Debris will be misted before sweeping or vacuuming. • A HEPA vacuum will be used to remove debris.	• Disposable drop sheets will be placed below the work area. • Barriers (for example, a tape barrier) will be installed to restrict access to the work area. • Partial or full enclosures will be constructed around work areas where significant removal will take place. • Where full enclosures are required, they will be equipped with HEPA-filtered mechanical ventilation. • Signs will be posted at every entrance to the work area. • Workers will use disposable coveralls.	• Half-face respirator with HEPA P100 series filters
Manual scraping using a chemical stripper	• Debris will be misted before sweeping or vacuuming. • A HEPA vacuum will be used to remove debris.	• Disposable drop sheets will be placed below the work area. • Barriers (for example, a tape barrier) will be installed to restrict access to the work area. • Signs will be posted at every entrance to the work area. • The work area will be ventilated with a continuous supply of fresh air for the workers. *continued on next page* • Partial or full enclosures will be constructed around work areas where significant removal will take place. • Where full enclosures are required, they will be equipped with HEPA-filtered mechanical ventilation. • Workers will use disposable coveralls. • Methylene chloride products will not be used. • Additional PPE (for example, gloves and goggles) may be required as recommended by the MSDS for the chemical stripper.	• Half-face respirator with HEPA P100 series/organic vapour cartridges • Additional respiratory protection may be required as recommended by the MSDS for the chemical stripper
Removing paint using powered hand tools	• Tools equipped with a HEPA-filtered dust collection system will be used. • Debris will be misted before sweeping or vacuuming. • A HEPA vacuum will be used to remove debris.	• Disposable drop sheets will be placed below the work area. • Barriers (for example, a tape barrier) will be installed to restrict access to the work area. • Signs will be posted at every entrance to the work area. • Workers will use disposable coveralls.	• NIOSH-approved single-use N95, N99, or P100 respirator • Half-face respirator with HEPA P100 series filters

Work activity	Dust suppression	Other controls	Respirator type
	• Tools without a dust suppression system will be used. • Debris will be misted before sweeping or vacuuming. • A HEPA vacuum will be used to remove debris.	• Disposable drop sheets will be placed below the work area. • Partial or full enclosures should be constructed around work areas where removal will take place. • Where full enclosures are required, they should be equipped with HEPA-filtered mechanical ventilation. • Workers will use disposable coveralls.	• Full-face elastomeric respirator equipped with P100 HEPA cartridges, or • Powered air-purifying respirator (PAPR) equipped with P100 HEPA cartridges

SAFE WORK PLANNING

- Establish a barrier or full enclosure around the work zone to restrict access by unprotected workers (full enclosures may require negative-pressure ventilation through a HEPA filter).
- Inspect all dust control equipment and tools to make sure they are in good working order.
- Use and maintain all tools and equipment as specified by the manufacturer. For example, test the effectiveness of HEPA filters using dioctyl phthalate (DOP) testing or similar means at least annually, and any time a HEPA filter is replaced in a vacuum cleaner or ventilation system.
- When working on a multiple-employer site, provide the general contractor with a copy of the lead exposure control plan and safe work procedures. Review the procedures and work schedule with the general contractor to determine whether additional measures are required to reduce worker exposure to lead.
- Ensure that workers inspect their respirators before start-up.

RESPIRATORY PROTECTIVE EQUIPMENT

- Each worker will be fit-tested if a respirator is required.
- If a worker is required to wear a respirator that requires an effective seal with the face for proper functioning, the worker must be clean-shaven where the respirator seals with the face.
- When the worker notices a notable resistance to breathing, the respirator filters must be replaced.
- Respirators will be used, cleaned, and stored in accordance with the respiratory protection program.

OTHER PERSONAL PROTECTIVE EQUIPMENT & HYGIENE

- Work in on possible lead containing metal should only be done with the proper PPE (half or full face respirator with HEPA cartridge). Gloves, hats, vented goggles, shoes or disposable shoe covers shall be provided. Protective clothing shall be cleaned and laundered at least weekly. Clothing shall also be properly disposed and repaired or replaced as necessary. PPE is provided by company at no cost to the employee.
- Workers should change from street clothes to work clothes (including footwear) at the beginning of their work shift.
- Street clothes should be kept separate from work clothes.
- Washing (and shower, if required) facilities should be located between “clean” changing areas and “dirty” work areas.
- Workers should remove contaminated outer work clothing and thoroughly wash their hands and faces before eating, drinking, or smoking.
- No eating, drinking, smoking, chewing gum, or nail biting should be allowed in the work area.
- No food, gum, cigarettes, or other personal items should be stored in the work area.
- Coffee and lunch breaks should be taken in a clean area separate from the work area.
- Workers should remove all work clothes and shoes at the end of the work day and leave them at work.
- Workers should wash (or shower) before leaving work to ensure that any potential contamination is removed before they go home.
- Workers should not take any contaminated items home, as this may expose family members to lead.

HOUSEKEEPING PROCEDURES

- Dry sweeping and the use of compressed air are prohibited for removing dust and debris containing lead. Work areas and equipment covered by dust will be cleaned at the end of every shift using a HEPA-filtered vacuum.
- Wet cleanup may also be used to remove dust.
- Waste material will be placed in a dumpster, and will be removed at least weekly. The location and method used to store waste will not allow lead-containing dust to re-enter the workplace.
- Supervisors are responsible for ensuring that work areas are free from dust at the end of each shift.

WORKER TRAINING FOR LEAD EXPOSURE

- Training will be performed by the employer. All potentially affected employees are required to attend initial and annual training programs. This is covered in company's annual HAZWOPPER Refresher course.
- Records of attendance, dates of training, and training material will be documented and retained.
- Additional training or reference material on lead exposure will be made available to employees upon request.
- Training topics:

- Health hazards of lead exposure
- Engineering controls and safe work practices used to protect workers
- The importance of proper equipment control and maintenance
- Housekeeping procedures
- Proper use of respirators and the respirator program
- Personal hygiene procedures to reduce exposures
- The details of the exposure control program for lead

MEDICAL SURVEILLANCE

- A health monitoring program (including the collection and analysis of blood samples) will be implemented, under the supervision of an occupational physician, for projects more than one week in duration.
- Medical examinations & procedures shall be performed by or under the supervision of a licensed physician. The medical surveillance is provided without cost to the employees. Also see Medical Surveillance Section in this HASP. Blood sampling & monitoring should be conducted every 6 months until two consecutive blood samples & analysis are acceptable. The sampling & monitoring should be performed at least monthly during the removal period. Any employee with elevated blood levels should be temporarily removed. Employees should be notified in writing within five days when lead levels are not acceptable.

ANNUAL REVIEW

- This LECP will be reviewed at least annually and updated as necessary by the employer.

7.9 RESPIRABLE CRYSTALLINE SILICA

PURPOSE

This Respirable Crystalline Silica Program was developed to prevent employee exposure to hazardous levels of Respirable Crystalline Silica that could result through construction activities or nearby construction activities occurring on worksites. Respirable Crystalline Silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. It is intended to meet the requirements of the Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153) established by the Occupational Safety and Health Administration (OSHA).

All work involving chipping, cutting, drilling, grinding, crushing, demolition or similar activities on materials containing Crystalline Silica can lead to the release of respirable-sized particles of Crystalline Silica (i.e. Respirable Crystalline Silica). Crystalline Silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of Crystalline Silica. Many materials found on constructions sites include Crystalline Silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.) and others. Consequently, this program has been developed to address and control these potential exposures to prevent our employees from experiencing the effects of occupational illnesses related to Respirable Crystalline Silica exposure.

SCOPE

This Respirable Crystalline Silica Program applies to all employees who have the potential to be exposed to Respirable Crystalline Silica when covered by the OSHA Standard. The OSHA Respirable Crystalline Silica Construction Standard applies to all occupational exposures to Respirable Crystalline Silica in construction work, except where employee exposure will remain below 25 micrograms of Respirable Crystalline Silica per cubic meter of air (25 µg/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

RESPONSIBILITIES

Wargo Enterprises firmly believes protecting the health and safety of our employees is everyone's responsibility. This responsibility begins with upper management providing the necessary support to properly implement this program. However, all levels of the organization assume some level of responsibility for this program including the following positions.

Wargo will conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an employee's exposure will be above 25 µg/m3 as an 8-hour TWA under any foreseeable conditions

Select and implement into the project's ECP the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.

Ensure that all Project Managers, Site Managers, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.

Maintain written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.

Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.

Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.

Project Manager/Site Superintendent Responsibilities:

- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.
- Assist in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.
- Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.
- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company's Respiratory Protection Program. This process will be documented.
- Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.
- Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

Competent Person and/or Site Manager (Superintendent, Foreman, etc.) Responsibilities:

- Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.
- Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.
- Notify the Project Manager and/or Safety Department of any deficiencies identified during inspections in order to coordinate and facilitate prompt corrective action.
- Assist the Project Manager and Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

Employees Responsibilities:

- Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.
- Use the assigned PPE in an effective and safe manner.
- Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program.
- Report any unsafe conditions or acts to the Site Manager and/or Competent Person.
- Report any exposure incidents or any signs or symptoms of Silica illness.

DEFINITIONS

If a definition is not listed in this section, please contact your supervisor. If your supervisor is unaware of what the term means, please contact the Competent Person or your Safety Department.

Action Level means a concentration of airborne Respirable Crystalline Silica of 25 µg/m3, calculated as an 8-hour TWA.

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.

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 monodispersed 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 the employer's current operations.

Permissible Exposure Limit (PEL) means the employer 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.

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 the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.

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.

REQUIREMENTS
Specified Exposure Control Methods

When possible and applicable, Wargo will conduct activities with potential Silica exposure to be consistent with OSHA's Construction Standard Table 1. Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA's Construction Standard Table 1 have fully and properly implemented the engineering controls, work practices, and respiratory protection specified for the task on Table 1 (unless Wargo has assessed and limited the exposure of the employee to Respirable Crystalline Silica in accordance with the Alternative Exposure Control Methods Section of this program).

The task(s) being performed by Wargo identified on OSHA's Construction Standard Table 1 is/are: Select any/all of the following that apply:

Table 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	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	None
2a	Handheld power saws (any blade diameter) when used outdoors	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	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	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.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	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	None
4a	Walk-behind saws when used outdoors	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	None
4b	Walk-behind saws when used indoors or in an enclosed area	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.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	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	None
6	Rig-mounted core saws or drills	Use tool equipped with integrated water delivery system that supplies water to cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
7	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	None
8	Dowel drilling rigs for concrete for tasks	Use shroud around drill bit with a dust collection system.	N95 (or Greater	N95 (or Greater

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	performed outdoors only	Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	Efficiency) Filtering Facepiece or Half Mask	Efficiency) Filtering Facepiece or Half Mask
9a	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.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	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.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	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.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
11	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-separator or filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	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.	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	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	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	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-separator or filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
13a	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.	None	None
13b	Walk-behind milling machines and floor grinders	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	None
14	Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) 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 to suppress dust. Operate and maintain machine to minimize dust emissions.	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	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	None
16	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	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
17a	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.	None	None
17b	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	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18a	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.	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

When implementing the control measures specified in Table 1, Wargo 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 (e.g., MERV-16 or better); and
- Has heating and cooling capabilities.

Where an employee performs more than one task included on OSHA's Construction Standard 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

Alternative Exposure Control Methods apply for tasks not listed in OSHA's Construction Standard Table 1, or where Wargo cannot not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

First, Wargo will 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 in accordance with either the Performance Option or the Scheduled Monitoring Option.

Performance Option – Wargo will 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

Wargo will 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, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, Wargo will plan to monitor a representative fraction of these employees. When using representative monitoring, Wargo will 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, Wargo will probably 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, Wargo will 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, Wargo will 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, Wargo will 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 Wargo will probably discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required. Wargo will 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 Wargo has any reason to believe that new or additional exposures at or above the Action Level have occurred.

Wargo will ensure that all Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual and the samples are evaluated by a qualified laboratory.

Within five working days after completing an exposure assessment, Wargo will 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, Wargo will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

Where air monitoring is performed, Wargo will 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, Wargo will provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

Once air monitoring has been performed, Wargo will determine its method of compliance based on the monitoring data and the hierarchy of controls. Wargo will use engineering and work practice controls to reduce and maintain employee exposure to Respirable Crystalline Silica to or below the PEL, unless Wargo 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, Wargo will nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

In addition to the requirements of this program, Wargo will comply with other programs and OSHA standards (such as 29 CFR 1926.57 [Ventilation]), when applicable where abrasive blasting is conducted using Crystalline Silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain Crystalline Silica.

CONTROL METHODS

Wargo will provide control methods that are either consistent with Table 1 or otherwise minimize worker exposures to Silica. These exposure control methods can include engineering controls, work practices, and respiratory protection. Listed below are control methods to be used when Table 1 is not followed:

Engineering Controls include, but are not limited to, the following:

- Water Delivery Systems - Integrated water delivery systems are required for several types of equipment in Table 1. Integrated water systems must be developed specifically for the type of tool in use so they will apply water at the appropriate dust emission points based on tool configuration and do not interfere with other tool components or safety devices. Water systems designed for blade cooling also suppress dust and meet the requirements for Table 1. Any slurry generated when using water to suppress dust should be cleaned up to limit secondary exposure to silica dust when the slurry dries following procedures described in the Wargo's Written Exposure Control Plan.

- Dust Collection Systems - Commercially available dust collection systems are required for several types of equipment in Table 1. This equipment may be integral to the tool or provided as an external option to comply with the provisions of this engineering control. This requirement ensures that employers use equipment that is designed to effectively capture dust generated by the tool being used and does not introduce new hazards, such as obstructing or interfering with safety mechanisms.
- Enclosed Cabs or Booths - Enclosed cabs or booths are specified for rock drilling, crushers, demolition and heavy equipment.

If administrative controls are used to limit exposure, the competent person will establish and implement a job rotation schedule that includes employee identification as well as the duration and exposure levels at each job or work station where each affected employee is located.

Work practice controls involve performing a task in a way that reduces the likelihood or levels of exposure. Work practice controls are often used with engineering controls to protect employees. Employees must know the appropriate work practices for maximizing the effectiveness of controls and minimizing exposures.

Examples of work practice controls include:
- Using water spray nozzles at the point of dust generation as a wet-control method and minimize exposure
- Making sure all hoses for water and dust collection systems are free from any obstructions that could affect proper operation
- Wetting down or using approved material to minimize dust during sweeping and/or clean-up operations
- Scheduling work when no other employees will be exposed to any hazardous dust

RESPIRATORY PROTECTION

Where respiratory protection is required by this program, Wargo will provide each employee an appropriate respirator that complies with the requirements of the company's Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134). *See Wargo Respiratory Protection Program in this manual*.

Respiratory protection is required where specified by the OSHA Construction Standard Table 1, for tasks not listed in Table 1, or where the company has not fully and properly implemented the engineering controls, work practices, and respiratory protection described in Table 1. Situations requiring respiratory protection include:

- 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 an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

HOUSEKEEPING

Wargo does 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.

Wargo does 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.

MEDICAL SURVEILLANCE

Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to their Respirable Crystalline Silica exposure. Medical surveillance (i.e. medical examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place. *See Wargo Medical Surveillance in this manual.*

Wargo will 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 the OSHA Respirable Crystalline Silica Construction Standard 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 in addition to 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 postero-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.

Wargo will make available medical examinations that include the aforementioned procedures (except testing for latent tuberculosis infection) at least every three years. If recommended by the PLHCP, periodic examinations can be more frequently than every three years.

Wargo will ensure that the examining PLHCP has a copy of the OSHA Respirable Crystalline Silica Construction Standard, this program, and 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 (PPE) 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 Wargo.

HAZARD COMMUNICATION

Wargo will ensure that each employee has access to labels on containers of Crystalline Silica and those containers respective Safety Data Sheets (SDS's).

All employees will be trained in accordance with the provisions of the OSHA Hazard Communication Standard and the Training Section of this program. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.

Wargo will ensure that each employee with the potential to be exposed at or above the Action Level for Respirable Crystalline Silica 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 Wargo has implemented to protect employees from exposure to Respirable Crystalline Silica, including engineering controls, work practices, and respirators to be used;
- The contents of the OSHA Respirable Crystalline Silica Construction Standard;
- The identity of the Competent Person designated by Wargo; and
- The purpose and a description of the company's Medical Surveillance Program.

Wargo will make a copy of the OSHA Respirable Crystalline Silica Construction Standard readily available without cost to any employee who requests it.

RECORDKEEPING

Wargo will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to Respirable Crystalline Silica. This record will 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 (PPE), 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.

Wargo will ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020. Exposure records will be kept for at least 30 years.

The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of the OSHA Respirable Crystalline Silica Construction Standard. 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.

Wargo will ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020. Objective data records will be kept for at least 30 years.

Wargo will make and maintain an accurate record for each employee enrolled in the Medical Surveillance portion of this program. The record shall include the following information about the employee:

- Name and social security number;
- A copy of the PLHCPs' and/or Specialists' written medical opinions; and
- A copy of the information provided to the PLHCPs and Specialists.

Wargo will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020. Medical records will be kept under lock and key for at least the duration of employment plus 30 years. It is necessary to keep these records for extended periods because Silica-related diseases such as cancer often cannot be detected until several decades after exposure. However, if an employee works for an employer for less than one year, the employer does not have to keep the medical records after employment ends, as long as the employer gives those records to the employee.

PROGRAM EVALUATION
This program will be reviewed and evaluated on an annual basis by the Wargo unless changes to operations, the OSHA Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153), or another applicable OSHA Standard require an immediate re-validation of this program.

7.10 DEMOLITION PROGRAM

PURPOSE: Demolition is the dismantling, razing, destroying or wrecking of any building or structure or any part thereof. Demolition work involves many of the hazards associated with construction. However, demolition involves additional hazards due to unknown factors which makes demolition work particularly dangerous. These may include:

- Changes from the structure's design introduced during construction;
- Approved or unapproved modifications that altered the original design;
- Materials hidden within structural members, such as lead, asbestos, silica, and other chemicals or heavy metals requiring special material handling;
- Unknown strengths or weaknesses of construction materials, such as post-tensioned concrete;
- Hazards created by the demolition methods used.

To combat these, everyone at a demolition worksite must be fully aware of the hazards they may encounter and the safety precautions they must take to protect themselves and their employees.

Although Wargo is concerned about employee safety, there is also a heightened awareness for the safety of the general public and the property of others as well.

POLICY: All company employees and subcontractors must follow the requirements of this program during all demolition projects. This program outlines control measures to plan for a successful and safe demolition project.

SCOPE: Demolition work will be performed in accordance with the requirements referenced in the project scope of work, plans and specifications as provided by the project owner. Depending upon the site and other unknown conditions, the general sequence of demolition activities may require alteration at any given time.

PRE-PLANNING
Demolition work should be carefully planned before work starts so it can be carried out safely. Planning includes, but is not limited to, providing a Site Specific Health & Safety Plan for the project, and assessing risks or identifying hazards and determining appropriate control measures to mitigate risks or hazards. In addition, a detailed project specific demolition plan will be prepared for all demolition projects. Pre-planning also includes the review of any survey relative to the project. These surveys may consist of engineering, structural or environmental and must be been completed by a third party competent person.

RISK ASSESSMENT
Risk assessment is not mandatory for all demolition work however it is best practice to be completed prior to the start of any project. In many circumstances a risk assessment will assist in determining the control measures that should be implemented. It will help to:

- Identify which workers are at risk of exposure
- Determine what sources and processes are causing that risk
- Identify if and what kind of control measures should be implemented, and
- Check the effectiveness of existing control measures

When assessing the risks associated with demolition work consider the following:

- The structure to be demolished and its structural integrity

- Method of demolition including its sequencing
- Scheduling of the work
- Layout of the workplace, including whether there are fall hazards both for people and objects
- What equipment will be used and the skill and experience required by the people who will use it safely
- What exposures might occur
- Number of people involved, and
- Local weather conditions.

GENERAL PRE-DEMOLITION ACTIVITIES

Prior to any demolition activities, A competent Wargo person shall take appropriate action to address and be familiar with the following:

Permitting:

All local, state and federal permits must be obtained prior to any work. In addition, all work must be performed in accordance with all local, state and federal regulations.

Personal Protective Equipment (PPE):

- Assessing what type is PPE is required for all phases of the project

Securing the Site:

- The project site must be secured at all times for the safety of those individuals not involved in the project itself.

Structure Characteristics:

- Construction type & structure size
- Number of stories or height
- Structural hazards
- Basements & confined spaces
- Wall locations
- Protection requirements of adjacent structure if required
- Nearby or surrounding exposures

Public Protection:

- Pedestrian walkways or roadways that may need to be relocated.
- Walkways or roadways should be kept clear of equipment & debris.
- Sidewalk sheds may be necessary to protect pedestrians from overhead hazards.
- Special controls or procedures may be necessary if a portion of the structure is occupied.
- If the project is entirely protected with security fencing, the gates should be kept closed at all times throughout the demolition work.

Overhead & Underground Utility Protection:

- The location of all electric, gas, water, sewer & communications lines should be identified & the lines shut off before work is started.
- The local one-call system should be notified.

Above & Below-Ground Tanks:

- Purging & testing of these tanks should be completed.
- Locations of pits or open holes should be identified and barricaded.
- EPA requirements must be identified & complied with.

Hazardous Materials Removal:

- If hazardous materials are found, action will be needed for removal & disposal of the materials prior to demolition. All hazardous materials should be listed in the pre-demolition survey provided by the owner.
- Asbestos & other materials may be in furnaces, reactors, boilers, insulation, other fire protection materials, certain types of floors and ceiling tiles.
- Lead may be in pipe systems & with lead based paints.
- Polychlorinated biphenyls may be in electrical systems such as transformers & capacitors.

Existing Damage To Nearby Structures:

- Existing damage prior to the start of any work should be documented. Photographs and/or videotape can be taken to supplement documentation.
- The documentation should be dated & retained with the onsite project log.

Blasting:

- If the use of explosives is allowed for the demolition project, a certified blasting subcontractor will be utilized.
- When blasting must be performed in congested areas, or in close proximity to a facility, highway, road or structure, or any other installation that could be damaged, the blaster shall take all of the appropriate precautions as it pertains to

confinement, delaying, initiation, loading of each blast with “approved” mats or other acceptable "best management practices" to control the throw of fragments, for the protection of the employees, or other persons or property within the area.

SAFETY MEETINGS

Before beginning any demolition work, a site safety meeting is required to identify the hazards. These will occur daily and be documented in the onsite project log book. The purpose of the safety meeting is to thoroughly evaluate the project to identify potential hazards and develop controls to prevent accidents. Potential hazards include:

- Occupational Health Hazards
- Cave-ins
- Explosions
- Premature Collapse
- Fire

GENERAL DEMOLITION ACTIVITIES

Prior to commencement of demolition activities, a thorough walkthrough of the structure will be conducted to confirm that all appropriate measures have been completed to ensure that the area is ready for commencement of demolition activities.

In general, the tasks will include a variety of procedures. The most important aspect in the development of these procedures will be the safe conduct of the work. Wargo’s procedures will limit the use of labor to the most controlled and safe conditions and rely upon mechanical means of removal wherever possible. Excavators equipped with shears, concrete breakers, concrete processors/pulverizers, grapples, and other modern hydraulic demolition equipment, tools and attachments will be utilized. Wherever possible, large structures will be removed to ground level using mechanized means. Subsequent sizing of scrap materials such as steel and rebar and other material processing activities will take place at grade level, hauled offsite and recycled accordingly. General building/structure demolition will be conducted in a manner that does not interfere with or encroach upon the existing surrounding pedestrian and vehicular traffic during normal activities. Fencing will be placed around the project site and will work within the confines of the site fencing whenever possible. However, depending upon site and structure conditions, alternative methods of demolition and alternative types of equipment may be used to ensure the safest and most efficient means of operation.

INTERIOR DEMOLITION

When possible, Wargo will perform salvage operations in accessible areas where the power has been isolated while the soft demolition and remaining clean-up activities are going on. Contractor will use Bobcat–type skid steer loaders and/or hand labor to remove all soft debris that is not easily separated from the concrete material. This includes removal debris piles, roofing, ceilings, HVAC ducts, insulation, plaster partition walls, lights and all other building components that will not be recycled. After much of the soft debris is removed, Wargo will commence any environmental abatement activities. Upon completion of hazardous building material abatement, Wargo shall then commence with structural demolition.

EQUIPMENT

Wargo has highly specialized equipment including, but not limited to, various sized excavators, bulldozers, articulating haul trucks, skidsteers, loaders and rollers as well as many attachments for the equipment ranging from buckets, grapples, shears, hammers, processors/pulverizers and forks. In addition, Wargo also has a lot of other ancillary equipment to support our operations.

All equipment and tools are serviced by our company mechanics and checked over daily by the operator before use on any site to ensure it is in good working condition. If something does not appear to be in proper working condition, the equipment or tool is placed out of service until the problem is corrected.

All attachments should be pinned and secured as per manufacturer’s requirements. To avoid damaging the equipment itself and to prevent the risk of equipment overturning, equipment should not be overloaded.

When equipment is used to demolish vertical features such as columns or walls, the columns or walls should not be so high as to create a risk of debris falling onto the plant or operator. Any member to be severed (with grapples, shears or pulverizing attachments) should either be effectively supported or, if allowed to fall, will not endanger persons, equipment or damage the remaining structure. Exclusion zones should be established where necessary to protect the safety of people who are working on or in the vicinity of the demolition work. No person should be in any area near the mechanical demolition where there is a possibility of being struck by flying debris. Areas in which shears are operating should be kept clear of workers, because of the risk of smaller pieces of metal flying off when sheared.

DEMOLITION METHODS

The sequence in which a building or other structure is demolished can be critical for the health and safety of workers and the general public. The demolition sequence will depend on things like the type of construction, location, and demolition method(s) selected. Buildings and structures should generally be demolished in reverse order to their construction, that is, by ‘sequential demolition’. In particular:

- Sequential demolition should be carried out in reasonably even stages, commencing from the roof or top of the building or structure being demolished
- Multi-storey buildings or structures should be demolished story by story, and
- Masonry and brickwork should be taken down in reasonably even courses.

There is a range of demolition methods that may be used, either separately or in combination. Control measures should be selected on the basis of the demolition method(s) used. However no matter what method is used, the building or structure to be demolished and all its components should be maintained in a safe and stable condition so as to prevent the unexpected collapse of part or all the structure. Temporary braces, propping, shoring, or guys may need to be added for stability.

Manual Demolition
Manual demolition includes any technique where hand tools such as jackhammers, sledge hammers and picks are used. Manual demolition has many of the hazards that are present in other major demolition activities including unexpected collapse, falls, falling objects, manual handling and exposure to noise, dust and hazardous chemicals. To manage the risk of unplanned collapses, the condition of roofs, walls and floors of the building should be assessed by a competent person before commencing demolition work. Where concrete members are being demolished manually, the reinforcement shall not be cut while breaking of the concrete is in progress. Where pre and post-tension demolition work is undertaken competent person advice should be sought as to demolition sequence. More information on the demolition of pre and post-tensioned concrete is at Section 6.1 of this Code. Areas where debris will fall should be barricaded off and signs erected to prevent persons from entering before demolition starts.

Mechanical Demolition
Mechanical demolition involves the use of powered mobile plant, such as excavators, cranes, loaders and bulldozers. There may be a mix of hand and mechanical demolition methods applied. All powered mobile plant used for demolition work must be fitted with a suitable combination of operator protective devices. Operator protective structures should be designed to the appropriate standard that eliminates or minimizes the risk, so far as is reasonably practicable, of operator injury due to:

- Roll over and consequent cabin impact damage
- Objects falling on or over the cabin
- Objects penetrating the cabin, and
- Hazardous noise

Mechanical demolition workers break the structure down into smaller pieces that can then be sorted and recycled or discarded. Sometimes mechanical demolition may also involve undermining, or weakening internal supports so as to encourage collapse.

Demolition is planned to be systematic and sequential. That is, a structure will generally be demolished in the reverse order to which it was constructed.

Implosion
This involves wiring structural supports to blow up in such an order that the falling weight of the building causes its own demise. A demolition company will often opt for implosion in cases where there's little free room surrounding a building, or when a building is so massive that other demolition techniques would be too time-consuming. Tunnels, smokestacks, bridges and towers are often brought down via implosion.

Deconstruction
This newer type of demolition is growing in popularity is called "deconstruction." This is thought of as the most environmentally sound method of demolition and it is sometimes called "Green Demolition" for this reason. It involves a slow and careful process that is almost the reverse of the construction method. The building is slowly taken apart and as much material as possible is salvaged for reuse elsewhere. This lightens the load on the landfills that usually receive the debris of a building destroyed by conventional demolition procedures.

DEBRIS & WASTE MANAGEMENT
All demolition debris that will not be recycled by Wargo will be loaded into trailers or dumpsters and hauled to a disposal facility for further recycling or landfill. At times, debris may need to be stockpiled, however it is Wargo practice to remove debris from the site as soon as possible.

DUST CONTROL
Dust control will be considered an important part of the overall project. Wargo will utilize atomizers with a water hose connected for dust suppression and/or fire hose attached to a local hydrant during demolition operations. Wargo will direct a localized fine water spray to the source of demolition activities, as required, thereby reducing airborne dust particles. To minimize the run-off of water, the water supply will be used only when necessary. A proper backflow devise will be installed at the hydrant locations, if utilized and if required.

7.11 ASBESTOS SAFETY PROGRAM

PURPOSE: The purpose of this program is to establish guidelines and procedures in the operations and maintenance of asbestos containing materials at Wargo to protect its employees, subcontractors, visitors and vendors from potential health hazards of asbestos related diseases. The Program applies to routine work during which an employee might encounter asbestos as well as work undertaken to repair or remove asbestos-containing material via conventional abatement methods or controlled demolitions with asbestos in place.

POLICY: It is the policy of Wargo that only qualified employees shall be involved in any asbestos repairs, maintenance or removal. All unqualified employees shall be protected from exposure to asbestos fibers by isolating and controlling access to all affected areas during asbestos work. All tasks involving the disturbance of asbestos containing material will be conducted only after appropriate work controls have been identified and implemented. A qualified and licensed supervisor shall be available at asbestos controlled work sites during all activities. Proper personal protective equipment and asbestos removal equipment shall be used and

properly maintained. If outside subcontractors are used, the Wargo shall ensure all subcontractor employees trained and licensed and have the proper equipment and protective gear.

RESPONSIBILITIES

Management

• Ensure all Asbestos Containing Material is identified and labeled.
• Ensure training is effective and current for authorized employees.
• Conduct medical surveillance of affected employees.
• Establish engineering controls for all work with asbestos containing material.
• Provide adequate and proper equipment and personal protective gear.
• Ensure proper disposal of all asbestos containing material.

Supervisors

• Qualified supervisors shall provide effective on-site management during work with asbestos containing material.
• Supervisors will notify the Operations Manager immediately upon discovering damaged asbestos material.

Employees

• Qualified employees must follow the exact procedures for repair or removal of asbestos containing material, including proper use of containment equipment, clean up equipment and personal protective gear.
• Unqualified employees are to stay clear of all asbestos work areas and report any damaged asbestos containing material to their supervisor

HAZARDS

Asbestos is a common, naturally occurring group of fibrous minerals. Asbestos fibers have been used in a variety of building materials. Generally, most asbestos is found in pipe insulation, doors, textured paints and plasters, structural fireproofing, and floor tiles. Friable asbestos (that is, material that contains more than 0.1% asbestos by weight and can be crumbled by hand) is a potential hazard because it can release fibers into the air if damaged. Long term exposure to airborne asbestos is necessary for chronic lung disease. Significant and long-term exposure to asbestos from activities that directly disturb asbestos-containing materials (such as asbestos mining) can lead to a variety of respiratory diseases, including asbestosis and mesothelioma (cancer of the lung lining). Asbestosis is a non-malignant, irreversible disease resulting in fibrosis of the lung. Asbestos-related cancers tend also to result from substantial long-term exposure, however, mesothelioma may result from much smaller exposures to asbestos.

HAZARD CONTROL

Engineering Controls

Engineering controls include the use of enclosures such as monitoring equipment, glove bags, tenting, negative pressure work areas, HEPA filters, controlled vacuums, water misters and other equipment to ensure containment and clean up of asbestos work areas.

Administrative Controls

All qualified workers shall be issued proper personal protective equipment, such as respirators, disposable coveralls, gloves, etc. Written procedures and management authorizations are required for all work involving asbestos containing material.

Training Controls

All qualified employees, supervisors and managers shall have received the proper level of training, as outlined in this program.

Definitions

Asbestos - Asbestos is a generic term describing a family of naturally occurring fibrous silicate minerals. As a group, the minerals are noncombustible, do not conduct heat or electricity and are resistant to many chemicals. Although there are several other varieties that have been used commercially, the most common asbestos mineral types likely to be encountered in buildings are chrysotile (white asbestos), amosite (brown asbestos), and crocidolite (blue asbestos). Among these, white asbestos is by far the most common asbestos mineral present in buildings.

Friable Asbestos - Friable asbestos material means finely divided asbestos or asbestos-containing material or any asbestos-containing material that can be crumbled, pulverized or powdered by hand pressure. Individual fibers in friable asbestos-containing material can potentially become airborne and can then present a health hazard. Three types of friable material commonly used in buildings are: (1) sprayed fibrous fireproofing (2) decorative or acoustic texture coatings and (3) thermal insulation.

Non-friable Asbestos - Non-friable asbestos includes a range of products in which asbestos fiber is effectively bound in a solid matrix from which asbestos fiber cannot normally escape. Non-friable asbestos includes a variety of products including asbestos cement tiles and boards and asbestos reinforced vinyl floor tiles. Cutting, braking, sanding, drilling of similar activities can release asbestos fiber from even non-friable asbestos materials.

ASBESTOS WORK CATEGORIES

Category 1: work includes the installation or removal of non-friable asbestos in which the asbestos fiber is locked in a binder such as cement, vinyl or asphalt which holds the material together.

Category 2: work involves work with friable asbestos that is of short duration in situations which create low levels of airborne asbestos. Example of category 2 work are enclosure of friable asbestos, application of tape or sealant to asbestos containing pipe

insulation and minor removal of friable asbestos and minor installation, maintenance or repair work above false ceilings where sprayed asbestos fireproofing is present on beams.

Category 3: work involves possible exposure to friable asbestos over long periods of time or work that generates high levels of asbestos. Included in category 3 work are removal projects where relatively large amounts of asbestos are removed from a building including removal of friable asbestos from structural material, cleaning or removal of heating or air handling equipment that has been insulated with asbestos. Also included in category 3 work are cutting or grinding of asbestos containing materials using power tools.

GENERAL RULES

When in doubt, treat all material as containing asbestos and comply with all applicable rules and regulations and protective measures.

All Asbestos Containing Material (ACM) will be handled by certified and licensed asbestos abatement personnel. The friability of the ACM will dictate the type of removal/maintenance required.

Employees who are uncertified and unlicensed will not handle any ACM >1%. This will include encapsulation projects, renovation/removal and/or demolition of any type of structure. This will prevent the potential for accidental exposure from the mishandling of any ACM.

When an uncertified, unlicensed employee questions whether they may be handling suspect ACM, the employee will immediately contact their supervisor. The employee shall not resume working at the site until the area has been checked to verify the material is not ACM.

Uncertified, unlicensed employees will not cross over a barrier/containment area where asbestos projects are in progress.

Any employee who discovers ACM or suspect ACM in damaged or poor condition should report it to their supervisor so the identified material is repaired.

MEDICAL EXAMINATIONS

Employees assigned to asbestos removal will be given medical examinations at Wargo's expense in compliance with 29 CFR 1926.1101 and 40 CFR 763 - Subpart G.

Within 30 days of first employment or assignment to a job exposing the employee to asbestos containing material.

- Annually
- Within 30 days of termination of employment.
- Medical examination for employees assigned to asbestos removal will include:
- Medical and work history with special emphasis directed to symptoms of the respiratory system, cardiovascular system and digestive tract.
- Medical questionnaire contained in 29 CFR 1926.1101.
- A physical examination including a chest roentgenogram and pulmonary function test that includes measurement of the employee's forced vital capacity and expiratory volume.
- No employee shall be assigned to tasks requiring the use of respirators if an examining physician determines the employee will be unable to function normally while using it or that the employee might otherwise be impaired.
- Records of all physical examinations performed for asbestos work related activities will be maintained permanently by the Company.

ASBESTOS SURVEYS

An outside environmental company/consultant must conduct surveys and prepared a written inventory of the type and locations of asbestos-containing material to:

- Allow for periodic condition inspections
- Allow for maintenance and repair of damaged asbestos
- For each building the inventory contains the following information:
- Type of asbestos-containing material (sprayed fireproofing, texture coating, or thermal insulation);
- the location of the material;
- when it has been sampled, the type and percentage of asbestos present.

Also included in the survey information is sampling results showing the absence of asbestos in material which might be mistaken for an asbestos-containing material.

ASBESTOS IDENTIFICATION

Asbestos identification system is used to alert people to the presence of asbestos. Asbestos is identified by tags, stickers, pipe labels, signs and other high visibility means. Where feasible, stickers indicate the presence of asbestos in thermal insulation, in asbestos board and tiles and in other locations. Warnings may also be placed near the entrances of rooms -particularly mechanical rooms where unusually large amounts of asbestos may be present.

REPAIR & MAINTENANCE of ACM

Should an employee or a subcontractor encounter material which is not identified and is not listed in the Asbestos Inventory and which might reasonably be expected to be asbestos, the person will stop any work which could create airborne asbestos and report the discovery to a supervisor. Where it is determined that friable asbestos-containing material is in a condition that could likely lead to inhalation exposure, the supervisor will immediately limit access to the location and initiate repairs, removal or encapsulation. Where there is reasonable doubt about the composition of a friable material, it will be treated as asbestos until testing demonstrates that asbestos is present at levels below 1%. Cleanup and repair of asbestos-containing material will only be carried out by the appropriate clean up procedure by employees or contractors who have been properly trained.

When routine work is to take place in an area where asbestos is present or when the work might disturb friable asbestos, employees will be informed of the potential for exposure through a notation on the work order. If upon reviewing the work situation, the employee believes that normal work practices do not provide an adequate measure of safety, the employee will report these concerns to the supervisor. The supervisor will review the work situation and authorize any required additional precautions.

TRAINING

All Wargo employees who remove, repair or work around asbestos and those whose work might disturb asbestos-containing material will be trained to carry out their work without endangering themselves, their coworkers or other building occupants. See training section in HASP.

CONTROLLED DEMOLITIONS

Controlled demolitions allow for demolition with asbestos in place.

A building or structure may be ruled structurally unsafe by a licensed Professional Engineer, Registered Architect, Building Inspector, Fire Inspector or other official of competent jurisdiction. The official shall attest to the condition of the building/structure in writing. A copy of the condemnation letter shall be provided to Wargo.

A third party air monitor shall be hired by the owner to avoid conflict of interest.

The entire demolition area shall be considered the regulated abatement work area. This area shall be enclosed within a barrier to prevent unauthorized entry. Proper signage on this barrier shall be in place. Orange construction fence or snow fence is acceptable for this purpose. For outdoor regulated abatement work areas, all adjacent building openings within twenty-five (25) feet of the outermost limit of the disturbance shall be sealed with two (2) layers of six (6) mil fire retardant plastic sheeting, and the exterior asbestos project regulated abatement work area shall extend a minimum of twenty-five (25') feet from the outermost limit of the disturbance.

Entrance or exit of all persons and equipment shall be through one (1) designated and controlled “access way” in the barrier or fence, which shall provide a means of egress from the regulated abatement work area.

All decontamination areas shall be within the regulated abatement work area. An equipment decontamination area shall be cordoned off within the worksite for cleaning of heavy equipment, i.e., backhoes, excavators, loaders, etc. The ground surface in this decontamination area shall be banked on the sides to confine the contaminated wastewater.

Equipment shall be decontaminated prior to exiting the regulated abatement work area, utilizing a pressure wash system, after which all exposed surfaces inside and out shall be wet wiped. The surface below the equipment shall be scraped or cleaned of any residual asbestos contamination. This material shall be removed and disposed of as asbestos contaminated material.

No dry disturbance or removal of ACM, PACM or asbestos material shall be permitted.

All debris generated by the demolition shall be considered to be asbestos contaminated waste (to be disposed of as RACM), except for structural members, steel components and similar non-suspect items which shall be fully decontaminated.

The demolition waste/debris shall be wetted on a continuous basis, that is, prior to, during and subsequent to its actual collection and removal. Fog nozzles or similar type of equipment shall be used to perform the wetting.

Piles of waste not actively being worked on, i.e. piles being added to or portions being removed or piles left over extended periods of time, shall be covered with at least one layer of six (6) mil polyethylene to retain its moisture level and to prevent fiber release.

Wastewater shall be confined within the controlled demolition regulated abatement work area. All wastewater shall be collected by means of trenching or ditches and directed into a holding tank. Disposal of such wastewater shall be in accordance with applicable laws and regulations. After wastewater has dissipated, the earth surface below the trenches and holding tank shall be scraped and any residual asbestos contamination removed and disposed of as asbestos contaminated waste.

All demolition waste/debris shall be placed in hard wall, closed containers or vehicles with at least two (2) layers of fire retardant six (6) mil plastic sheeting draped loosely over the sides of the load to facilitate being wrapped over the top of the load and sealed air tight prior to transport from the site. Dumpsters shall be considered to be hard wall containers. There shall be no visible emissions or water leakage from these containers.

The earth surface below the rubble and or contamination areas shall be scraped clean of any residual asbestos contamination. This material shall be removed and disposed of as asbestos contaminated waste.

Final clean-up and clearance procedures for conventional abatement shall apply, except that only one stage of cleaning (final cleaning) is to be performed and accepted by the onsite air monitor.

SUBCONTRACT WORK/ASBESTOS REMOVAL WORK

Major asbestos removal is normally contracted to external firms who specialize in asbestos removal work. Wargo requires that all such work be carried out in accord with the requirements established by state and federal regulations. At all such projects the subcontractor will ensure that cleanup is properly completed and that all asbestos and asbestos contaminated material is collected, and disposed of in accord with the state and federal regulations. The subcontractor will be required to submit air testing results to demonstrate that the cleanup has been carried out properly and the area can be reoccupied safely.

ASBESTOS WORK PROCEDURES

Discovering Damaged Asbestos

When asbestos is discovered, the following steps describe the actions to be taken by employees and their supervisors. The steps comply with Wargo's Asbestos Policy, which states the long term goal is to remove all asbestos and the short term goal is to manage asbestos to minimize exposure to airborne asbestos. It is important to note that all asbestos is to be logged in the inventory, regardless of its state of repair.

- Sampling - The Supervisor will determine if samples are required to confirm the existence of asbestos. This will be done by checking the inventory to see if asbestos in that location has already been tested. If necessary, the Supervisor will close off an area (mechanical spaces) or shut down equipment (air handling units) pending test results and remedial action.
- Repair/Removal and Cleanup - If the asbestos is damaged, it is certain a clean up will be required. The clean up and repair should happen together. The repair and clean up will be charged to a work order. If removal is required, the supervisor will determine whether the removal will be carried out by a subcontractor or by Wargo employees.
- Labeling - All known asbestos containing material should be labeled. In areas where asbestos is present in multiple locations it will be sufficient to provide warning signage at each entry point into a room.

CLEAN UP OF ASBESTOS CONTAINING MATERIAL

Asbestos only poses a health hazard when it becomes airborne and people inhale the fiber. When asbestos-containing material has been disturbed, effective clean up will ensure that asbestos does not present a health hazard. To ensure that clean up of significant quantities of asbestos will not cause a health hazard, the following procedure will be followed:

- Clean up of significant amounts of asbestos containing material will be only be done by employees who have been trained and who are wearing appropriate protective clothing and a fitted respirator.
- Dry sweeping of asbestos-containing waste or other clean up activities which will create airborne dust are not permitted.
- Large pieces of asbestos containing material will be collected by hand and properly bagged in accordance with the disposal procedures.
- When ever possible, asbestos dust will be thoroughly wetted.
- If additional clean up is needed it will be carried out using a vacuum equipped with a HEPA filter.

NON-FRIABLE ACM WORK

Asbestos that is effectively bonded in a non-asbestos matrix cannot easily become airborne. As such, provided the material is not broken or abraded, there is little risk of inhalation exposure to asbestos. To ensure that minor work involving non-friable asbestos (including vinyl asbestos tile, asbestos asphalt roofing, and asbestos ceiling and wall tile) the following procedure will be followed:

Procedure: Before beginning the work the worker will carefully inspect the asbestos containing material to ensure that the planned work will not create airborne asbestos dust.

Where dust that might contain asbestos fiber is present, the worker will clean the material using a wet method or a HEPA filtered vacuum.

Following completion of the task the worker will carry out any required clean wet methods or a HEPA filtered vacuum and will then carefully bag for disposal all asbestos containing waste.

Note: Cutting, drilling, sanding or breaking the material are likely to create airborne asbestos dusts and will require additional precautions.

REPAIRS TO ACM

Where asbestos is known or believed to be present in damaged insulation, repairs or removal are needed to prevent asbestos fiber from becoming airborne. Only workers who have successfully completed proper training and who are authorized to do so may undertake such repairs or removal. The following procedure will be used whenever minor repairs to asbestos containing insulation is undertaken:

Procedure: Access to areas where minor repair is to be carried out will be restricted to authorized people only. When necessary, signs will be posted advising of access restrictions. Workers repairing asbestos containing insulation will wear necessary PPE and a properly fitted respirator equipped with a particulate filter designed to remove asbestos fibers from inhaled air.

Before beginning the repair, the area will be carefully cleaned using the Clean up of Asbestos-Containing Material Procedure.

When feasible a drop cloth shall then be placed beneath the insulation to be repaired.

Before beginning the repair, all feasible steps (wetting with amended water, encapsulating adjacent asbestos-containing material, etc.) will be taken to prevent the release of asbestos fibers.
Following the repair the worker will carefully bag for disposal all asbestos containing waste and clean the surrounding area using wet cleaning techniques or a HEPA filtered vacuum.

SINGLE USE GLOVE BAG PROCEDURE
The following procedure will be followed when single-use asbestos removal glove bags are used. The procedure may only be used on tasks that are small enough to be completely enclosed in the glove bag and which do not leave exposed asbestos in place when the bag is removed.

Preparation:
- Only workers who have successfully completed proper training are authorized to carry out glove bag removal of asbestos.
- Before beginning removal work, access to the area will be restricted. If the work site is located in areas where other employees might be exposed to asbestos, warning notices will be posted.
- Steps will be taken to prevent accidental movement, contact with heat, cold or electricity, or release of chemicals.
- The work area will be cleaned using a HEPA filtered vacuum or wet cleaning to remove asbestos-containing material contaminating the immediate work area. Where possible a plastic sheet will then be placed beneath the pipe or fitting from which the asbestos is to be removed.
- Steps will be taken to prevent exposure where damage to the insulation might allow release of fibers. Steps include making temporary repairs using duck tape or wetting the exposed fiber using amended water.

Glove Bag Removal:
- The asbestos-containing material will be thoroughly wetted using amended water.
- With tools in bag, the single-use bag will be positioned and secured using adhesive and tape as necessary.
- Working through the gloves, the asbestos will be removed exercising care to avoid puncturing the bag.
- When removal is compete or bag is full, sprayer (containing amended water) will be inserted into the bag and the pipe or fitting, tools and the bag interior will be washed. Tools will then be placed in an inverted glove withdrawn from bag and the glove sealed from the bag using duct tape.
- The tools will then be removed by cutting through the duct tape ensuring that both the bag and the glove remain sealed.
- The tools will then be submerged in water and the glove opened. Tools will be cleaned under water.
- The glove bag will then be carefully removed, sealed and placed in a sealed container pending packaging for disposal.

Clean Up:
- The surface of the pipe or fitting will be carefully wet wiped.
- The plastic sheet will then be carefully wet wiped and rolled up.
- All solid waste created during removal jobs including glove bags, disposable coveralls, wipe rags and plastic sheeting will be treated as asbestos containing waste and handled as detailed in the disposal procedure.

MULTIPLE-USE GLOVE BAG PROCEDURE
This procedure describes the use of multiple use glove bags. It may be used on tasks that require the bag to be repositioned to complete the entire job.

Preparation:
- Only workers who have successfully completed proper training are authorized to carry out glove bag removal of asbestos.
- Before beginning removal work, access to the area will be restricted. If the work site is located in areas where other employees might be exposed to asbestos, warning notices will be posted.
- Steps will be taken to prevent accidental movement, contact with heat, cold or electricity, or release of chemicals.
- The work area will be cleaned using a HEPA filtered vacuum or wet cleaning to remove asbestos-containing material contaminating the immediate work area. Where possible a plastic sheet will then be placed beneath the pipe or fitting from which the asbestos is to be removed.
- Steps will be taken to prevent exposure where damage to the insulation might allow release of fibers. Steps include making temporary repairs using duck tape or wetting the exposed fiber using amended water.

Glove Bag Removal:
- The asbestos containing material will be thoroughly wetted using amended water.
- With tools in bag, the bag will be positioned and secured using adhesive and tape as necessary.
- Working through the gloves, the asbestos will be removed exercising care to avoid puncturing the bag.
- When removal is compete or bag is full, sprayer (containing amended water) will be connected to the valve and the pipe or fitting, tools and the bag interior will be washed. If the bag is to repositioned to remove additional asbestos, remaining exposed ends of asbestos will be thoroughly damped.
- Tools will then be placed in an inverted glove withdrawn from bag and the glove sealed from the bag using duct tape.
- The tools will then be removed by cutting through the duct tape ensuring that both the bag and the glove remain sealed.
- The tools will then be submerged in water and the glove opened. Tools will be cleaned under water.

- The glove bag will then be removed and placed in a sealed container pending packaging for disposal.

Clean Up:
- The surface of the pipe or fitting will be carefully wet wiped.
- The plastic sheet will then be carefully wet wiped and rolled up.

- All solid waste created during removal jobs including glove bags, disposable coveralls, wipe rags and plastic sheeting will be treated as asbestos containing waste and handled as detailed in the disposal procedure.

DISPOSAL OF ASBESTOS CONTAINING WASTE MATERIALS
Handling and disposal of asbestos containing waste is regulated by both State and Federal regulations. To ensure compliance with these regulations and to ensure that no-one is exposed to asbestos the following procedure is to be followed:

Only workers who have successfully completed proper training are authorized to handle asbestos waste.

Waste asbestos will be thoroughly wetted and then placed in specially labeled 6 mil plastic bags. The bag will be securely sealed using duct tape. The bagged asbestos will then be placed in a second, labeled 6 mil plastic gab which is again taped closed.

Asbestos waste may be transported from the location where it was produced to an interim storage location if the bags are free from punctures or tears and if the outside of the bag is free of asbestos.

Asbestos waste will be transported in an enclosed vehicle or beneath a secured tarp. No other cargo may be carried while the waste asbestos is being moved. After the waste asbestos is moved to an interim storage site, the driver will, if necessary clean the vehicle to remove asbestos contamination.

Asbestos waste must be disposed of at a waste disposal site which is approved to receive asbestos.

Shipment of waste asbestos must be coordinated with the waste disposal site which is to receive the waste. Asbestos disposal will normally be carried out by external subcontractors. Shipments for disposal must be done in accord with state and federal DOT regulations and must be accompanied by a properly completed shipping documents.

7.12 HAZARDOUS WASTE SITE OPERATIONS PROGRAM

SCOPE: The requirements of this program apply to personnel and operations involved in investigation and remediation efforts associated with improperly disposed of hazardous, toxic, and/or radioactive wastes. Operations required by local, State, or Federal agencies will be conducted according to these standards. Voluntary (non-emergency) cleanup operations associated with classified hazardous wastes which may have environmental impact or public exposure fall within the scope of this program. This program does not apply to activities involving the generation and collection of hazardous wastes which are being temporarily stored prior to proper disposal.

HAZARDOUS WASTE OPERATIONS HEALTH & SAFETY PROGRAM
A written site specific health and safety program will be available, to include hazardous waste operations, indicating the responsibilities that govern hazardous waste operations falling within the scope of this standard. The program will reflect the necessary interface between general program and site-specific activities.

WORK PLAN
Each facility, site, or project will have a written work plan that reflects the current status of site characterization/analysis and the proposed objectives and tasks.
- The plan will identify the personnel requirements and methods to accomplish the identified tasks and objectives.
- For uncontrolled hazardous waste sites, characteristics such as location, size, boundaries, topography, accessibility, contaminant concentrations, and contaminant dispersion pathways must be included.
- The plan must specify the means for providing required information to employees, contractors, and others who enter the site.
- The plan must include the requirements for training, medical evaluations, and record-keeping not specified in site-specific documents.

SITE-SPECIFIC HEALTH AND SAFETY PLAN (HASP)
A HASP will be available to all employees at the worksite, which is inclusive of all organizations or firms/activities at the site.
- The plan must include a risk assessment for each identified hazard and associated task in the work plan and specify the requirements and procedures necessary to protect personnel according to all applicable standards.
- The plan must indicate specific expectations for meeting the standards, including programs for inspection, training, medical evaluation, contaminant/exposure monitoring, site control, decontamination, personal protective equipment (PPE), emergency response, confined space entry, and spill containment requirements associated with site operations.

HAZARD EVALUATION AND CONTROL
Evaluation of the site and operations will be conducted to identify the specific hazards and determine procedures appropriate for controlling exposure to those hazards. Controls must be implemented prior to initiating site activities.

HAZARD COMMUNICATION
Personnel must be informed of all identified risks and entry/work requirements before their entry into a contaminated or restricted area and/or before starting a hazardous activity covered by the requirements of this program.

Briefings will be conducted at intervals necessary to ensure personnel are knowledgeable of the most current information and requirements of the site-specific HASP.

TRAINING
All personnel must receive the proper training required for their assigned duties, the provisions of the program, project work plan, and HASP requirements associated with specific personnel assignments and this section.

Personnel are prohibited from participating in, or providing onsite supervision of, site activities unless:

- They have been certified as having successfully completed the training requirements for their assigned duties and responsibilities, and
- Records of required training and certification have been established and are immediately available at the activity site.

The training must be conducted by a trainer meeting the qualifications of OSHA standards in 29 CFR 1910.120 (e)(5). Generally, trainer qualification is based upon the satisfactory completion of a training program for teaching the subject matter, or appropriate academic credentials and experience, combined with demonstrated competency in instructional skills and knowledge of the subject matter.

The minimum training requirements are based upon OSHA requirements contained in 29 CFR 1910.120 (e). The courses established to meet these requirements must address both time and content standards. Course content and certification must be conducted according to the guidelines in Appendix E of 29 CFR 1910.120.a.
A hazardous waste orientation course with sessions totaling 40 hours (also known as 40HR HAZWOPER) will be required of all persons who:

- Enter a site unescorted by trained site personnel
- Enter restricted areas of a site
- May be exposed to hazardous substances
- May be exposed to other health hazards of a physical or biological nature
- May be exposed to safety hazards of any kind
- Are operators of equipment used in site assessment or remediation operations
- Are required or expected to wear respiratory protection or PPE when needed
- Disturb any materials within site boundaries
- Directly supervise site employees

Each year thereafter, 8 hours of supplemental refresher training will be provided which augments the basic knowledge provided by the core course. All training records of core course and refresher completion will be maintained in Wargo's office.

All Wargo employees on a potentially hazardous project are all 40HR HAZWOPER trained. This training course prepares all employees to react appropriately in the event they encounter a hazardous situation that may, or may not, require emergency response.

MEDICAL EVALUATIONS
Medical evaluations necessary to meet the requirements of these standards (such as respirator clearances or medical qualifications for specific hazardous jobs) must be provided before employees engage in activities requiring such services. Medical surveillance must be provided for employees exposed to or affected by site contaminants.

- All medical services required by this standard must be rendered under the direction of a board-certified occupational health physician.
- The evaluations must be provided in a timely manner. Timeframes for medical screening tests that may become necessary during operations will be specified in the medical surveillance plan before initiating onsite operations.
- All employees whose exposure to contaminants exceeds permissible exposure limits for 30 days or more per year will be placed in a medical surveillance program. Medical requirements for the respiratory protection program are separate, but may be included as part of the medical surveillance on the employee.
- All employees who wear a respirator must be medically evaluated according to the respiratory protection requirements of these standards and 29 CFR 1910.134.
- All employees who wear respiratory protection for 30 days or more per year must be placed in a medical surveillance program.
- All employees who develop signs or symptoms of illness or exposure to hazardous substances, who become ill, or who are injured due to overexposure to contaminants must be placed in a medical surveillance program.

INSPECTIONS
Inspections will be conducted to assess the proper implementation of hazard control. Identified deficiencies and corrective actions must be documented and appropriate changes made to the plan(s) when necessary.

CONTAMINANT / EXPOSURE MONITORING

Air monitoring will be performed in a manner according to the provisions contained within these standards and as required within the program, work plan, or HASP. Minimum monitoring requirements are:

- Upon initial site entry, representative air monitoring will be conducted to identify any immediately dangerous to life and health condition or potential exposure above permissible exposure limits.
- Periodic monitoring will be conducted when:
  - Work begins on a different portion of the site
  - Contaminants other than those previously identified are being handled
  - A different type of activity is initiated
  - An employees are handling leaking drums or containers, or working in areas with obvious liquid contamination
  - There are indications that potentially hazardous conditions exist

Personal monitoring must be performed for personnel who are at high-risk, such as, but not limited to, those handling leaking drums, opening drums containing unknown or hazardous substances, conducting activities in areas with obvious liquid contamination, or during any activity where contaminated substances may be disturbed.

After commencing activities, personal exposure monitoring will be performed for employees likely to have the highest exposures to hazardous substances and health hazards or when the airborne concentration of hazardous substances is likely to be above permissible exposure limits.

A monitoring result that exceeds permissible exposure limits will be considered a representative exposure of all personnel performing similar duties on the site. The exposure will be accordingly documented until personal monitoring has been accomplished for each person performing similar duties.

Representative sampling will be accepted to document exposures of individuals engaged in similar activities.

CONTROL OF WORKER EXPOSURE TO HAZARDOUS SUBSTANCES

Engineering controls will be the primary means of control for occupational exposure to hazardous substances. Administrative controls, such as scheduling employee rotation as a method of controlling hazardous exposures associated with hazardous waste activities and operations, must not be used.

PERSONAL PROTECTIVE EQUIPMENT

PPE must be provided and used according to the provisions contained in these standards and as stipulated in the program, work plan, or HASP. PPE will be based on the performance characteristics of the equipment, relative to:

- The requirements and limitations of the site
- The task-specific conditions and duration
- The hazards and potential hazards identified at the site

Personal Protective Equipment. The PPE program, as part of this HASP, must address:

- PPE selection based on site-specific hazards
- The use and limitations of PPE
- Activity duration
- Maintenance and storage of PPE
- Decontamination and disposal of PPE
- PPE training and fitting
- Equipment donning and doffing procedures
- Procedures for inspecting equipment before, during, and after use
- Evaluation of the effectiveness of the PPE program
- Medical considerations, including work limitations due to temperature extremes or physical stress

When airline respirators are utilized in hazardous waste operations, an auxiliary self-contained escape air supply system will be incorporated.

When totally encapsulating suits are used, they must be capable of maintaining positive air pressure.

COMMUNICATIONS

All high-risk activities such as, but not limited to, remote or unobservable operations, waste drum opening/sampling, or confined space entry must be conducted in a way that ensures constant communication between the worker and site management team.

DECONTAMINATION

Decontamination must be conducted in a way that prevents the spread of hazardous contaminants and waste beyond the boundaries of the site of operations. Decontamination will apply to equipment and personnel.

Procedures for all phases of decontamination will be developed, communicated to all personnel, and implemented before any employee or equipment may enter areas on a site where potential exposure to hazardous substances exists. Decontamination procedures, as a part of the site-specific HASP, will specify:

- Decontamination methods and procedures for testing and evaluating their effectiveness

- The number and layout of decontamination stations and decontamination equipment needed
- Procedures to prevent contamination of clean areas and to minimize employee contact with hazardous substances or with contaminated equipment that has contacted hazardous substances
- Procedures to take if the non-impermeable clothing of personnel becomes wetted with hazardous substances
- Methods for disposing of contaminated clothing and equipment
- Methods for disposing of decontamination water and waste

All personnel leaving a contaminated area must be decontaminated; all contaminated clothing and equipment leaving a contaminated area must be appropriately disposed of or decontaminated.

Decontamination procedures must be monitored by the site safety and health officer to determine their effectiveness. If such procedures are found to be ineffective, site work will immediately cease and remain shut down until the situation has been corrected.

Decontamination must be conducted in geographic areas that minimize the exposure of uncontaminated personnel and equipment to contaminated employees or equipment.

All equipment and material used for decontamination must be decontaminated or disposed of properly.

Decontamination of Personal Protective Equipment
- PPE will be decontaminated, cleaned, laundered, maintained, stored, and replaced as appropriate to maintain their effectiveness.
- Unauthorized employees will not remove PPE from change rooms.
- Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment will be informed of the potential harmful effects of exposures to hazardous substances.
- Where the decontamination procedure indicates the need for regular showers and change rooms outside the contaminated area, or if cleanup or removal operations will require 6 months or more to complete, showers and change rooms must be provided. If temperature effects prevent the use of water, other effective means for cleansing must be provided and used.

EMERGENCY PLANNING

Planning for site emergencies must be conducted before commencement of hazardous waste activities.

Site emergency cleaning must address all anticipated emergency situations.

The emergency planning should address:
- Personnel roles, responsibilities, and lines of communication
- Emergency recognition and prevention
- Safe distances and staging areas (safety zones)
- Site security and control
- Evacuation routes and procedures
- Emergency medical treatment
- Emergency alerting and response procedures
- Critique of response and follow-up
- Procedures for reporting incidents to Federal, State and local governments
- Decontamination

The emergency planning will be reviewed periodically and, as necessary, amended to keep it current with new or changing site conditions or operations.

UNDERGROUND STORAGE TANK REMOVAL

Hazard analysis for the removal or disposal of an underground storage tank (UST) system must address:
- Hazards of UST system contents and procedures for hazard control, including explosion prevention
- Monitoring requirements and procedures
- UST system draining, purging, and cleaning procedures
- Excavation safety requirements and procedures for blocking free-standing tanks
- Procedures and safety precautions for disassembly, removal, and disposal of system
- Spill contingency planning
- Proper handling of contaminated groundwater and soil

HANDLING DRUMS AND CONTAINERS

Identification and Inspection:
- Prior to handling or opening a drum or other container, effort will be made to identify their contents.
- Drums and containers will be inspected and their integrity must be ensured before moving them.
- Drums or containers that cannot be inspected before being moved because of storage conditions (e.g., buried beneath the earth, stacked behind other drums, stacked several tiers high, in a pile, etc.) must be moved to an accessible location and inspected prior to further handling.

- Unlabeled drums or containers will be assumed to contain hazardous substances and handled accordingly until the contents are positively identified and labeled

Handling Requirements:

- Before moving drums or containers, all employees exposed to the transfer operation must be warned of the potential hazards associated with the contents of the drums or containers and their handling and instructed to minimize handling as much as possible.
- Where major spills may occur, a spill containment program must be implemented to contain and isolate the entire volume of the hazardous substance being transferred. U.S. Department of Transportation specified salvage drums or containers and suitable quantities of proper absorbent must be kept available and used in areas where spills, leaks or ruptures may occur.
- If drums and containers cannot be moved without rupture, leakage, or spillage must be emptied into a sound container, using a device classified for the material being transferred.
- Subsurface exploration will be used to estimate the location and depth of buried drums or containers. Soil or covering material must be removed with utmost caution to prevent drum or container rupture.

Opening Drums or Containers:

- Where an airline respirator system is used, connections to the source of air supply must be protected from contamination and the entire system protected from physical damage.
- Personnel not involved in opening drums or containers must be kept at a safe distance from the drums or containers being opened.
- When personnel must work near or adjacent to drums or containers being opened, place a suitable shield that does not interfere with the work operation between the adjacent person and the drums or containers being opened to protect the employees in case of an accidental explosion.
- Controls for drum or container opening equipment, monitoring equipment, and fire suppression equipment must be located behind the explosion-resistant barrier.
- When there is a reasonable possibility of flammable atmospheres being present, material handling equipment and hand tools will be of a type to prevent sources of ignition (e.g., non-sparking tools).
- Drums and containers will be opened in a manner that allows excess interior pressure to be safely relieved from a remote location. Place appropriate shielding between the employee and the drums or containers, to reduce the risk of personnel injury.
- Personnel shall not stand upon, or work from, drums or containers.

Transfer:

- Material handling equipment used to transfer drums and containers must be selected, positioned, and operated to minimize sources of ignition related to the equipment from ignitable vapors released from drums or containers.

Precautions:

The following precautions must be taken when drums or containers containing, or suspected of containing, shock-sensitive waste are handled:

- All non-essential personnel must be kept a safe distance from the area of transfer.
- Material handling equipment must be provided with explosive containment devices or protective shields to protect equipment operators from exploding containers.
- An employee alarm system, capable of being perceived above surrounding light and noise conditions, will be used to signal the commencement and completion of explosive waste handling activities.
- Continuous communications will be maintained between the personnel in charge of the immediate handling area and both the site safety and health officer and the command center until the handling operation is completed. Communication equipment or methods which could cause shock sensitive materials to explode will not be used.
- Drums and containers under pressure (as evidenced by bulging or swelling) will not be moved until the cause of excess pressure is determined and appropriate containment procedures have been implemented to protect employees from explosive relief of the drum.
- Drums and containers that contain packaged laboratory wastes will be assumed to contain shock-sensitive or explosive materials until they have been characterized.

Laboratory Waste Packs:

When handling laboratory waste packs, the following precautions will be taken:

- Laboratory wastes will be considered shock-sensitive or explosive until they have been characterized.
- Lab packs will be opened only when necessary and then only by an individual knowledgeable in the inspection, classification, and segregation of the containers within the pack, according to the hazards of the wastes.
- If crystalline material is noted on any container, handle the contents as a shock- sensitive waste until the contents are identified.

Sampling:

Sampling of drum and container contents must be done in accordance with a sampling procedure which is included in the HASP.

Shipping and Transport:

- Drums and containers must be identified as classified prior to packaging for shipment.
- Drum or container staging areas must be kept to the minimum number necessary to identify and classify materials safely and prepare them for transport.
- Bulking of hazardous wastes is permitted only after a thorough characterization of the material has been completed.

Tank and Vault Procedures:

- Tanks and vaults containing hazardous substances will be handled in a manner similar to that for drum and containers, taking into consideration the size of the tank or vault.
- Avoid entering tanks or vaults if possible. When entry is required, follow appropriate tank or vault entry procedures, as described in the HASP.

Documentation:
Any site activity where hazardous operations are involved, shall be documented in the on-site project log.

7.13 HAZARDOUS WASTE EMERGENCY RESPONSE PROGRAM

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. The primary concern in emergency response is the safety and security of responding personnel.

SCOPE: This section applies to all employees and subcontractors employed by and/or contracted to Wargo Enterprises, Inc. when responding to chemical releases.

DEFINITIONS

Emergency Response: Emergency response is action taken in response to an unexpected and dangerous occurrence in an attempt to mitigate its impact on people or the environment. Emergency situations can range from natural disasters to hazardous materials problems and transportation incidents. Emergency response may refer to services provided by emergency and rescue services agencies, as well as the plans made and actions taken within an organization to respond to emergencies. Emergency response plans are an important component of workplace safety.

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: Health hazard means a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. Chemicals which are carcinogens, toxic agents, reproductive toxins, irritants and corrosives which can damage the lungs, skin, eyes, or mucous membranes.

REQUIREMENTS

Written Safety and Health Program and Emergency Response Work Plan
Wargo and any subcontractors shall anticipate 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.

The following elements must be discussed in either a specific site safety plan or work plan 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
- 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.

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, 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 to 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 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, 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:
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.

Decontamination procedures shall be monitored by the Wargo HSO 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
The Wargo new hire orientation program trains all new Wargo employees so they will know what to do in case they witness or discover a hazardous release. They are instructed to leave the area and take no further action beyond notifying the appropriate facility operations personnel of the release.

Training for employees expected to participate in an emergency response shall be completed before they take part in response operations. Wargo personnel shall receive initial 40HR HAZWOPER (**HAZ**ardous **W**aste **OP**erations and **E**mergency **R**esponse) and annual 8 HR 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 Wargo or subcontractor 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. 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 and equipment.

First Responder Awareness:
Wargo personnel who are likely to witness or discover a hazardous substance release and have been trained to initiate an emergency response sequence by notifying the facility operations personnel 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.
- The ability to realize the need for additional resources, and to make appropriate notifications.

First Responder Operations:
Wargo 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.

Hazardous Materials Handlers:
Wargo 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.

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. This may or may not be a Wargo employee.

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. Wargo will keep records of all employee training.

7.14 HAZARD COMMUNICATION PROGRAM

National Response Center (NRC): 800-424-8802
The NRC should be contacted in the event of a significant chemical release. Once notified, the NRC will activate a federal response to the spill. Please confirm with the client and project manager to determine if the spill should be reported.

Poison Control Center: 800-222-1222
The Poison Control Center should be contacted in the event of accidental poisoning. They will provide information on immediate treatment for the poisoning.

PURPOSE: The purpose of this plan is to establish a program and procedures for the safe use of hazardous chemical substances at Wargo Enterprises, Inc.

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) 29 CFR 1910.1200 (General Industry) and 29 CFR 1926.59 (Construction Industry) call for the development of a hazard communication program when employees may be exposed to any chemical in the workplace under normal conditions of use or in a foreseeable emergency. In 2012, OSHA revised the HCS to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). As a result, this program has been revised to comply with the requirements of the OSHA HCS 2012. The written hazard communication program will include and address the following criteria in order to satisfy the minimum requirements of the OSHA HCS 2012:

- List of all hazardous chemicals known to be present in the workplace or individual work area.
- Methods used to ensure that all containers, including pipes and holding tanks, are labeled, tagged or marked properly.

- Methods used to obtain and maintain safety data sheets (SDSs).
- Methods used to provide employees with information and training on hazardous chemicals in their work areas.
- Methods used to inform employees of the hazards of non-routine work practices.
- Methods used to provide the employees of other employers (e.g., consultants, subcontractors and temporary employees) on-site access to SDSs for each hazardous chemical that the other employer's employees may be exposed to while working in the workplace.
- Methods used to inform the employees of other employers of precautionary measures that need to be taken to protect themselves during the workplace's normal operating conditions and in foreseeable emergencies.
- Methods used to inform the employees of other employers of the labeling system used in the workplace.

The hazard communication program will identify the following:
- Key personnel responsible for the program.
- Location of chemical inventory list and SDSs.
- Workplace labeling system.
- Good work practices and procedures to minimize exposures.
- How training will be performed.
- Procedures to maintain the program and update the required information.
- How records will be maintained.

RESPONSIBILITIES

The Health & Safety Officer (HSO), John Wargo or Safety Coordinator, Jeff Crewson, is responsible for administering the hazard communication program.

This person(s) 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.
- Monitoring the air concentrations of hazardous chemicals in the work environment.
- Properly selecting and caring for personal protective equipment.
- Directing the cleanup and disposal operations of the spill team, when used.
- Identifying hazardous chemicals used in non-routine tasks and assessing their risks.
- Informing outside subcontractors who are performing work on company property about potential hazards.
- Reviewing the effectiveness of the hazard communication program and making sure that the program satisfies the requirements of all applicable federal, state or local hazard communication requirements.

The Safety Coordinator is responsible for:
- Contacting chemical manufacturers and/or distributors to obtain SDSs and secondary labels for hazardous chemicals used or stored in the workplace.

The Safety Coordinator is responsible for:
- Reviewing incoming hazardous chemicals to verify correct labeling

Employees are responsible for the following aspects of the hazard communication program:
- 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 minimize exposure.
- 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 company policy concerning the safe handling and use of chemicals.
- Participating in training.

LABELS AND OTHER FORMS OF WARNING

Each container of hazardous chemicals received from the chemical manufacturer, importer or distributor will be labeled with the following information:
- Product identifier
- Signal word
- Hazard statement(s)
- Pictogram(s)
- Precautionary statement(s)
- Name, address and telephone number of the chemical manufacturer, importer or other responsible party

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. Food and beverage containers should never be used for chemical storage.

Signs, placards, process sheets, batch tickets, operating procedures or other such written materials may be used in lieu of affixing labels to individual, stationary process containers as long as the alternative method identifies the containers to which it is applicable and conveys the information required for workplace labeling.

Where an area may have a hazardous chemical in the atmosphere (e.g., where extensive welding occurs), the entire area will be labeled with a warning placard.

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.

SAFETY DATA SHEETS (SDSs)

The Safety Data Sheets (SDS) will be obtained and maintained for each hazardous chemical in the workplace. SDSs for each hazardous chemical will be readily accessible during each work shift to employees when they are in their work areas.

SDSs will be obtained from the chemical manufacturer, importer or distributor. The name on the SDS will be the same as that listed on the chemical inventory list.

EMPLOYEE INFORMATION AND TRAINING

Employees included in the hazard communication program will receive the following information and training prior to exposure to hazardous chemicals and when new chemical hazards are introduced to their work area:

- 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 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.
- Physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified of the chemicals in the work area.
- Measures employees can take to protect themselves from hazards, such as appropriate controls, work practices, emergency and spill cleanup procedures, and personal protective equipment to be used.
- 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.

NON-ROUTINE TASKS

The immediate supervisor of an employee performing a non-routine task, such as cleaning machinery and other process equipment, is responsible for ensuring that adequate training has been provided to the employee on any hazards associated with the non-routine task. Employees share in this responsibility by ensuring that their immediate supervisor knows that the non-routine task will be performed.

In some cases, a special work permit may be required for the performance of certain non-routine tasks, such as entry to confined spaces, breaking and opening piping systems, and welding and burning. For some special tasks, employees are required to follow special lockout/tagout procedures to ensure that all machinery motion has stopped and energy sources are isolated prior to and during the performance of such tasks.

SUBCONTRACTORS

Prior to beginning work, the Safety Coordinator will inform subcontractors with employees working on the property of any hazardous chemicals that the subcontractors' employees may be exposed to while performing their work. The Safety Coordinator will also inform subcontractors of engineering or work practice control measures to be employed by the subcontractor, personal protective equipment to be worn by the subcontractors' employees, and any other precautionary measures that need to be taken to protect their employees during the workplace's normal operating conditions and in foreseeable emergencies.

Furthermore, the Safety Coordinator will advise subcontractors that they must comply with all OSHA standards while working on company, or client, property. Appropriate controls will be established with the subcontractor to ensure that company employees are not exposed to safety and health hazards from work being performed by the subcontractor and that company operations do not expose subcontractors' employees to hazards.

The Safety Coordinator will inform subcontractors of the workplace the availability and location of SDSs for any chemical to which subcontractors' employees may be exposed while performing their work.

RECORDKEEPING
Records pertaining to the hazard communication program will be maintained by the Safety Coordinator. The Safety Coordinator will keep the following records:

- Hazardous material reviews
- Employee training records
- Warnings issued to employees for not following the hazard communication program

SDS Sheets for the Following Products:		*Emergency Phone Number*
1) Ultra Low Sulfur Diesel	(On-Road Diesel Fuel)	800-424-9300
2) #2 Non-Road (NRLM) Diesel Fuel	(Off-Road Diesel Fuel)	800-424-9300
3) MOBIL DTE 10 EXCEL 100	(Hydraulic Oil)	609-737-4411
4) MOBIL DELVAC 1300 SUPER 15W-40	(Motor Oil)	609-737-4411
5) MOBILGREASE CM-P	(Grease)	609-737-4411
6) Premium Plus ATF D/M	(Automatic Transmission Fluid)	800-424-9300
7) NOCO Premium & Pre-Mix Antifreeze	(Antifreeze)	800-424-9300
8) NAPA DOT 3 Brake Fluid	(Brake Fluid)	800-424-9300
9) Praxair Propane	(Propane)	800-645-4633

IF YOU REQUEST TO REVIEW THE SAFETY DATA SHEETS FOR THE ABOVE PRODUCTS, PLEASE CONTACT JEFF CREWSON AT 716-542-1333.

7.15 RADIOLOGICAL PROGRAM

If site-specific potential radiological information becomes available, the hazards will be addressed in an addendum to the HASP. Ionizing Radiation action levels can be found in Section 11.

PURPOSE: This document establishes the basis for the radiological controls to be implemented during the performance of work at any client's facility. Operations are subject to the conditions of the applicable Radioactive Materials License and the requirements of applicable regulations. The requirements and guidelines in this document were developed to ensure workers are afforded a safe work environment, to provide a compliant Radiation Protection Program, and to maintain occupational and environmental exposure to ionizing radiation "As Low As Reasonably Achievable" (ALARA).

APPLICABILITY: This program applies to all Wargo Enterprises, Inc. employees, contractors, subcontractors, and visitors at any licensed facility or job site.

POLICY: Wargo Enterprises, Inc. places its highest priority on ensuring the safety and health of its employees and neighbors and protecting the environment. This priority extends to all areas affected by site operations. Wargo Enterprises, Inc. is committed at all levels to implementing a Radiation Protection Program based on the highest standards.

RESPONSIBILITIES: The Radiation Safety Officer (RSO) is responsible for ensuring compliance with this Plan and its associated procedures. He has the authority to direct all aspects of the Radiation Protection Program and to ensure compliance with required regulations. The RSO is organizationally independent from operations and has the authority and responsibility to stop any activity which is not conducted in a safe manner or in compliance with the license, applicable regulations, and procedures.

Radiological Safety Technicians (RST) are responsible for determining, by sampling and measurement, compliance with this document. An RST has the authority to stop work if he/she suspects the initiation or continuation of the activity will result in either imminent danger to a worker or a violation of program requirements.

All site personnel are responsible for compliance with the requirements of the Radiation Protection Program and implementation procedures. All personnel have the responsibility and authority to stop work through their supervisor if considered unsafe.

QUALITY ASSURANCE:
Periodic audits (at least annually) of the Radiation Protection Program will be made during the course of operations to ensure compliance with this document. Audit schedules for individual activities will be identified considering the ALARA, regulatory, and safety reviews in accordance with implementing procedures.

Key elements of Quality Assurance include:

- Conducting Pre-Construction quality control meetings
- Performance of daily quality control checks;
- Daily inspection of site, materials, equipment and construction progress;
- Conduct process and materials audits and quality control tests;
- Tracking and documentation of performance versus standards;
- Development of corrective actions;
- Provision of continuing support;
- Maintain "as-built" drawings current with field changes

IMPLEMENTATION:

The provisions of this document will be implemented through radiological safety procedures. These procedures are working documents and will be updated and modified as changes in facilities, equipment, regulations and conditions change.

TRAINING: Worker Training In Radiation Protection

Radiological Safety Training Requirements

Periodic radiological safety training is necessary to ensure that all individuals understand the general and specific radiological hazards, their responsibility to Wargo and the public for safe handling of radioactive materials, and to maintain their individual radiation exposure ALARA.

The appropriate degree of training for each individual will be established based on the nature of the job assignment (i.e. the location where the work will be performed, the hazards associated with that particular area, and the methods used to perform the work). Workers will be categorized as General Workers (those who do not frequent the Controlled Radiation Zone (CRZ) and typically do not work with radiation or radioactive materials), or Radiation Workers (those who do). General Workers will not have unescorted access to the CRZ. Visitors may be exempted from training requirements provided that he/she is escorted, has received a safety briefing, and has written authorization from the RSO or designee.

Basic Radiological Safety Training

Each worker who is categorized as a Radiation Worker will receive a minimum of 8 hours classroom training prior to initial assignment if they have no prior experience in equivalent radiological work. The purpose of the training is to teach proper methods for working with radiation and handling radioactive materials, to discuss the effects of radiation to explain the risks of occupational exposure, and to identify the specific hazards associated with the operations to be conducted.

The following topics will be covered:

- Radioactive materials and radiation;
- Biological effects of radiation;
- Risks of occupational exposure;
- Exposure limits;
- ALARA, minimizing exposure (time distance, and shielding);
- Personnel dosimetry;
- Protective clothing and equipment (PPE);
- Radiation detection - operation, calibration, and use;
- Contamination control;
- Decontamination;
- Responsibilities of radiation workers;
- Federal and State Regulations and License provisions for the protection of
- Personnel from radiation and radioactive material;
- Emergency response;
- Radiation exposure reports available to workers;
- Respiratory protection program;
- Radiation work permits (RWPs).

Workers with documented prior radiological work experience need receive only as much training as is necessary to ensure a level of competence comparable with trained workers. Reciprocity will be established with radiation worker qualification through other nuclear facility training programs. Qualifications of the trainer shall be a minimum of five (5) years operational radiation protection experience plus 40 hours of formal training in radiation protection. The training session is followed by a written test which must be passed (80% pass rate) before unescorted access is allowed to the RCA. Records of required training are maintained in each worker's file. The RSO may authorize individuals to challenge any training requirement and demonstrate the requisite level of knowledge in radiation safety by successfully completing a written exam and demonstration of practical factors. Hands-on training should be used for newly trained individuals without prior radiation work experience to ensure understanding and proficiency in radiation safety practices.

Radiation Surveys

General

Radiation surveys are performed as necessary to ensure personnel do not exceed radiation exposure limits and to meet requirements for posting Radiation, High Radiation, and Very High Radiation Areas. These surveys are performed to determine whether abnormal radiation levels exist and to determine the extent and magnitude of radiation levels. The surveys in this section shall be the minimum performed.

Radiation surveys shall be performed whenever operations are performed that might be expected to change existing radiation levels. Examples of such operations include movement or removal of shielding, radioactive waste processing, and relocation of radioactive materials.

Temporary boundaries (e.g., rope boundaries) of radiation areas shall be surveyed weekly to ensure radiation areas do not extend beyond posted boundaries.

Gamma surveys shall be performed at least weekly in posted radiation, high radiation (if accessible), and radioactive material storage areas. Very high radiation areas shall be surveyed upon entry or when a change of conditions warrant.

When highly radioactive equipment (i.e., contact radiation level greater than 100 mRem/hr) is moved, gamma surveys should be performed in spaces surrounding work areas (including the spaces above and below them if applicable) where personnel are likely to be exposed to radiation.

Potentially contaminated ducts, piping, and hoses outside the RCA shall be surveyed at least monthly when in use or at least annually when not in use (e.g., deactivated systems) for gamma radiation.

Beta-gamma surveys of ventilation system filters shall be performed whenever maintenance work or filter change-out is performed.

Other surveys should be performed as necessary to control personnel exposure to gamma, beta, and alpha radiation. Such surveys should include: (1) a gamma survey during initial entry into a confined space containing potentially radioactive piping; (2) gamma surveys in spaces where significant radiation levels might exist from adjacent operating equipment; (3) alpha, beta/gamma measurements when personnel might come in contact with surfaces contaminated with alpha and beta-emitting radioactive material.

Surveys shall be conducted when performing operations which could result in personnel being exposed to small intense beams of radiation. These operations include maintenance which requires the removal of shielding, or opening shipping/storage containers of radioactive equipment. When surveying are as or equipment where intense small beams of radiation could be present, an instrument should be used with an audible response (e.g., earphones). The probe is moved at a speed which is determined by considering the size of the probe, the instrument response time, the possible intensity of the beam, and the general dose rates in the area. For equipment with complex shield designs, RSTs and workers should be briefed on the equipment design so that the areas most likely to have small beams can be given special attention.

Gamma radiation surveys shall be performed weekly on a revolving basis in the areas of the work site where radioactive materials are not stored or handled. The survey should consist of a scan of accessible areas, offices, lunchrooms, etc. Unrestricted areas adjacent to the restricted area boundary shall be surveyed on a weekly basis. The survey shall consist of measurements taken at 50 foot intervals around the entire perimeter.

Contamination Surveys for Material Release

Material that is removed from the RCA will be surveyed for surface contamination. Only material which meets the requirements of Wargo's free release criteria will be allowed to exit the RCA without restriction. Material not meeting the free release criteria must be transferred directly to another RCA and/or packaged and labeled for storage or shipment prior to release from the RCA.

Normal Survey Plan

A free release survey shall be conducted by first surveying the item for removable contamination. The smears shall be counted using an appropriate portable survey instrument. To obtain better sensitivity for radionuclides with very restrictive release limits, a low background laboratory instrument may be used.

A fixed contamination survey is subsequently performed on the item using an appropriate portable survey instrument. The scan rate should not exceed 1 inch per second. The entire surface of the item to be released shall be surveyed. For greater sensitivity where required, a scaler equipped detector can be used along with a statistically valid survey plan approved by the RSO.

Special Survey Plan

For large amounts of homogeneous material with known history, and the material is either (a) not been exposed to contamination, (b) only suspected of being contaminated, or (c) decontaminated with a method that removes the entire surface area that was contaminated; a special survey plan may be used that surveys less than 100 percent of the surface area. This plan must be specific to the material surveyed and specify a detailed sample and survey plan. This survey plan must be approved by the RSO.

ALARA Program

Minimizing Radiation Exposure

Wargo shall maintain personnel radiation exposure ALARA. A continuing effort is required to meet this goal by developing and implementing improvements to work procedures and work performance.

All work shall be performed in the RCA under the direction of an approved procedure, approved work instruction, or RWP

Individual work procedures shall specify applicable actions (e.g. mockup training, use of temporary shielding, or removal of equipment from high radiation areas) to be used to minimize radiation exposure while working.
Supervisory personnel and radiological safety personnel shall ensure that personnel are not lingering unnecessarily in radiation areas.

Before entering the RCA, a worker shall receive specific job training and/or briefings necessary to enable him/her to perform his/her work with minimum radiation exposure. Examples include mockup training for specific jobs or periodic briefings by supervisory personnel for routine work.

Radiation levels shall be identified by the use of signs which clearly show the areas with the high and low radiation levels.

Wargo maintains records of the cumulative radiation exposure involved in performing work and establishes ALARA goals as necessary to improve methods to minimize personnel radiation exposure in future work.

Plans, Procedures and work instructions
Major work shall be performed under the guidance of a task specific plan, procedure, work instruction, or RWP. Determination of the need for specific approved plans, procedures, work instructions, or permits shall be made by the OM, the RSO, and the Quality Assurance Manager.

Plans, procedures or work instructions may describe the task, radiological conditions, or radiological controls, and shall be approved by the RSO or designee. A RWP will supplement the above with specific contamination or exposure control measures, monitoring requirements, and work instructions.

A pre-job ALARA briefing shall be held prior to beginning work performed under a plan, procedure, work instruction, or RWP to ensure all personnel understand the task, radiological conditions, and radiological controls.

Radiological Work Permit (RWP)
The RWP is an administrative mechanism to inform personnel of area radiological conditions, entry/exit requirements and specific work requirements that may apply to the task being performed. The RWP shall be used to maintain occupational radiation exposure ALARA, to minimize the spread of contamination, and to provide for augmented monitoring and surveillance where required. A description of the task to be performed and the radiological conditions associated with the work shall be recorded on the RWP. Also specified are the protective measures, dosimetry, and training required by personnel entering the designated area.

A standing RWP is used to govern activities in areas where hazards have been well characterized and radiological conditions are relatively stable. This includes routine activities such as tours and inspections, radiological surveys, and "light work" activities covered by procedures. Standing RWPs must be approved by the RSO or designee and the OM, and are reissued 011 an annual basis. Specific task RWPs are generally issued for the duration of the activity to be performed.

An RWP shall be obtained for all work activities that involve occupational radiation exposure or the potential spread of contamination. This includes activities not specifically covered by an approved plan, procedure or work instructions that are performed in any of the following conditions:

- Entry into a posted Radiation, High Radiation, or Very High Radiation Area;
- Entry into a posted Contamination or Airborne Radioactivity Area;
- Any work within the RCA or on contaminated or potentially contaminated equipment or surfaces;
- Maintenance work that would require the breaking of any process line, tank, vessel, or enclosure containing radioactive material that may become loose or airborne during the task

Signs indicating the need for the RWP shall be conspicuously posted at the entrances to areas were the RWP is required.

It is the responsibility of supervisors proposing to conduct work activities within required areas to initiate the issue of the RWP.

The RST shall complete the RWP after discussion of proposed work activities with the supervisor and performance of appropriate surveys.

Prior to beginning work, the RST shall conduct a pre-job ALARA briefing with all personnel working under the RWP. Items discussed shall include work scope, radiological conditions, dosimetry and protective clothing requirements, limiting conditions including stay times and hold points, and emergency actions. All personnel to perform work shall sign the RWP signature form to indicate an understanding of the requirements. Personnel added to the RWP after initiation of work shall be briefed by the RST prior to starting work and shall sign the RWP signature form.

During work under the conditions of a RWP, if radiological conditions change, or the scope of work is changed or expected to change, another RWP will be required and a pre-job ALARA briefing held.

The RST shall determine the type and degree of radiological monitoring required for a specific task. This determination should be based on the potential for radiation exposure or contamination spread and the experience of the personnel conducting the work.

An RWP shall be terminated by the initiator one year from the date of its initiation, or at the completion of the task, whichever comes first. If the work must be continued, a new RWP shall be initiated with the appropriate approvals, briefings, and documentation.

The RSO or designee shall ensure an indexed RWP log is maintained. The RWP log shall include: RWP #, date of issuance, date of termination and reason for RWP (work scope).

The RSO or designee shall ensure that all RWPs are terminated within the time allotted by the above paragraph, and shall ensure copies of all terminated R\VPs are maintained in the facility file throughout the duration of the activities.

Access Control and Restricted Areas

General Access

Restricted Areas are maintained for purposes of protecting members of the public against undue risk from exposure to radiation or radioactive materials. Radiation levels at the facility are controlled such that an individual at the Restricted Area boundary could not receive a dose in excess of 2 mRem in any hour from external sources, or a cumulative exposure of 100 mRem in a year. Within the Restricted Area are the RCA and support areas. All visitors and vendors must enter the site through the administrative area where a visitor access log is maintained. Visitors are escorted in the RCA.

The RCA may include Radiation, High Radiation, Very High Radiation, Contamination, Airborne Radioactivity, and approved Radioactive Material Storage Areas as appropriate. Access control to the RCA shall be provided via the RW'P process and a formal access control point. The RCA boundary shall consist of engineered barriers and administrative controls which prevent access by unauthorized personnel, and ensure that authorized personnel have received appropriate training arid qualification. The access control requirements are applicable to all employees, contractors and visitors who may have need to enter this area.

Radiological Areas and Postings

Radiological areas are maintained at various locations inside the RCA, as required. Radiological areas include and will be posted as follows.

- Radiation Area is an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 5mrem in an hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates. To mark such areas, signs shall be conspicuously posted; signs shall contain the conventional magenta three bladed symbol on yellow background and the words "CAUTION RADIATION AREA"; signs are permitted to state the general area radiation level. In addition, "DOSIMETRY REQUIRED" and "RWP REQUIRED" may be posted. No loitering is allowed in these areas.
- High Radiation Area is an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 100 mRem in an hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates. Such areas shall be posted and locked or guarded. The requirement to lock or guard a posted high radiation area does not apply to tanks or voids posted as high radiation areas if entry requires the removal of complex closures. Positive control shall be established for each individual entry into a high radiation area and shall be established in such a way that no individual is prevented from leaving the high radiation area. Prior to locking an unoccupied high radiation area, the area shall be inspected to ensure that no personnel remain inside. No loitering or entry by unauthorized personnel shall be allowed in these spaces. High radiation areas shall be conspicuously posted at entrances into the area. Signs shall contain the conventional magenta three- bladed symbol on yellow background and the words "CAUTION: HIGH RADIATION AREA". In addition, "CONTACT RADIATION SAFETY PRIOR TO ENTRY" shall be posted.
- Very High Radiation Area is an area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads in 1 hour at 1 meter from a radiation source or from any surface that the radiation penetrates. Signs shall contain the conventional magenta three- bladed symbol on yellow background and the words: "GRAVE DANGER, VERY HIGH RADIATION AREA". In addition to the control requirements described above for a High Radiation Area, access and security controls for very high radiation areas shall be implemented to ensure an individual cannot gain unauthorized access.

NOTE: PRIOR WRITTEN APPROVAL FROM THE RSO AND QA MANAGER IS REQUIRED FOR ENTRY INTO VERY HIGH RADIATION AREAS.

- Airborne Radioactivity Area is an area where airborne radioactive material exists in concentrations in excess of the derived air concentrations (DACs) specified in Table 1, column 3 of Appendix. B to 10 CFR 20 *(OAC 3701:1-38- 12, Appendix* C, *Table* 1), or to such a degree that an individual in the area without respiratory protection could exceed during a week, an intake of 0.6% of the ALI or 12 DAC-hours. Signs shall be posted at entrances to areas where airborne radioactivity levels exceed or have the potential to exceed these levels. These signs shall contain the conventional three-bladed magenta symbol on yellow background and the words "CAUTION: AIRBORNE RADIOACTIVITY AREA." The requirements to wear respiratory equipment may also be included on the sign along with the anti-contamination clothing requirements.
- Contamination Area is an area having loose (removable) contamination on exposed surfaces greater than 1000 dpm/100 cm2 beta-gamma activity or 20 dpm/100 cm2 alpha radioactivity. Signs shall be posted at entrances to areas

where surface contamination levels exceed or have the potential to exceed these levels. These signs shall contain the conventional three-bladed magenta symbol on yellow background and the words "CAUTION: CONTAMINATION AREA." The requirements to wear anti- contamination clothing or perform personal contamination surveys may also be included on the sign.

- Radiologically Controlled Area (RCA) is an area to which access can be controlled for radiation exposure or contamination control purposes. An RCA typically serves as a buffer around a contamination or radiation area and provides access control for personnel, equipment and material monitoring. Signs shall be posted at entrances to these areas which contain the conventional three-bladed magenta symbol on yellow background and the words "CAUTION: RADIOLOGICALLY CONTROLLED AREA."
- Radioactive Material Storage Area is an area where radioactive material is used or stored in amounts exceeding 10 times the quantity of such material specified in appendix C to 10 CFR 20 *(OAC 3701:1-38-18, Appendix A).* Entrances to areas where radioactive materials are handled or stored that meet this criteria shall be posted with signs having the conventional magenta three-bladed symbol on yellow background and the words "CAUTION: RADIOACTIVE MATERIAL." This posting is in addition to posting required for other radiological areas.

An Access Control Point is a location on the perimeter of a restricted area, or the RCA through which all entries and exits are made. Precautions are taken at the appropriate access control point to prevent the inadvertent exposure to radiation or the spread of contamination to adjacent uncontaminated areas. The dimensions and material requirements of an access control point depend on the type of work to be performed, the number of personnel involved, and the location of the work.

Temporary Shielding

Since incorrect installation, unauthorized movement, or removal of temporary shielding can result in large changes in work area radiation levels and subsequent radiation exposure, control of temporary shielding is essential.

Temporary shielding installation and removal should be controlled by written instructions. These instructions shall specify locations and amounts of temporary shielding.

After installation, temporary shielding shall be inspected and surveys conducted to ensure it is properly located.

Controlling Airborne Radioactivity

General

The primary reason for control of airborne radioactivity is to minimize internal radiation exposure resulting from inhalation of airborne radioactive materials. An intake of radioactive material is measured in units of DAC-hours (DAC multiplied by hours of exposure), which is directly proportional to CEDE.

Radioactivity in the form of particulates, gases, or both can become airborne through sources such as (1) radioactive system leaks, (2) grinding or welding a contaminated component, (3) decontamination operations, (4) disturbing surface contamination deposited on a work surface, (5) improper use of a containment enclosure, (6) inadequate vacuum cleaner and ventilation system control, (7) inadequate application of procedures for venting and draining radioactive systems or components, (8) damage or detects in instrumentation calibration or check sources, and (9) radon from radium sources or from trace amounts of natural radium impurities in construction materials.

Engineering controls shall be used, to the extent practical, to reduce the potential for the release of airborne radioactivity. These -include agents that fix loose contamination, HEPA-filtered ventilation, local exhaust ventilation, containments, decontamination, and wrapping, as required.

Airborne radioactivity monitoring provides a record of ambient airborne radioactivity in the work place, a tool to assess worker intakes, verify required posting, and evaluate the adequacy of engineered and administrative controls for maintaining exposure ALARA.

The RSO will prescribe the continuous or periodic sampling required to detect and evaluate the levels of airborne radioactivity in work areas and exhaust air systems in accordance with this section and Reference.

Air sampling is required for activities where an individual is likely to receive in one year, an intake in excess of 10% of the applicable ALL Representative air samples are collected and intakes tracked and controlled such that personnel exposure complies with 10 CFR § 20.1502 *(OAC 3701:1-38-12)* requirements. Continuous air monitoring systems with local and remote alarm capability are provided where the potential for airborne radioactivity is higher during maintenance or off-normal conditions. Portable air samplers and/or personal breathing zone air samplers are used as necessary to monitor specific work activities.

It should be noted that this monitoring is primarily concerned with the control of particulate airborne activity. Certain unique situations with noble gases may be encountered, and will require special monitoring techniques.

Routine bioassays may be performed to supplement air monitoring data for workers where normal operating conditions would result in an intake of radioactive material in excess of 10% of the applicable ALI in 10 CFR 20 *(OAC 3701:1-38).* Routine bioassays include baseline measurements prior to exposure, termination measurements at termination of employment or change in work status, and periodic measurements (as determined 011 a site specific basis to meet 10 CFR § 20.1204 *(OAC 3701:1-38-12)* requirements). Special monitoring bioassays will be performed on a case-by-case basis in the event of unusual or

unexpected monitoring results at the discretion of the RSO. Examples of situations that may require special monitoring include: the presence of unusually high levels of facial or nasal contamination, entry into airborne radioactivity areas without appropriate exposure controls, loss of system or container integrity, a CAM alarm, or incidents that result in contamination of wounds or other skin absorption.

Unplanned individual exposures with estimated intakes greater than 0.02 Annual Limit on Intake (ALI) will be investigated. Individual intakes greater than 0.1 ALI will be investigated using follow-up bioassay measurements and available work place monitoring data.

Limits for Airborne Radioactivity

The administrative limit for occupational exposure to airborne radioactivity is 8 DAC hours in anyone day. The DAC values are found in table 1 of appendix B to 10 CFR 20 *(OAC 3701:1-38-12, Appendix* C *Table* 1). Site specific administrative control levels for occupational exposure to airborne radioactivity are given in Section 6.1.3.

Engineering controls should be designed and operated in such a manner that personnel are not routinely exposed to airborne radioactivity levels that may require use of respiratory protection equipment Investigation Levels. Any measurement which indicates the airborne radioactivity concentration to be in excess of 2% of the applicable DAC shall be investigated to determine the cause of the airborne radioactivity levels. Appropriate controls shall be implemented to maintain the airborne radioactivity levels ALARA.

Requirements for Controlling Personnel Exposure to Airborne Radioactivity

Personnel exposure to airborne radioactivity is controlled using fixatives, ventilation, containments or respiratory protection equipment for work in areas with high levels of surface contamination (e.g., >100,000 dpm/100 cm2 beta-gamma, >2000 dpm/100 cm2 alpha) because of the likelihood that this surface contamination could be re-suspended. In some circumstances, respiratory equipment might be necessary in areas where surface contamination exists at lower levels due to the nature of the work.

Engineered controls shall be used to the maximum extent practicable to prevent personnel from being exposed to airborne radioactivity above the administrative control levels in Section 6.1.3. These controls are recommended during radiological work which has been known to cause or is expected to cause airborne radioactivity, and will be provided for in the RWP.
The need for personnel to wear respiratory protection equipment where airborne radioactivity is likely to exceed 25% of the DAC in table 1 of appendix B of 10 CFR 20 *(OAC 3701:1-38-12, Appendix* C *Table* 1) shall be evaluated and documented prior to area entry. Worker efficiency with respiratory protection equipment will be considered in areas with elevated external radiation in order to maintain the TEDE ALARA.

Personnel shall not be exposed to airborne radioactivity such that their daily intake exceeds 8 DAC-hours without prior approval of the RSO.

Signs shall be posted at entrances to airborne radioactivity areas. The requirements for respiratory protection equipment shall also be included on the sign with the anti-contamination clothing requirements where appropriate.

When personnel not wearing respiratory equipment may be exposed to airborne radioactivity above the limits of Section 10.2, ventilation and/or containment should be provided which will capture airborne particulate radioactivity U1 a controlled ventilation system with a high efficiency particulate au' (HEP A) filter. Other controls such as the use of loose fitting prefabricated drapes, ventilated shrouds, ventilated glove-bags, the use of fixatives, or misting may reduce ambient airborne radioactivity to a level that would preclude the use of respiratory protection.

- HEPA filters shall be installed in the ventilation exhaust from radioactive work areas in which work in progress could cause the discharge of airborne radioactivity to the environment.
- HEPA filters shall be installed in the exhaust from contamination containments to prevent personnel from being exposed to high airborne radioactivity.
- HEPA filters shall be installed in vacuum cleaners used for decontamination of loose surface contamination.

Positive pressure air purifying respirators, air supplied masks, hoods, or suits may be worn for work where airborne radioactivity is expected to be significant. Self contained breathing apparatus will be utilized for very significant airborne radioactivity concentrations.

Elevated Airborne Radioactivity Response

Elevated airborne radioactivity associated with operations can result from many causes. It can be indicated by a CAM alarm, retrospectively by a portable or personal air sample exceeding the applicable limit of Section 10.2, or by visual observation of a radioactive system leak or rupture. General methods for controlling personnel exposure to airborne radioactivity are contained in Section 10.3. An appropriate response to elevated airborne radioactivity is given below:

Immediate Action: Operations identified to be the cause of elevated airborne radioactivity shall be stopped until adequate control is established. Unessential personnel shall be evacuated from the affected area. Essential personnel shall don respiratory protection in accordance with Section 6.7. Unfiltered ventilation from the affected spaces shall be secured. Ventilation systems which contain high efficiency filters in exhaust ducts need not be secured. The extent of the airborne radioactivity should be determined by sampling the affected area and adjacent areas using p0l1abie air samplers. If the elevated airborne radioactivity is indicated by alarm of a CAM monitoring a ventilation exhaust or a work area, the instrument should be checked to ensure the alarm is not the

result an electrical transient. Gamma radiation levels at the CAM should be measured to determine if the CAM alarm was caused by high radiation levels external to the CAM. Supplementary actions need not be taken if the alarm is determined to be a false alarm.

Supplementary Action: Supplementary actions are carried out to facilitate recovery operations and the return of the plant to normal status. Sampling and analysis shall be performed to identify the source of the airborne radioactivity. In order to minimize the need for respiratory protection equipment, and reduce personnel exposures to airborne radioactivity, consideration shall be given to ventilating the facility with additional HEPA filtered ventilation systems. Gamma surveys of ventilation filters and ducts as well as surface contamination in the vicinity should be performed to facilitate recovery. When resuming operations, portable air samples are used to confirm the cause of elevated airborne radioactivity has been corrected. Evacuated personnel should be monitored for contamination and decontaminated as necessary. Personnel exposed to elevated airborne radioactivity shall be evaluated for intake in accordance with Section 6.1.

Reports: A report of any occurrence involving elevated airborne radioactivity (above the limits of Section 6.2) in areas occupied by personnel not wearing respiratory equipment shall be made in accordance with Section 17. This report shall include the results of monitoring personnel for internally deposited radioactive material as required.

Monitoring for Airborne Radioactivity

The method used for monitoring airborne radioactivity shall have a Minimum Detectable Activity (MDA) equal to or less than 10% of the applicable DAC. Refer to Reference 2.1.7 for MDA calculations.

Airborne particulate surveys shall be performed with portable air samplers whenever airborne radioactivity levels above the limits of Section 6.1 are suspected.

Personnel air samplers (lapel type) shall be used whenever portable sampling cannot be positioned in such a manner to be representative of the breathing zone of the worker. Examples would include large work areas with intervening structures, components, etc., or activities which require the worker to be mobile.

Records of airborne radioactivity measurements are required for regulatory purposes. The records shall be maintained legibly and retained in the on site file in accordance with Section 17.0. These records should include at least the following information:

- Date and time of sample and measurement
- Location
- Reason for sample
- Sampling equipment and counting Instrument used
- Results of most recent efficiency, MDA, and background measurements
- Airborne radioactivity in µCi/ml
- Signature of RST
- Signature of persons reviewing records

Air Sample Analysis

When handling air samples collected from areas known or suspected of containing airborne radioactivity care should be taken to prevent the spread of contamination and cross contamination of samples taken. If significant short lived radionuc1ide concentrations are expected, the samples shall be counted initially and then decay counted to determine the actual long-lived radioactivity.

Counting Activities: Low background automatic alpha/beta counting systems are used for screening and gross activity analysis. Spectroscopy is used to identify a particular radionuclide in an air sample. All systems used for air sample analysis shall be set up and operated in accordance with manufacturer's instruction.

Calculation of Airborne Radioactivity Concentration: Airborne radioactivity concentration is typically recorded in units of mCi/ml, and reported as a percentage of the applicable DAC. In order to calculate concentration, it is necessary to accurately determine the volume of air sampled and the radioactivity deposited on/in the air sample filter media. Additionally, due to unique characteristics of the filter media such as collection efficiency, self-adsorption, and flow rate, correction factors may be necessary to accurately calculate concentration.

Determination of DAC-Hours: A DAC-hour is a mathematical expression of intake, derived by dividing the measured concentration of radioactive material in air by the respective DAC for the radionuclide in question, and then, multiplying by the number of hours of exposure to that radionuclide. One ALI can be expressed as 2000 DAC-hours, which is equivalent to a CEDE of 5 rem.

An individual's expected intake in DAC-hours should be estimated during the work planning process by considering measured air concentrations, the expected stay time in the work area, and the nature of the activity. In the interest of maintaining radiation exposure ALARA, stay times, the use of engineered or administrative controls including respiratory protection, and the methods used to conduct the work activity can be optimized in order to minimize overall dose. A record of intake in DAC-hours shall be recorded in order to demonstrate compliance with conditions of 10 CFR 20 (*OAC 3701:1-38*). Records shall be maintained in accordance with 10 CFR 20.2103 (*OAC 3701:1-38-20*) and section 17.0.

Use of Respiratory Protection Equipment

General

Table 1 of appendix B to 10 CFR 20 (*OAC 3701:1-38-12 Appendix C, Table 1*) lists the ALIs and DACs for occupational exposure to radioactive materials. GRD, Inc. is committed to design of processing facilities and control of work in such a manner as to maintain CEDE ALARA. However, when process or other engineering controls are not practical to control airborne radioactive materials below those contained in the definition of an airborne radioactivity area, intakes may be limited by use of respiratory protection equipment.

The RSO or designee is responsible to ensure that the qualification requirements are met and documented for personnel using respiratory protection equipment. A copy of this document shall be maintained by the RSO or designee in the on-site file.

No person shall wear a respiratory protection device for a period of more than four consecutive hours without a one ham break and for more than a total of six hours in any one day.

High Efficiency Particulate Air CHEPA) Filter Requirements

HEPA filtered systems shall be tested prior to use following each set up and after each filter change. Acceptance criteria is a transmission of 0.03% or less dioctylphthalate (DOP) (or use of equivalent testing methodology) particulate per applicable DOP test procedure.

Great care shall be used in installing HEPA filters to assure the filter material separators are in the vertical position, tight seals are made around the edges of the filters, and that filters are not damaged during installation. Minor damage will greatly reduce the efficiency of these filters.

Used filters shall be disposed of as radioactive waste since loose surface contamination could be present on interior pleats.

Instructions in manufacturers' manuals shall be followed for use and filter change-out.

Portable Ventilation System

A portable ventilation system can be constructed by adapting a portable blower with a HEPA filter. Such a system can be used during maintenance or an elevated airborne radioactivity condition to reduce airborne radioactivity without contaminating installed ventilation systems.

A vacuum cleaner with installed HEPA filter can also be used effectively to reduce airborne radioactivity in a space by re-circulating the air in the space through the high efficiency filter. Such a system must be tested prior to use as per Section 6.8.1.

Release of Airborne Radioactivity to the Environment

Releases of airborne radioactivity to the environment may require an Environmental Protection Agency (EPA) permit and/or a State Air Quality Control Permit. Required permitting and limits shall be evaluated prior to each project at a customer's facility. Such releases shall be evaluated for compliance with regulatory requirements (EPA, State, etc.) and the evaluation documented.

Airborne effluents should be controlled when possible through wet scrubbing and/or HEPA filtration of the exhaust. Monitoring is conducted by taking a representative sample at the exhaust stack during all periods of processing operation, and measuring for selected radionuclides. Processing of radioactive materials shall be stopped immediately if these systems are in-operative.

The site specific requirements for environmental monitoring may include air monitoring stations. The licensee requirements for the type and frequency will be followed. Analysis of these samples is performed to demonstrate compliance with Subpart D-Radiation Dose Limits for Individual Members of the Public of 10 CFR 20 dose limits (*OAC 3701:1-38-13*). Specific environmental monitoring guidelines are provided in Section 16.

Surface Contamination Control

General

It is the intention to maintain generally accessible areas free of contamination. Office areas and other areas outside the RCA will be maintained to keep surface contamination levels as low as possible, but in no case greater than the unrestricted release criteria in Appendix B.

Surface contamination levels in the RCA will be maintained ALARA to facilitate optimum access for operations, use of personal protective equipment, and dose reduction in accordance with established plans, procedures and instructions. Should there be an increase in contamination outside the RCA, it will be investigated by the RSO or designee. Procedures to prevent recurrence will be implemented. Radioactive contamination of surfaces (such as floors, equipment, clothing and skin) may result from work operations, leaks of radioactive fluids, or gradual precipitation of airborne radioactive contamination onto exposed surfaces. The primary reason for limiting surface contamination is to minimize possible ingestion or inhalation of radioactive materials. In addition, surface contamination is limited to minimize transfer of radioactive materials to the environment beyond the control of Wargo. In case of very high levels of surface contamination, control of external radiation exposure from this contamination may be necessary. Surface contamination is divided into two classes in this section: (1) loose contamination can be removed from surfaces with relative ease and may be readily dispersible, and (2) fixed contamination remains on affected surfaces and is not further reduced by normal non-destructive decontamination techniques. Areas where loose contamination levels exceed the applicable limits in Appendix B are posted and controlled as a Contamination area. The controls shall include conspicuous

boundaries, restricted access, step-off pads, protective clothing requirements, and monitoring upon exit. A typical method for determining levels of loose contamination is to wipe the surface in question (usually a 100 sq. cm area) with a dry adsorbent material using moderate pressure, and then measuring the wipe for radioactivity. Levels of fixed contamination on a surface is determined by placing a radiation detector in direct contact with the surface, and either making a static measurement or scanning the surface by moving the detector slowly.

Contamination control procedures should be considered in planning and performance of all jobs. A dedicated set of "hot tools" should be used in the RCA to avoid the necessity to transfer the equipment across a contamination control boundary. When using clean tools or equipment in contaminated areas, the use of plastic sleeves or strippable paint to prevent contamination or facilitate decontamination is warranted. The extent of the contamination control procedures used should be commensurate with the amount of radioactive material being handled, and the nature of the task.

Surface Contamination in Uncontrolled Areas

Surface contamination levels for uncontrolled surfaces should be kept as low as possible. Areas where contamination exceeds established limits shall be either decontaminated in a timely manner, or painted or otherwise sealed to prevent the spread of contamination.

Acceptable surface contamination levels in uncontrolled areas are dependent upon (1) radionuclides being processed in the facility (2) applicable regulatory requirements, and (3) facility operating parameters.

Limits for loose and fixed contamination are usually dictated in the "NRC or Agreement State Radioactive Materials License, are based on the release limits found in Appendix B.

Surface Contamination in Radiologically Controlled Areas

The RCA is established, among other things, as a formal boundary to prevent the uncontrolled spread of radioactive materials. This boundary serves as the point at which certain precautions are taken, including training, protective clothing, and monitoring to prevent a worker from unknowingly contaminating his/her self, and transferring the contamination to the uncontrolled area. The RCA serves as a buffer between the more contaminated areas and those that are not contaminated. Significant levels of fixed contamination may exist in these areas; however, loose contamination levels are maintained to established limits.

Areas where surface contamination exceeds the established limits, areas "where equipment or materials are handled with exposed parts exceeding these levels, and areas where activities may cause contamination in excess of the limits in Appendix B shall be designated as Contamination Areas (CA) until such areas equipment, or materials have been adequately sealed or decontaminated to meet these limits. CAs may be established on a more permanent basis to facilitate operations. The CA boundary will serve as the initial and primary boundary to prevent the spread of contamination.

Access to a CA shall be limited by the conditions of a RWP to allow only personnel with appropriate anti- contamination clothing, monitoring equipment, and participation in the internal dosimetry program to enter. Choice of appropriate anti-contamination clothing is discussed in Section 12.1.

Personnel with open wounds shall not enter CA without prior approval of the RSO or designee. Open wounds shall be adequately protected from contamination prior to a person working in these conditions.

Entrances to CA shall be posted conspicuously with signs, stating the access restrictions, requirements for anti-contamination clothing and masks, levels of loose surface contamination and radiation dose rates. If the entrance to a CA and the step-off pad cannot be positioned at an existing barrier (door), magenta and yellow rope barriers or equivalent shall be used to mark the affected area clearly.

Smoking, eating, drinking and chewing shall not be permitted in CAs. Prescription medications may be taken under approved and controlled conditions. This provision is essential to minimize the possibility of transferring contamination from the hands or other areas to the mouth. For the same reason, hands should be kept away from the face, nose, mouth, and ears while in a CA.

Where operations such as grinding or machining are being performed without containment on contaminated components or equipment, the area of the operations shall be considered subject to the spread of loose contamination. The area shall be posted as a CA until such time as the work can be completed, the area surveyed, and down-posted.

Where surveys for loose contamination have not been made, but contamination is suspected, the area shall be posted as a CA pending the results of contamination surveys.

Levels and extent of loose surface contamination inside a CA shall be limited to control possible re- suspension of radioactive materials, to reduce airborne radioactivity, to reduce the potential for the spread of contamination, to simplify subsequent decontamination, and to minimize personnel radiation exposure.

Personnel leaving a CA shall (a) remove their outer anti-contamination clothing and (b) monitor or be monitored for surface contamination where background levels of radiation will permit.

Methods for Controlling Surface Contamination

The most effective means of controlling radioactive surface contamination is containment at the source through the use of ventilated enclosures around contaminated items to keep the radioactive material inside. Containments can be simple drapes,

tents, or pans, or elaborate pre-fabricated glove-bags or large walk-in enclosures. Containments should be used as much as practical when working on the surfaces or components which have been exposed to radioactive materials. Plastic sheet, bags, or easily decontaminated containers may be used to enclose clean material and prevent contamination of clean items inside the enclosure. The following specific requirements shall be followed when working or handling contaminated equipment and materials.

Workers shall have been trained on the use of containments and instructions for using containment enclosures shall be readily available during work planning.

Containment enclosures shall be inspected prior to use to determine if they are properly constructed and ready for use. Enclosures shall then be marked to certify this inspection was completed. Personnel using containment enclosures shall inform radiological safety personnel of any damage to containment enclosures which occurs during work. When a containment enclosure is damaged or is unfit for use, the enclosure shall be conspicuously tagged to prevent its inadvertent use by personnel unaware of the problem until repaired. Containment enclosures shall not be removed or altered without approval of the RSO or designee.

Ventilation should be controlled during operations involving radioactivity to prevent spreading the radioactive contaminants through an area or to the environment. The basic methods of controlling contamination by ventilation are by providing clean supply air into the contaminated work area and by providing filtered local exhaust ventilation close to the work, or from a containment enclosure erected around it. The exhaust capability should always exceed the supply including discharges from pneumatic tools.

HEPA filters (and HEPA system pre-filters) may become contaminated so that handling a used filter may spread contamination. Therefore, great care should be exercised when removing used filters. Contaminated used filters are normally removed by the bag-out method into plastic bags.

A buildup of detectable levels of surface contamination can occur through the deposition of radioactive material from the air without having significant levels of airborne radioactivity. Therefore, all process ventilation exhaust ducts or ventilation system ducts from radioactive work areas should be considered potentially contaminated. When opening these potentially contaminated systems, they should be surveyed and decontaminated as practical for similar reasons, if a portable exhaust blower is used in a contaminated space, surface contamination should be checked on surfaces exposed to the filtered exhaust of this blower.

When HEPA filters are installed in ventilation systems for radiological areas, labels should be prominently affixed verifying proper installation of the filters. These labels should be located so that they are destroyed when the filters are removed. HEPA filtered ventilation systems shall be tested in accordance with Section 10.8.

Potentially contaminated air that has not passed through a high efficiency filter should not be discharged to locations occupied by personnel or where supply ventilation can return it to an occupied area.

Consideration should be given to controlling contamination which has been collected in ventilation equipment and systems not normally used for radiological work, i.e. HVAC systems, and in particular those systems in adjacent spaces which may have become contaminated during a spill Prior to work on these items, radiation measurements should be taken, the items treated as contaminated, and radiological control precautions established to prevent spreading contamination.

Method for Measuring Surface Contamination

A rate meter with a thin window probe (G-M) or equivalent will detect radioactive beta-gamma surface contamination on materials and personnel by slowly scanning the probe held within about *1/2* inch of the surface. Alpha-emitting contamination is normally monitored using a sensitive proportional or scintillation detector. An instrument and detector should be used that has a MDA for contamination measurements of < 90% of the applicable limit with a goal of <10% of the limit. If background levels are higher than will permit the above stated NIDA, equipment or personnel to be monitored for release shall be relocated to an area of lower radiation levels or the area or instrument detector shielded to lower background levels. A reading of 100 cpm above background indicates excess contamination.

Method for Monitoring Personnel Contamination

Personnel monitoring (frequently referred to as "frisking" when done with a handheld instrument) shall be performed when exiting CAs or RCAs. Monitoring of personnel for surface contamination is typically done with all automated portal type personnel contamination monitor established at a formal control point.

Monitoring of personnel by taking swipes for loose surface contamination on the skin or clothing shall not be done since swipes may tend to imbed radioactive particles. Special circumstances may require the use of adhesive tape to remove contaminated particles for measurement.

When personnel have been adequately trained in frisking procedures, self monitoring will be permitted; however, frisking may be performed by a RST.

If facial contamination is detected, or it is suspected that radioactive material have been taken into the body even though no facial contamination is evident, the RSO or designee shall be notified and the individual monitored for internal radioactivity. Measurements of the radioactivity of nose and throat swabs may be used. Decontamination shall be performed in accordance with Section 13.4.

Frequency of Surveys for Monitoring Areas for Surface Contamination
Minimum site specific contamination survey requirements are dictated by the NRC or Agreement State Radioactive Materials License, and detailed in Reference 2.1.14.

Routine contamination surveys shall be performed at a frequency commensurate with the risk of loss of surface contamination control for the area in question. In the interest of ALARA, contamination surveys in High or Very High Radiation Areas are done only upon entry, or when a change of conditions dictates.

Operations such as the following also require surveys:

- Decontamination and release of equipment
- Inspection or maintenance on components and piping which are associated with radioactive or potentially radioactive systems
- Areas where radioactive liquid leaks have occurred or where airborne radioactivity has exceeded the concentrations of Section 10.2. Surveys are required to determine the need for anti-contamination clothing and to determine the extent of contaminated areas
- Upon initial entry into tanks or voids potentially contaminated radioactive materials and when opening ventilation exhaust ducting from radioactive material work areas
- In addition, any normally uncontaminated system which is suspected of containing radioactive materials shall be surveyed when opened for inspection, maintenance or repair. Contamination control procedures should be used until the portion of the system being worked on is proven to be uncontaminated. Water drained or flushed from these systems shall be treated as radioactive and sampled as appropriate;
- Contamination surveys should be performed in plenums downstream of HEP A filters during routine filter replacement, to determine radioactivity buildup in ducts downstream of filters;
- Prior to replacing filters on HVAC ducts serving a radiological work area, filters should be surveyed to determine if radioactivity is present;
- Surveys for contamination fixed in paint should be performed prior to removal of paint in potentially contaminated areas. These surveys should be performed by counting paint scrapings for gross activity;
- Surveys to support RWP development or work planning.

Records of Contamination
Records of surface contamination surveys shall be maintained in the on site files throughout the duration of the operations in accordance with Section 17.0. Any occurrence which results in loose surface contamination greater than the applicable site specific free release limits for uncontrolled areas shall be reported in accordance with Section 17.0.

Any spread of contamination in the RCA or CAs which results in work being stopped for more than four hours or takes more than four hours to clean up shall be reported in accordance with Section 17.0.

Records of surface contamination surveys shall be retained in the on site file throughout the duration of the operations file in accordance with Section 17.0.

Anti-Contamination Clothing and Equipment
General
Anti-contamination clothing (Anti-Cs) is used to help prevent personal skin and clothing contamination, and the spread of radioactive materials outside the RCA or CAs. Anti-contamination clothing is required when either surface contamination or airborne radioactivity levels exceed prescribed limits.

Requirements for Wearing Anti-Contamination Clothing
The RSO or designee in consultation with other safety disciplines shall determine the appropriate requirements for Anti-Cs and shall so note on the applicable RWP. The recommended type of Anti-Cs for various applications and radiological conditions are provided in Reference 2.1.10. In addition, miscellaneous equipment used for the control of exposure to radioactive materials is described.

Donning and Doffing of Anti-Contamination Clothing
It may be necessary to remove personal clothing before putting on Anti-Cs for comfort when working in high temperature spaces. Typically, a modesty garment is worn from the change facility to and from the donning/doffing point for the Anti-Cs.

Anti-Cs shall be inspected by the wearer prior to donning to ensure the garment is free of rips, tears, missing buttons, or malfunctioning zippers. Damaged clothing shall not be worn.

Used Anti-Cs shall be removed at the appropriate step-off pad in a manner that will preclude personal skin or clothing contamination and the spread of contamination across the boundary. Used Anti-Cs shall be deposited in the appropriate receptacle upon doffing.

Radioactive Decontamination
General
Decontamination may be required for components, tools and equipment, work areas, clothing or personnel. Each of these subjects

as well as alternatives to decontamination is discussed in this section. These include, in some case, storage for decay, disposal without decontamination, or restricted use without complete decontamination. By the very nature of decontamination process, the generation of secondary waste materials must be considered. Volumes of both solid and liquid wastes shall be minimized. Unauthorized chemicals shall not be used. These may cause difficulties in waste processing. Most radioactive contamination can be removed by normal cleaning. Wiping with a damp rag soaked with an appropriate cleaning agent will usually provide satisfactory decontamination.

If large variations in surface contamination levels exist on highly contaminated surfaces, cleaning shall be from less contaminated toward more contaminated areas to prevent radioactivity from being spread to less contaminated areas. Cleaning solutions and cloths used in these decontamination operations shall be disposed of as radioactive waste. During decontamination operations, precautions shall be taken to limit the spread of contamination, such as by taking care not to splash solutions, by properly wearing anti- contamination clothing, and by wearing masks as necessary" Filtered ventilation may be required to minimize the possibility of contamination being inhaled by personnel performing the decontamination.

Decontamination of Tools and Equipment

In decontaminating tools and equipment, appropriate radiological control shall be used to prevent the spread of contamination, and to control airborne radioactivity, and radiation exposure. The following applies to the decontamination of tools and equipment.

Tools and equipment which may be used again in contaminated areas may be temporarily stored in the contaminated area or in a "hot tool locker" without decontamination if proper radiological controls and procedures are used. If certain tools are to be used solely in CAs, these tools should be durable and distinctively marked to indicate they are always treated as potentially contaminated.

In some cases, the need for decontaminating tools may be minimized by taping some portions, such as the handles, prior to use and stripping off the contaminated tape after use. Large tools are often wrapped in plastic instead of tape. These tools need to be swiped or frisked at completion of decontamination to verify the effectiveness of the treatment.

Heavily contaminated tools can spread surface contamination. Therefore: such tools should be partially decontaminated as may be necessary several times throughout a work shift. Heavily contaminated tools can be readily identified without taking swipes by measuring their radiation level The purpose of decontaminating these tools will usually be to reduce their radiation levels rather than to remove all loose surface contamination.

When only a few tools require decontamination, wiping with cloths soaked in an approved decontamination solution is a convenient, effective procedure. This method is also useful when only a portion of a tool is contaminated. A disadvantage of wiping procedures is the potentially large amount of solid radioactive waste produced.

Mechanical decontamination methods, such as using abrasives which remove some of the surface of the tool, can be useful in special circumstances where contamination is not removed by chemical cleaning. In such cases, control of possible airborne radioactivity is essential.

In decontaminating oily or greasy tools or equipment, consideration should be given to the fact that oil or grease may inhibit waste processing or disposal only decontamination solutions approved by the RSO or designee may be used.

Decontamination of Areas

Contaminated areas shall first be isolated and radioactive materials then removed while being careful to avoid spreading contamination. In some cases, tape may be used to lift loose contamination from surfaces. If contamination levels are not sufficiently reduced, use of solvents (non-hazardous to prevent mixed waste), strong chemicals, or mechanical removal of some of the surface may be necessary. The areas shall be surveyed by approved methods prior to release to ensure surface contamination is below the established limits. On painted or covered surfaces, if washing will not remove the contamination, the paint or covering shall be removed. During the process of paint removal, control of airborne and surface contamination from dust and paint chips will be necessary.

Contaminated areas should be decontaminated as soon as practical to minimize spread of contamination and to facilitate removal before the contamination is fixed on the surface. If high radiation levels from the contamination contribute significantly to personnel radiation exposure during cleanup, it may be desirable to decontaminate the most heavily contaminated area first.

Decontamination of Clothing

Anti-contamination clothing shall be laundered and surveyed before reuse to minimize the possibility of spreading radioactive contamination to the wearer. This requirement does not apply to disposable Anti-Cs.

Decontamination of Personnel

Decontamination of personnel shall be performed within an established RCA (unless otherwise approved by the RSO or designee).

The objectives of skin decontamination are to remove as much of the radioactive material as practicable in order to reduce the skin dose rate and to prevent the ingestion or inhalation of the material An over- aggressive skin decontamination effort must be avoided since it may injure the natural barriers in the skin and so increase absorption.

Reports of skin contamination shall be made in accordance with the requirements of Section 17.

Radioactive Waste Handling

Packaging Radioactive Materials

Radioactive materials shipped for disposal or to another location shall be appropriately packaged and treated as required by USDOT, applicable federal and state regulations, and applicable disposal site criteria. Shipping shall be performed by the RSO or designee, or a Shipper/Broker in accordance with applicable plans, procedures, and/or instructions. The specific radioactive material handling and packaging requirements will be identified in operations procedures.

Radioactive Material Storage

Storage of radioactive materials will be in accordance with all applicable license requirements and, at a minimum, all radioactive material storage areas will be posted. Access to these areas will be controlled to prevent unauthorized access, unauthorized removal of radioactive material, and to minimize radiation exposure.

Fire Protection Practices

Proper selection of a fire resistant storage area for radioactive material will minimize release of radioactivity to the environment in the event of a fire. However, the following additional fire protection practices shall be considered for storage of radioactive material to minimize the possibility of a fire and spread of contamination in the event of a fire.

- Storage of radioactive material in fire-resistant containers or spaces is desirable to minimize contamination spread. In addition, containers of highly flammable radioactive materials shall be stored in areas segregated from other storage to reduce the risk: of spreading a fire. These areas will be approved by the RSO or designee.
- Smoking shall not be permitted in radioactive material storage areas.
- An up-to-date inventory of locations where radioactive materials are stored shall be available to personnel who might be called to fight a fire in such areas. This list shall also identify unusual hazards which may be present.
- Periodic inspections of radioactive material storage areas shall be made to identify fire hazards. Deficiencies shall be promptly corrected.
- Combustible materials shall be minimized inside radioactive material storage areas and should not be stored next to surrounding walls.
- Welding, burning, or other operations which may cause a fire shall not be conducted inside or next to radioactive material storage areas without prior authorization of the RSO or designee.

Contamination Control

Storage locations should be considered potentially contaminated. Personnel in these areas, particularly if they handle contaminated material, shall wear Anti-Cs commensurate with the task. Reasonable care shall be taken in packaging and storing contaminated items to prevent the spread of contamination and to ensure that entry to areas where such storage is permitted does not result in the contamination of personnel or other areas.

Radiation Exposure Control

Storage of radioactive materials can result in possible personnel radiation exposure in the storage area and surrounding areas. Facilities should store radioactive material so as to minimize the radiation exposure of personnel entering or working in the area and of personnel in surrounding spaces. Radiation surveys of the storage area and of spaces immediately around the storage area shall be performed to ensure proper posting of radiation areas and prevent inadvertent exposure of personnel in the storage space or surrounding spaces. When necessary, temporary shielding should be used to reduce radiation levels.

Outdoor Storage

Radioactive materials shall be stored where they are protected from adverse weather. Radioactive material shall not be stored outside the Restricted Area. Outdoor storage is only permitted in a covered storage area with a permanent roof, or during short periods to accommodate loading or unloading as required. It is important that packaged materials be stored in a manner that permits periodic monitoring of the area and adjacent containers to ensure there is no release of radioactive materials.

Minimize Radioactive Material in Storage

In order to minimize the complexities of accounting for a large amount of radioactive material and the possibility of losing radioactive material, it shall be consolidated in as few areas as practical and the amount of radioactive material in storage shall be minimized.

Labeling of Radioactive Material

Each container of radioactive material shall bear a durable clearly visible label which identifies the radioactive contents (radionuclides present, quantity of radioactivity present, material description, date for which the activity was estimated, and radiation levels), and depicts the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL". Exceptions include the following:

- The quantity of radioactive material is less than the amounts listed 111 Appendix C 10 CFR 20 *(OAC 3701:1-38-18, Appendix A)*
- The material is continuously attended by a trained radiation worker
- The material is in transport and is packaged and labeled in accordance with DOT regulations;
- The material is contained in installed process equipment such as piping, tanks, transfer equipment, and treatment units.
- Empty containers which are used or intended to be used for the packaging or handling of radioactive materials will be clearly marked "EMPTY", and any radioactive markings defaced or removed from any container released off-site for

unrestricted use.

Shipping Radioactive Materials

All shipments or transfers of radioactive material over public areas (i.e., public highways, waterways, airways, etc.) including shipments made with private or government vehicles, must comply with appropriate USDOT, federal, state, and local transportation regulations.

Shipments of radioactive material shall be performed in accordance with established plans, procedures, and/or instructions. Records of radioactive material transfer shall be maintained in the permanent site files by the RSO or designee.

Contaminated Equipment Repair. Maintenance and/or Storage

Equipment which has been used in the nuclear industry may require repairs, maintenance, or storage. All work of this nature is performed per *RWPs* and plans, procedures and instructions as required.

Actions and Reporting in Case of Loss of Radioactive Material

If radioactive material associated with GRD operations is suspected of being lost, immediately notify the RSO and OM and conduct a search for the lost material. A primary purpose of this search is to ascertain that no persons will receive inadvertent internal or external radiation exposure from this material.

Radioactive Waste Management

General

Working with radioactive material can frequently lead to contamination of structures and equipment, protective equipment and clothing, and material used in decontamination. If any of the contaminated material cannot be used further, it becomes radioactive waste. Waste minimization consists of three primary objectives; (1) source reduction, (2) recycling, and (3) volume reduction. Waste minimization must be practiced on levels of the company, from top-level management down to the worker. Training programs, procedures, and work practices will be reviewed annually for waste minimization practices.

Source Reduction

Source reduction activities are those which reduce or eliminate the production of radioactive waste, or seek to reduce the volume or amount of clean material that comes in contact with radioactive material. Examples include:

- Taking care to 110tstore radioactive materials with non-radioactive materials
- Removal of packaging from clean material before taking the material into the
- RCA, or bringing the minimum amount of clean material into the RCA necessary to perform a task
- Taking care to not bring clean tools, equipment or material into the RCA unless a contaminated tool, equipment or material is not already available
- Taking care not to touch a contaminated surface or allow clothing, tools, or other equipment to do so;
- Confining radioactive material and contamination to as small an area as practical to minimize the decontamination effort later
- Avoiding the use of disposable liners, drip pads or plastic floor covers in the RCA. Do use smooth non- porous surfaces that can be easily decontaminated
- Minimizing loose surface contamination levels and airborne contamination levels to prevent inadvertent contamination of adjoining areas and equipment
- Choosing decontamination methods that generate the smallest total waste volume
- Preventing spills of contaminated materials.

Recycling

Recycling is using, reusing or reclaiming material that would become radioactive waste and aims to delay the point at which there is no further use for contaminated equipment or material Some strategies include:

- Returning contaminated waste generated at the site while processing a customer's material to the customer;
- Recycling contaminated laundry by using it in first stage decontamination of highly contaminated areas
- Using contaminated wood for cribbing inside burial boxes;
- Choosing decontamination methods that recycle or regenerate the cleaning media;
- Reusing contaminated equipment or areas with as little decontamination between jobs as practical, cross contamination and dose considerations taken into account

Volume Reduction

Volume reduction is reducing the waste volume to the minimum practical and is not strictly waste minimization, but is essential to conserve disposal site resources. Work practices will consider the following strategies;

- Packing material in burial containers to reduce void space to a minimum
- Cutting or segmenting of odd shapes to facilitate packing
- Using compaction for compressible material
- Evaporation of liquids as much as practical before disposal.

Personnel Monitoring and Bioassay

External Dosimetry Program

For purposes of monitoring exposure to radiation, personnel dosimetry shall be provided to an individual likely to exceed 10% of the limits in -Section 6.1.1. The specific monitoring requirements for personnel radiation exposure for all Wargo activities is

determined and approved by the RSO. Reference 2.1.8 provides the procedure for the issue and processing of dosimetry, and the recording of personnel radiation exposure for all personnel working at the site.

All individuals shall wear appropriate personnel dosimetry for RCA entry Visitors or contract workers shall be issued personnel dosimetry (TLD or SRD) for Radiation Area entry and shall not be allowed access to High Radiation Areas or Airborne radioactivity Areas. Specific requirements for a particular work activity shall be communicated to personnel in the ALARA briefing conducted in accordance with Reference *2.1A.* The RSO may allow access by Visitors or Contractors to an RCA provided continually monitored by a Radiation Worker with appropriate monitoring and/or dosimetry.

Thermoluminescent Dosimetry (TLD) or Optically Stimulated Luminescent (OSL) Dosimetry

TLDs or OSLs shall be the dosimetry of record and shall be worn on the frontal area of the torso between the neck and the waist. TLD's will be processed and evaluated by a dosimetry processor who holds current accreditation from the National Voluntary Laboratory Accreditation Program (NVLAP) for the radiation(s) most closely approximating the type of radiation(s) to which individuals are exposed. Normal issue TLDs or OSLs will be worn to assess whole body deep and shallow dose. If dose to the extremities or the lens of the eye is anticipated to exceed 10% of the limits in Section 6.1.1, special TLDs or OSLs will be issued.

In situations where beta radiation is significant, the lens of the eye shall receive special consideration. Personnel shall be shielded from the beta radiation using masks or eye protection (safety glasses), and/or anti-contamination clothing. If the beta radiation cannot be shielded, methods for controlling beta radiation exposure shall be evaluated and implemented to maintain exposures ALARA.

Certain radioactive isotopes commonly given for medical diagnostic purposes can result in measurable radiation levels for some period after receiving the administration. The dose received from this administration is exempt from regulation. All individuals shall notify the RSO if they have received such treatment. In such a situation, the person may be restricted from wearing dosimetry until the medical isotope is eliminated from the body to the extent that it will not affect TLD or OSL measurements. The purpose of the restriction is to avoid including radiation exposure from the medical isotope to that received from occupational sources.

Such personnel shall also be restricted from entering areas requiring monitoring for contamination until the medical isotope is eliminated from the body to the extent that it will not affect personnel monitoring equipment. In such situations, the RSO and the OM shall determine an appropriate work assignment for the individual until the restriction can be released.

Lost or damaged dosimetry shall be reported to the RSO.

Personnel dosimetry records for an individual shall be made available to an authorized requestor and to the individual upon written request. This information will be readily available to enable an individual to keep track of their own exposure.

Self-Reading Dosimeters (SRDs)

In addition to the TLD, SRDs shall be worn to monitor radiation exposure in certain circumstances. SRD's shall be worn in accordance with the applicable RWP. The following circumstances shall require SRD:

- All personnel entering a Radiation or High Radiation shall be monitored by a SRD WOI11 at the same location on the body as the TLD. The above does not preclude the use of SRDs for other exposure monitoring.
- Additional SRDs may be required if the location of the maximum dose on the body is not certain.
- Typically, devices used as SRDs include pocket ionization chambers or electronic dosimeters.

SRD Records. The RSO or designee shall maintain a log of all SRD results between routine TLD read-out cycles. Before an SRD is re-zeroed, the measured radiation exposure is recorded. The individual's monthly, quarterly and/or yearly exposure totals are determined. The individual is thereby prevented from inadvertently exceeding the administrative control levels

Reading SRDs. SRDs shall be read by the wearer prior to entering High Radiation or Very High Radiation Areas and periodically thereafter to maintain their own radiation exposure ALARA. To prevent an off-scale reading, dosimeters shall be read, re-zeroed, and doses recorded whenever the reading exceeds three- fourths of full scale. When a pocket dosimeter reading is off-scale or a dosimeter is lost under conditions such that an elevated exposure is possible, the person's TLD shall be processed immediately and the person restricted from work in radiological areas until their exposure bas been determined. The RSO or designee shall notify the OM for appropriate work assignment for the individual during the restriction.

SRD Testing Requirements. SRDs in use shall be tested at least every six months to ensure accuracy. If dosimetry performance is suspected to be unacceptable due to excessive drift or fails in use, the RSO shall initiate action to correct the problem.

Internal Dosimetry Program

The site internal dosimetry requirements for specific activities will be determined and approved by the RSO. Reference 2.1.9 provides the procedure for the internal radiation monitoring of individuals, submittal of bioassay samples, and the types and applications of various measurements. Specific requirements for a particular work activity shall be communicated to personnel during the ALARA briefing.

Internal radiation monitoring shall be performed when an individual is likely to receive an intake of radioactive material in excess of 10% of the Annual Limits on Intake (ALIs) as defined in 10 CFR § 20.1003 *(OAC 3701:1-38-12).* All personnel with the intake

potential as defined above shall participate in the internal radiation monitoring program. Monitoring shall consist of baseline, routine, diagnostic, and termination bioassay sampling and/or in-vivo counts as determined to be appropriate by the RSO. Additionally, suspected intakes of radioactive materials as may be indicated by a positive routine bioassay, significant personnel contamination, elevated airborne radioactivity, or an ingestion of radioactive material shall be investigated by internal monitoring. Waivers of internal monitoring requirements may be granted by the RSO for contractors and visitors, provided the basis for the waiver is documented. Access restrictions for contractors and visitors are given in Section 6.1.7 above. Minors and declared pregnant women who are likely to receive in one year a CEDE in excess of 10% of the applicable limits in 10 CFR 20 *(OAC 3701:1-38)* shall participate in an internal monitoring program.

The following techniques for internal radiation monitoring shall be employed by the RSO or designed depending upon the workplace contaminant and conditions, and the nature of the activity:

- Air Sampling - Concentrations of radioactive materials in air in work areas may be used in lieu of bioassay measurements to determine internal exposure if the bioassay data is unavailable, inadequate, or the air sampling data is demonstrated to be more accurate.
- Bioassay - An estimate of the amount of internal exposure can be calculated by measuring the quantity of radionuclides in bodily excreta (collections of urine, feces, etc.) and relating the excretion rate to body burden by the use of biokinetic models.
- In-vivo counting - An estimate of the amount of internal contamination by gamma emitting radionuclides is obtained by measuring the gamma radiation emitted from the body and analyzing the pulse height spectrum. This technique can also be used to measure the bremsstrahlung from energetic beta emitters.

Each occupational intake of radioactive material that is confirmed by a positive bioassay shall be investigated and an estimate of the initial intake calculated using standard retention models.

For a confirmed intake, the CEDE will be determined and entered in the individual's exposure record. An intake resulting in a CEDE of greater than 0.1 rem will require an investigation to determine cause and identify corrective actions. .A. CEDE of greater than 0.5 rem will result in a restriction from radiological areas pending completion of the investigation and an exposure evaluation.

Procedures for the collection of in-vitro bioassay samples are found in Reference 2.1.9. The services of an accredited laboratory will be used to perform the analysis of samples. In-vivo counting shall be performed by an approved vendor.

All reports of internal radiation monitoring shall be maintained on site in a readily retrievable file in accordance with Section 17.0. Copies of these reports shall be made available to the monitored individual upon written request, as required by Section 17.0.

Exposure Records. The RSO or designee shall maintain records of personnel exposure and shall forward those records and data as required by 10 CFR 20 (OA C 3701: 1-38).Occupational exposure records are recorded on NRC Form 5 or equivalent. GRD will demonstrate compliance with the requirements of 10 CFR 20 (OAC 3701:1-38) by summing external and internal doses. Any recorded eye dose, skin dose, or planned special exposure dose will be maintained separately. Dose evaluation reports are prepared, maintained, and submitted per 10 CFR 20 (OAC 3701:1-38) and provided to workers per 10 CFR 19.13 (OAC 3701:1-38-10).

DOSE ASSESSMENT

The radionuclides of concern and their concentrations at the site, identified through soil analysis from a preliminary analytical report are presented in the following table:

Isotope	Concentration (pCt/g)				
	001	002	003	004	005

For this Site, two methods of exposure will be evaluated.

Direct exposure from the contaminated soil

Potential for exposure due to excavation activities creating fugitive soil dust in the work area

8.0 DECONTAMINATION

8.1 GENERAL

At a minimum, the procedures outlined below shall be followed for decontamination:

- Remove gross contamination from tools, respirator, monitoring equipment, boots, etc., prior to leaving the "exclusion zone", wash using paper towels, handi-wipes, etc.

- Once employees reach the CRZ, all PPE shall be removed, placed in disposal drum. Employees shall wash boots in the provided boot wash and respirators in the provided respirator wash. All large equipment and tools at the completion of the project shall be decontaminated using water, and brushes as needed, in the temporary equipment decontamination pad.

- All water generated from the decontamination activities shall be containerized and sampled at the end of the project, or as needed, to determine proper disposal requirements.

- All PPE shall be containerized and characterized for proper disposal at the completion of the project, or as needed.

9.0 EMERGENCY ACTION PLAN

9.1 PERSONAL INJURY WITHIN THE EXCLUSION ZONE

Facility operations shall be temporarily halted and all site personnel shall assemble in the Contamination Reduction Zone. The Office Manager, or another competent Supervisor, shall evaluate the nature of the injury and, if indicated by the hazards present on site, the injured person shall be decontaminated to the extent possible prior to movement to the Support Zone.

Contact shall be made for an ambulance and with the designated medical facility (if required). An individual certified in Standard First Aid and Adult CPR may choose to initiate the appropriate first aid. No persons shall re-enter the Exclusion Zone until:

- The conditions resulting in the emergency have been corrected;
- The hazards have been reassessed;
- The Corporate Safety Plan has been reviewed; and
- Company personnel have been briefed on any changes in the Corporate Safety Plan.

9.2 PERSONAL INJURY WITHIN THE DECONTAMINATION ZONE

The Office Manager, or another competent Supervisor, shall evaluate the nature of the injury and, if indicated by the hazards present on the facility, the injured-person shall be decontaminated to the extent possible prior to movement to the Support Zone.

Contact shall be made for an ambulance and with the designated medical facility (if required). An individual certified in Standard First Aid and Adult CPR may choose to initiate the appropriate first aid. If the injury increases risk to other site workers, all site personnel shall move to the Contamination Reduction Zone and site activities will stop until the risks can be assessed and either removed or minimized.

9.3 PERSONAL INJURY WITHIN THE SUPPORT ZONE

The Site Project Manager, or another competent Supervisor, will assess the nature of the injury and determine if the cause of injury or loss of the injured person will affect continuation of facility operations. If the injury will not affect the safety or performance of other site workers, operations may continue, with the person certified in first aid initiating the appropriate first aid and necessary follow up as stated above.

If the injury increases risk to other workers, all personnel shall move to the Contamination Reduction Zones and facility activities will stop until the risks can be assessed and either removed or minimized.

9.4 FIRE/EXPLOSION

This facility may contain temporary storage of diesel fuel. In the event an ignition occurs, all heavy equipment, trucks and shop tools and equipment shall stop operating. If an air horn is sounded, all personnel shall stop work activities immediately and gather at the mustering point. The primary mustering point shall be the CRZ. A head count will be taken to ensure all employees are accounted for. A this point all personnel shall fall back to the secondary mustering point at which time the Office Manager, or another competent Supervisor, shall report to the local emergency services/authorities.

9.5 PERSONAL PROTECTIVE EQUIPMENT FAILURE

If any facility worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy, if applicable, shall immediately leave the Exclusion Zone. Reentry shall not be permitted until the equipment has been repaired or replaced.

9.6 EQUIPMENT FAILURE

If any other equipment on facility fails to operate properly, the Office Manager, or another competent Supervisor shall be notified and then determine the effect of this failure on continuing operations. If the failure will affect the safety of personnel, all personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions are taken.

10.0 FACILITY or SITE CONTROL MEASURES & SAFETY

10.1 FACILITY or SITE ZONES

A controlled work area should be established in the immediate vicinity of the site activities covered by this plan. Only those persons who can comply with the requirements of this plan should be allowed into this area during any work activities, which may result in exposure to the hazards associated with the specific task being performed.

When activities involve invasive activities on sites in which the Project Manager, Local HSO or the CHS have determined the area

to be highly-contaminated, a three- zone system will be used to control the potential spread of contamination. These zones are characterized by the presence or absence of chemical and biological hazard and the activities contained within them.

Zone boundaries should clearly marked at all times and the flow of personnel among the zones must controlled. The site should be 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 must also be changed and workers immediately notified of the change

For the purpose of this plan, the following definition of terms is provided:
Exclusion Zone - The immediate area of the work activity to be performed or an area fully enclosing the hazards present. Personnel and equipment will enter and exit the Exclusion Zone from the designated access points in the Contamination Reduction Zone (CRZ).

Contamination Reduction Zone - The transition area between the contaminated and uncontaminated area. Based on monitoring results, the CRZ boundaries may be adjusted to ensure that the Support Zone remains uncontaminated. Workers and equipment exit the Exclusion Zone through the designated access point(s) into the CRZ. Workers and equipment are then decontaminated in the CR2, according to the procedures specified in the Decontamination Section 8 of this HASP. Workers and equipment then exit the CR2 into the Support Zone through the designated access points. If necessary, emergency decontamination procedures are implemented. Emergency decontamination-procedures are described in Section 8 of this HASP (if necessary).

Support Zone - The Support Zone is the clean area .of the site, beyond the outer boundary of the CRZ. There should be no contamination in this zone. Administrative clerical and other support functions are based in the Support Zone.

Air and surface monitoring are conducted in the Support Zone as needed to ensure that it remains uncontaminated. If contamination is detected, zone boundaries are adjusted until corrective action is taken and monitoring results indicate that this zone is again uncontaminated.

11.0 EXPOSURE MONITORING PROGRAM

11.1 REAL-TIME MONITORING

Photo-ionization Detector (PID): Real-time monitoring for volatile organic compounds (VOCs) will be conducted using a photo-ionization detector (PID). The PID will be used to monitor employee breathing zones during all invasive activities. Table 1 lists PID action levels and response requirements.

Combustible Gas Indicator/Oxygen Level Meter: Real-time monitoring for combustible gases and oxygen levels will be conducted using a Combustible Gas Indicator (CGI)/Oxygen Level Meter. The CGI will test for the presence of combustible gases by continuously monitoring the lower explosive limit (LEL) of organic vapors. The CGI will be used to monitor the LEL prior to, and during, Confined Space (CS) entries and during work near an excavation in contaminated soil. The Oxygen Level Meter will detect an oxygen-deficient or oxygen-enriched atmosphere, and will be used prior to, and during, all CS entry activities. If ionizing radiation is suspected at a site, a Geiger counter will be used to measure exposure under guidance of a Health Physicist. Table 2 lists CGI, Oxygen Level Meter, and ionizing radiation action levels and response requirements.

Depending on the Contaminants of Concern, other forms of real-time monitoring equipment may be required to quantify chemical hazards and protect workers from exposure. These may include, but are not limited to bio-aerosol monitors, detector tubes, dust monitors, etc.

- *Calibration of Real-Time Monitoring Equipment:* Monitoring and calibration protocols will be performed in accordance with the manufacturer's guidelines. Calibration will be performed, at a minimum, prior to each day's use.

- Calibration logs will be maintained by the Local HSO.

11.2 ACTION LEVELS

Tables 1 and 2 list the action levels and response requirements for a PID and CGI/Oxygen Level Meter. Changing levels of protection, upgrading respiratory protection, or changing work practices is based on maintaining the upper limit of the action level for approximately 10 minutes sustained in the breathing zone (i.e., a non-transient reading) or at the discretion of the Site Supervisor. If changes in protection levels are required, the Site Supervisor will first notify the Local HSO or the CHS to determine if administrative or engineering controls can be implemented to mitigate or eliminate the hazard.

Table 1 provides action levels that must be complied with when petroleum products such as gasoline are the known site contaminants. If the site contains other potential site contaminants, appropriate action levels must be determined based on established chemical exposure limits and monitoring instrument response factors.

See Tables Below:

TABLE 1: OVM ACTION LEVELS

Meter Response (Breathing Zone)	Action Required
PID response <5 units above	No respiratory protection required (i.e., Level background
PID response >5 units above background (Bkgd) and< 50 units above Bkgd.	Stop work. Investigate the cause of elevated VOC measurements. Contact the Project Manager or office and determine if administrative or engineering controls can be implemented to mitigate or eliminate the elevated readings. If not medically qualified to wear respiratory protection, leave work zone. If the elevated readings cannot be reduced below 5 units above background or eliminated, and if medically qualified, fit tested and trained to wear respiratory protection, then upgrade to Modified Level C, half- face respiratory protection.
PID response >50 units and < 250 units above Bkgd.	Stop work. Investigate the cause of elevated VOC measurements. Contact the Project Manager or office and determine if administrative or engineering controls can be implemented to mitigate or eliminate the elevated readings. If not medically qualified to wear respiratory protection, leave work zone. If the elevated readings cannot be reduced below 5 units above background or eliminated, and if medically qualified, fit tested and trained to wear respiratory protection, then upgrade to Modified Level C, full- face respiratory protection.
PID response > 250 above Bkgd.	Retreat from site*

* Note 1: If a retreat becomes necessary, the Local HSO or CHS will be consulted in regard to adding mechanical ventilation or possible changes in work practices. Work will not resume until appropriate corrective measures are implemented.

* Note 2: Because direct reading instruments cannot indicate or are not compound specific, concentrations shown on the instruments shall be related to units above background and not parts per million (ppm).

TABLE 2: CGI/02/RADIATION LELEL ACTION

Meter Response	Action Required
CGI response <10 % LEL	Continue normal operations.
CGI response >10% and <20% LEL	Eliminate all sources of ignition from the work area; implement continuous monitoring. However if work is being done in a confined space, retreat from work area.*
CGI response >20 % LEL	Discontinue operations; allow to vent; retreat from work area.*
Oxygen level < 19.5%	Retreat from work area.*
Oxygen level >23.5%	Retreat from work area.*
3X background to <2 mR/hr	Radiation above background levels (normally 0.01-0.02 mR/hr) signifies possible Sources of radiation present. Continue investigation with caution. Perform Thorough monitoring. Consult with a physician.
>2m2R/hr	Potential radiation hazard. Evacuate the area. Continue investigation only upon The advice of a health physicist.

TABLE 3: RETAIL PETROLEUM MATERIALS OF CONCERN					
Contaminant	**OSHA TWA (ppm)**	**ACGIH TLV (ppm)**	**Hazards**	**Entry Routes**	**IP**
Benzene	1	10	1,2,4,5,6,9	Inh, Abs, Ing, Con	9.24
Xylene	100	100	1,2,3,4,5,6,7,10	Inh, Abs, Ing, Con	8.56
Ethylbenzene	100	100	1,2,3,10	Inh, Ing, Con	8.76
Toluene	200	50	1,2,3,4,5,7,10	Inh, Abs, Ing, Con	8.82

TWA = Time Weighted Average in parts per million (ppm)
C = Ceiling
IP = Ionization Potential

I = irritant to skin
2 = irritant to eyes
3 = irritant to respiratory system
4 = may cause headache
5 = may cause dizziness, lightheadedness
6 = may cause nausea and vomiting
7 = may cause liver and kidney damage
8 = irritant to 01 tract
9 = carcinogen/possible carcinogen
10= may cause damage to CNS

* Note: If a retreat becomes necessary, the Local HSO or CHS will be consulted about adding mechanical ventilation, or possible changes -in- work practices.

12.0 CLOSEOUT & ACCEPTANCE

Facility, or site, walk through with the owner, or his representative, to verify completion of all work items and to inspect the condition of the facility, or site. In some towns/cities this might have to include the Building Inspector. In the event the work is done for a municipality, or other government entity, then the Building Inspector would probably perform this. Verify that there is no damage to remaining structures on the facility, or site.

13.0 HEALTH & SAFETY PLAN COMPLIANCE LOG

All project personnel, including visitors, must follow the requirements of this Safety Plan. In order to document individual agreement with this requirements, all personnel must complete this "Health & Safety Plan Compliance Log". These acknowledgement will be kept in the Safety Plan and will become part of the permanent project record upon completion of site activities.

By signing below, I have read the Health & Safety Plan (HASP), or I have been verbally advised of its contents. I understand, and I agree to comply with all provisions. I understand that I could be prohibited from working on the project, and I may be subject to disciplinary actions for violating any of the health and safety requirements specified in the HASP.

HEALTH & SAFETY PLAN COMPLIANCE LOG

NAME	*SIGNATURE*	*DATE*

EXHIBITS

WARGO ENTERPRISES, INC.
ALCOHOL & SUBSTANCE POLICY

To ensure a safe workplace and jobsite locations, it is Wargo's policy to maintain both the workplace and jobsites that are free of alcohol and illegal drugs.

SUBSTANCE ABUSE POLICY
All employees are prohibited from using, selling, purchasing, dispensing, distributing, abusing, possessing or manufacturing illegal drugs, or using alcohol on Company property or on Company jobsites, including company vehicles, or during working hours, and from reporting to work or performing any work with alcohol or illegal drugs in their system.

DRUG FREE WORKPLACE
In accordance with the Drug Free Workplace Act of 1988, Wargo is committed to maintaining a safe, drug-free, healthy and productive work environment. In compliance with this Act, any employee convicted of a drug-related charge must notify a member of the Management Team or their immediate supervisor within five (5) days of it's occurrence. Failure to do so may result in disciplinary action, up to and including termination of employment.

ILLEGAL DRUGS
Illegal drugs include all controlled substances under federal or state law not prescribed for current personal treatment by a licensed medical professional and all other substances not prescribed for the employee by a medical professional whose use is capable of creating adverse effects on a person's physical, emotional or mental state, including, but not limited to, all types of narcotics, hallucinogens, depressants and stimulants.

PRE-EMPLOYMENT TESTING
All offers of employment are conditional and subject to the successful completion of a pre-employment physical and drug screen. A positive result or failure to take the test will disqualify the applicant from further consideration and result in withdrawal of any job offer.

REASONABLE SUSPICION TESTING
If an employee exhibits behavior that causes Wargo to have reasonable suspicion that the employee is using drugs or alcohol in violation of this policy, the Company may ask the employee to take a drug/alcohol test. Behavior that may create reasonable suspicion includes, but is not limited to: sudden change in work performance, violation of safety procedures, involvement in an accident, discovery of drugs or alcohol, odor of alcohol or other substance, and excessive absenteeism. A refusal to submit to such testing, or a positive test result, will result in disciplinary action, up to and including termination of employment.

PRESCRIPTION DRUGS AND OVER THE COUNTER MEDICATIONS
Even the legal use of a prescribed drug or over the counter medication may impair the employee's ability to perform the essential functions of the job effectively and in a safe manner that does not endanger other individuals in the workplace or jobsite location. Employees who are taking prescription or over the counter medication that may impair performance or affect judgment so as to place the employee or others at risk of injury must inform their supervisor. All prescriptions and over the counter medications are to be kept in their original containers, unless otherwise permitted. Wargo prohibits the abuse of legitimately prescribed drugs or over the counter medications. Abuse includes dependency and/or using a drug for reasons other than for the purpose of the initial prescription or not in accordance with the prescription or instructions.

SEARCH OF COMPANY PROPERTY
In order to ensure compliance with this policy, Wargo reserves the right to search Company premises and property, including work areas, jobsites, and vehicles.

DISCIPLINARY ACTION
Employees who violate this policy, who refuse to take a drug/alcohol test promptly after being asked to do so, or who fail to cooperate with a search will be subject to disciplinary action, up to and including termination.

WARGO ENTERPRISES, INC.
SAFETY & HEALTH TRAINING POLICY

SAFETY & HEALTH ORIENTATION
Workplace safety and health orientation begins on the first day of initial employment. Each employee has access to a copy of this safety manual, through his or her supervisor, for review and future reference, and will be given a personal copy of the safety rules, policies, and procedures pertaining to his or her job. Supervisors will ask questions of employees and answer employees' questions to ensure knowledge and understanding of safety rules, policies, and job-specific procedures described in our workplace safety program manual.

All employees will be instructed by their supervisors that compliance with the safety rules described in the workplace safety manual is required.

INIITAL TRAINING
Employees and subcontractors are trained regarding the hazards and precautions applicable to their work when initially assigned to a new site and when processes, hazards, or controls change.

The contents of initial training include:
- Comprehensive training on hazards and precautions specific to the employee's work or tasks.
- An explanation of who to contact with questions or concerns.
- A review of this Health and Safety Manual.

SUPERVISOR TRAINING
Personnel who manage job sites are responsible for directing activities in accordance with this Health & Safety Manual. Project managers and supervisors receive the initial training, as stated above, as well as training in:
- Conducting accident investigations
- Performing site safety inspections
- Following health and safety reporting procedures
- Understanding liability issues
- Holding Daily Safety Meetings
- Being the competent person for trench/excavation and confined space

JOB-SPECIFIC TRAINING
- Supervisors will initially train employees on how to perform assigned job tasks safely.
- Supervisors will carefully review with each employee the specific safety rules, policies, and procedures that are applicable and that are described in the workplace safety manual.
- Supervisors will give employees verbal instructions and specific directions on how to do the work safely.
- Supervisors will observe employees performing the work. If necessary, the supervisor will provide a demonstration using safe work practices, or remedial instruction to correct training deficiencies before an employee is permitted to do the work without supervision.
- All employees will receive safe operating instructions on seldom-used or new equipment before using the equipment.
- Supervisors will review safe work practices with employees before permitting the performance of new, non-routine, or specialized procedures.

REFRESHER TRAINING
All employees will be retrained periodically on safety rules, policies/procedures, certifications, and when changes are made to the workplace safety manual.

Individual employees will be retrained after the occurrence of a work-related injury caused by an unsafe act or work practice, and when a supervisor observes employees displaying unsafe acts, practices, or behaviors.

Employees typically require refresher training annually, or when:
- Safety rules and regulations change.
- Organizational structure changes (e.g. training in whom to contact).
- New equipment or procedures are introduced.
- Additional skills, such as first aid, are needed.
- A site-specific refresher training is needed.
- An accident or injury has occurred.

SITE ORIENTATION MEETING
A thorough site orientation meeting will be held to review the health and safety procedures required on site. All employees, vendors and subcontractors working onsite must attend this orientation. The site-specific HASP is discussed and emergency procedures are reviewed. Subcontractor coordination is addressed, if applicable. The site orientation is documented with a Daily Safety Meeting Form and the HASP signature page. The site superintendent usually holds site orientation meetings. Subsequent orientations are held as new site employees or subcontractors come on site.

DAILY SITE SAFETY MEETINGS
Site-specific discussions on work tasks and hazard control maintain employee safety awareness. Productive safety meetings include a review of actual field conditions and feedback and suggestions from employees.

The first Daily Safety Meeting is the site orientation and HASP review on the first day of the job. After the initial meeting, site superintendents should hold Daily Safety Meetings. These Daily Safety Meetings should discuss specific work tasks, the hazards involved, and controls for those hazards for work being completed that day.

Daily Safety Meetings last as long as necessary to address all topics for the days work. Documentation of the meeting is recorded on the Daily Safety Meeting Form.

SUBCONTRACTOR TRAINING
Subcontractors are solely responsible for ensuring appropriate training for their employees, agents, and lower tier subcontractor employees.

Depending on site operations, joint subcontractor Daily Safety Meetings may be appropriate. These joint meetings offer the opportunity to coordinate and improve common site safety procedures, such as emergency evacuation and decontamination. Joint Daily Safety Meetings will held by the Wargo site superintendent.

In addition to the Wargo joint Daily Safety Meeting, the subcontractors still must hold their own specific safety meetings in their area of expertise, such as crane safety or blasting safety.

RECORD KEEPING
Records of site-specific training are maintained by the site superintendent in the onsite Project Log Book and must be made available to employees. Daily Safety Meetings are conducted and documented. At the completion of the project, the Project Log Book is turned over to the office for maintenance of these records.

HAZARD COMMUMICATION
Employees have the right to know about the hazards of chemicals with which they work. Wargo implements the requirements of OSHA's Hazard Communication Standard (29 CFR 1910.1200). The Hazard Communication Program is provided in conjunction with this HASP.

WARGO ENTERPRISES, INC.
INJURY & ILLNESS PREVENTION POLICY

Wargo's purpose for the Health & Safety Plan (HASP) is the reduction of illnesses and injuries to an absolute minimum. The company's goal is to surpass industry safety standards, with an ultimate goal of zero accidents and injuries.

To achieve these objectives, Wargo's strategy includes the following:

- *Identification and employment of quality employees:* In addition to a thorough interviewing process, previous employment record checks, verification into education and training, and personal reference checks are all tools utilized to evaluate potential employment.

- *Consistent and ongoing health and safety training programs:* Wargo training programs are designed to exceed those required by OSHA standards 29 CFR 1910 and 29 CFR 1926.

- *Identification and review of potential accident and loss producing conditions and practices:* This consists of a detailed hazard analysis of the job site, materials, materials handling operations, as well as a study of all hazard potentials where possible.

- *Development of accident prevention and loss control methods, procedures, and programs:* Using knowledge in accident causes and control, Wargo aims to eliminate factors that cause accidents. This is accomplished through the proven methods, development of procedures, and the education of all company personnel.

- *Communication of accident and loss control intervention to all layers of management:* With information provided on the accident report form, a signature is required from the appropriate site supervisor or manager before being submitted to the office. This allows for the generation of required documents (i.e. OSHA 300 logs) as well as tracking and sorting by accident type, cause, etc. This information is summarized and distributed to all necessary management personnel.

- *Assigning accountability and responsibility to all employees for implementation and maintenance of methods, procedures, and practices involved with the Health & Safety Plan:* A designated Health & Safety Officer (HSO) oversees the implementation of all program elements on a day-to-day basis and motivates employees to have proper attitudes towards health and safety.

SITE SPECIFIC HEALTH & SAFETY PLANS

On a project-specific level, Wargo will create and implement a detailed, site-specific Health & Safety Plan. The development of these plans begins prior to mobilization with a detailed review of all information currently available on the project. Contaminants present (if any), operations to be performed, and potential health and safety hazards are all reviewed for incorporation in a HASP. Functions that may be performed for the HASP include the following:

- An assessment of materials present and calculation of potential airborne concentrations that can reasonably be anticipated during all operations.
- An assignment of protection levels for operations with exposure potential, based on information provided and/or anticipated.
- A review of the site characteristics which may lead to development of an appropriate ambient air and employee exposure air monitoring program.
- A review of all job functions that are high hazard (i.e. high elevation work, confined space entry, lockout/tagout, and trenching/excavating).
- An assessment of potential physical hazards including, but not limited to, equipment operation, exposures to temperature extremes, and hearing protection.

ACCIDENT REPORTING & INVESTIGATION

The Injury/Illness Report Form will serve as the basis for the written reporting and investigating of all accidents resulting in employees receiving more than non-intrusive first aid. This includes any injury that requires off-site medical treatment or on-site first aid that hinders an employee's ability to function as normal (i.e. a sling or neck brace).

All such accidents are to be verbally communicated to the HSO or the project manager as soon as medical services are secured.

Necessary medical services and employee care are to be secured prior to the initiation of reporting and investigation. The investigation is to be thorough and performed, at a minimum, by the injured employee's immediate supervisor. The results of the investigation are to be documented using the Injury/Illness Report Form, to be signed by the supervisor. The form is then sent to the HSO. Following the HSO's review and signature, a copy of the form is to be made for the project file, with the original forwarded to the main office.

The Injury/ Illness Report Form is to be completed for all accidents involving Wargo employees and its subcontractors employees, no exceptions. In the event of an accident to a subcontractor employee, the form and investigation are to be prepared and performed by the subcontractor.

If the accident requires off-site medical treatment, the project manager or site superintendent may also have to complete a worker's compensation report. These reports vary from state to state.

FOLLOW UP

As soon as practical, following the initial medical treatment, the injured employee is to be admitted to the clinic that administers the annual examinations for the injured employee's office. This is necessary to ensure that the employee receives quality medical treatment. This does not apply to a subcontractor employee.

Additional follow-up is required if the injury/illness resulted from the uncontrolled release of hazardous material. Under these circumstances, the HSO is to be notified immediately so that he/she can inform the occupational physician, who can determine if additional biological monitoring should be prescribed.

Before follow-up is completed, the HSO will meet with the Project Manager to ensure that corrective action, if identified in the Injury/Illness Report Form, has been implemented. Accident reporting procedures that are client-specific and applicable are also to be enacted at this time.

MODIFIED WORK PROGRAM

The Modified Work program, or *Light Duty Work*, is a system established to minimize the results of injury to both the employee and Wargo. The objective is to return injured employees to work as soon as they are physically able to perform modified or light duty work.

Modified work means placing the employee in a working environment that will not cause further aggravation to an injury or a previously existing condition, but one accomplishing a meaningful task. Modified work is accomplished by working directly with the employee, his/her supervisor, the treating physician, and Wargo SHO.

PROCEDURE

Once the Modified Work program is deemed necessary, the following procedures will guide set-up of the appropriate employee duties:

- The employee must notify his/her direct supervisor and project superintendent immediately of any injury or condition that would place him/her in jeopardy during normal work assignments. Failure to report any such condition may be grounds for removal from the project and denial of workers' compensation benefits.

- If the employee is under a doctor's care, the employee must report to his/her direct supervisor and the project superintendent immediately. A copy of the treating physician's report listing specific work restrictions must be presented to the project superintendent.

- The superintendent will then work with the employee and his/her direct supervisor to place the employee in a temporary modified work position that will not violate any restrictions listed by the treating physician. Employees placed in a modified work assignment must inform their supervisor of any required doctor visits that may occur during normal working hours. Otherwise, they will be required to be on the project during normal working hours.

- Effort will be made to keep the employee working on the project where the injury may have occurred. However, this may not be feasible in all cases. The employee may be required to report to another work location where a more suitable work environment can be developed.

- Any employee placed on a modified work assignment will be evaluated on a weekly basis to monitor his/her recovery and ability to return to a regular work assignment. This will be the responsibility of the project superintendent, working in conjunction with the employee, treating physician, foreman, and Wargo SHO.

Subcontractors, who have employees injured or placed in a modified work assignment as a result of an incident that may have occurred on a Wargo project, are required to provide weekly medical updates on the employee's condition to the project superintendent and Wargo's SHO.

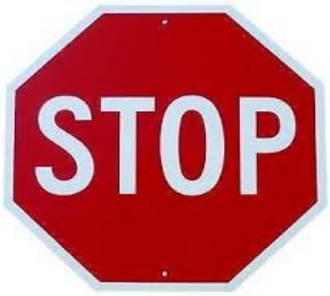
WARGO ENTERPRISES, INC.
UNSAFE CONDITION REPORTING POLICY

PURPOSE
The purpose of this policy is for reporting unsafe or unhealthy conditions in facilities or on project sites occupied by Wargo employees or its subcontractors.

POLICY
An unsafe condition is created by improper control of the physical, mechanical, and environmental exposures of the workplace. All employees, and subcontractors, should be continuously alert to the presence of unsafe or unhealthy conditions. Timely reporting of observed workplace hazards is a right and a responsibility of all employees. For any situation which poses an Imminent Danger, alert employees in the vicinity, post a warning of the hazard, and report the hazard immediately. An Imminent Danger is any condition or work practice that could reasonably be expected to cause death or serious injury. No employee will be subjected to restraint, interference, coercion, discrimination, or reprisal by virtue of their reporting an unsafe or unhealthy condition or workplace hazard.

PROCEDURES
Employees should report workplace conditions that are a legitimate concern for employee health and safety. Reports should be made to the respective supervisor, other management officials, or the Wargo HSO. Reports may be made via personal contact, telephone, E-mail, memorandum, or through use of the Unsafe Condition Reporting Form. All reports of the presence of unsafe or unhealthy conditions will be investigated in a timely manner and appropriate corrective actions, when necessary, will be based upon the resources required. Reports of the investigation and any necessary corrective actions will be available to all employees if requested. This form should be used by employees to document and report unsafe or unhealthy workplace conditions. Complete the form and forward to your supervisor or the Wargo office.

WARGO ENTERPRISES, INC.
STOP WORK AUTHORITY POLICY



PURPOSE
This program establishes the Stop Work Authority (SWA) of all employees and contractors to suspend individual tasks or group operations when the control of heath, safety or environmental risk is not clearly recognized or understood. It is the policy of Wargo Enterprises, Inc, (Wargo) that:

- All team members have the authority and responsibility to stop any task or operation where concerns or questions regarding the control of heath, safety or environmental risk exist.
- No work will resume until all stop work issues and concerns have been effectively addressed.
- Any form of retribution or intimidation directed at any employee or company for exercising their authority as outlined in this policy will not be tolerated.

SCOPE
This “stop work” program applies to all Wargo projects and operations.

KEY ROLES & RESPONSIBILITIES
Operations Managers have a responsibility to accept and support all “stop work” intervention from employees. Management shall resolve issues resulting from an employee’s “stop work” concerns and ensure no actions are taken as retribution against the employee(s) who raise safety concerns to stop an activity they believe is unsafe.

Employees have a responsibility and are authorized to “stop work” on any activity or situation they believe danger or a risk is present to them or a coworker without fear of retribution from management. The “stop work” may include discussion with other employees or management or to resolve work related issues, address potential unsafe conditions, and/or clarify work instructions, etc.

The Health & Safety Officer (HSO) is responsible for monitoring compliance with the requirements of this policy, the maintenance of associated documents, processes, training materials, identification of trends, and sharing of lessons learned.

STOP WORK AUTHORITY PROCEDURE

1) Employees who identify a potentially unsafe condition or act which could result in an undesirable event, a “stop work” intervention shall be immediately initiated for the individual(s), equipment and/or situation potentially at risk. All potential unsafe condition or acts shall be documented in the Project Daily Log.

2) The employee who identified the “stop work” incident will notify all affected employees and their Operations Manager of the stop work issue.

3) All employees shall discuss and gain agreement on the “stop work” issue.

4) Resolve any issues that have resulted in the “stop work”. The issue resolution or corrective action must be discussed with all employees involved, including the manager, and be in place before return to work.

5) If employees cannot provide a resolution to the “stop work”, then work shall be suspended until a resolution can be achieved. The Operations Manager shall make the final determination on the corrective action and provide the go-ahead to continue.

6) All corrective actions on job “stop work” incidence when finalized shall also be documented in the Daily Project Log. In addition , the employee(s) shall use Wargo's Stop Work Authority Incident Reporting form to document this process.

REPORTING
All “stop work” concerns shall be documented on the Stop Work Authority Incident Reporting form. The report shall be reviewed by the Operations Manager in order to:

- Indentify the “stop work” incident.
- Notify and report to affected employees and Operations Manager .
- Provide corrective action to job stoppage.
- Resume work after issues has been resolved and cleared to proceed.
- Facilitate lessons learned with employees.

The HSO will provide incident details regarding the “stop work” action to all necessary managers outlining the issue, corrective action, and lessons learned.

FOLLOW-UP
Management will review all “stop work” reports within one week in order to identify any additional investigation or follow-up required. The report will be used as part of “lessons learned”. Operations Manager will provide the root cause analysis to the “stop work” action and identify any potential opportunities for improvement, encourage team member’s participation, and share lessons learned.

TRAINING
Training regarding this SWA Policy will be conducted as part of all new employee orientations. Additionally, this policy as well as other company safety policies shall be reviewed as part of Wargo’s annual training sessions. All training shall be documented with the Safety Coordinator.

FORMS

WARGO ENTERPRISES, INC.
DAILY PROJECT TRACKING REPORT

PROJECT NAME: _____ DATE: _____

PROJECT JOB #: _____ TEMPERATURE: _____

SUPERVISOR: _____ WEATHER: _____

WORK PERFORMED:

EXTRA WORK PERFORMED:

VISITORS TO SITE:

SUBCONTRACTORS ONSITE:

REPORT PREPARED BY: _____
(Print, Sign, Title)

WARGO ENTERPRISES, INC.
DAILY PROJECT SAFETY MEETING REPORT

DATE: _____ TEMPERATURE: _____

PROJECT NAME: _____ WEATHER: _____

PROJECT ADDRESS: _____

TASK TO BE COMPLETED:

_____
_____
_____
_____
_____
_____
_____

TOPIC(S) OF DISCUSSION:

_____
_____
_____
_____
_____
_____
_____

ATTENDED BY: (Print & Sign)

_____
_____
_____
_____
_____
_____
_____

SUPERVISOR NOTES:

_____
_____
_____
_____

SAFETY MEETING PERFORMED BY: _____
(Print, Sign, Title)

REPORT PREPARED BY: _____
(Print, Sign, Title)

WARGO ENTERPRISES, INC.
UNSAFE CONDITION REPORT

PROJECT NAME: _____ DATE: _____

PROJECT JOB #: _____ TEMPERATURE: _____

SUPERVISOR: _____ WEATHER: _____

DESCRIPTION OF UNSAFE CONDITION OR HAZARD:

_____
_____
_____
_____
_____
_____
_____
_____

CATEGORY OF HAZARD (see next page for category guidelines):

_____
_____

UNSAFE CONDITION OR HAZARD REPORTED BY:

_____
(Print & Sign)

For Supervisor Use Only – Do Not Write Below This Line

FINDINGS OF INVESTIGATION:

_____
_____
_____
_____
_____

CORRECTIVE ACTION TAKEN:

_____
_____
_____
_____
_____

INVESTIGATION COMPLETED BY:

_____
(Print, Sign, Title)

INVESTIGATION COMPLETION DATE: _____

GUIDELINES FOR FILLING OUT THE
"REPORT OF UNSAFE CONDITION FORM"

Explanations of the form's categories are as follows:

Category of Hazard:

Extreme Hazard	Hazard which is likely to cause death, serious injury or disease, major damage to facility or complete disruption of operations. Must be corrected IMMEDIATLEY.
Serious Hazard	Likely to cause lost-time injury or disease, damage to facility which could limit or prohibit its use, or temporarily disrupt operations because of major equipment loss. Should be locked out or tagged out IMMEDIATLEY and corrected within 24 hours.
Moderate Hazard	Likely to cause non-disability injury, limited damage to facility that would disrupt activities in immediate area, or require changes in activities due to equipment loss. Should be tagged 'DANGER" immediately and fixed within 72 hours.
Lesser Hazard	"Code Violations: not likely to cause injury but which could cause minor damage to facilities or non-essential equipment. Should be tagged "CAUTION" As soon as possible and fixed within 21 calendar days.
ACTION TAKEN:	Check as many items as appropriate. If the EMPLOYEE NOTIFIED item is not checked, then you should explain why the employee was not given the results of the inspection in the OTHER ACTION TAKEN section.

WARGO ENTERPRISES, INC.
STOP WORK AUTHORITY INCIDENT REPORT

PROJECT NAME: _____ DATE: _____

PROJECT JOB #: _____ TEMPERATURE: _____

SUPERVISOR: _____ WEATHER: _____

REASON FOR ISSUANCE OF STOP WORK AUTHORITY:

_____
_____
_____
_____
_____
_____

STOP WORK AUTHORITY ISSUED BY:

_____
(Print & Sign)

For Supervisor Use Only – Do Not Write Below This Line

FINDINGS OF INVESTIGATION:

_____
_____
_____
_____
_____

CORRECTIVE ACTION TAKEN:

_____
_____
_____
_____
_____

INVESTIGATION COMPLETED BY:

_____
(Print, Sign, Title)

INVESTIGATION COMPLETION DATE: _____

RESTART OF WORK AUTHORIZED BY:

_____
(Print, Sign, Title)

RESTART OF WORK DATE: _____

WARGO ENTERPRISES, INC.
ILLNESS & INJURY REPORT

DATE: _____ TEMPERATURE: _____

PROJECT NAME: _____ WEATHER: _____

PROJECT ADDRESS: _____

EMPLOYER: _____

EMPLOYER ADDRESS: _____

EMPLOYEE NAME: _____ EMPLOYEE PHONE: _____

EMPLOYEE ADDRESS: _____

EMPLOYEE SS#: _____ EMPLOYEE SEX: _____ M _____ F D.O.B.: _____

EMPLOYMENT STATUS: _____ Full Time _____ Part Time _____ Seasonal _____ Other

TIME OF OCCURRENCE: _____ TIME EMPLOYEE BEGAN SHIFT: _____

TYPE OF INJURY: (Ex.: break, fracture)

_____
_____
_____
_____

PART(S) OF BODY AFFECTED: (Ex.: wrist, hand)

_____
_____
_____
_____

CAUSE OF INJURY:

_____
_____
_____
_____
_____

WAS MEDICAL RESPONSE CALLED: (If yes, provide who was called, time, etc.)

_____
_____
_____

WERE THERE ANY WITNESSES: (If yes, provide name and contact info)

_____
_____
_____

REPORT PREPARED BY: _____
(Print, Sign, Title)

WARGO ENTERPRISES, INC.
EQUIPMENT ACCIDENT REPORT

DATE: _____ TEMPERATURE: _____

PROJECT NAME: _____ WEATHER: _____

PROJECT ADDRESS: _____

EMPLOYER: _____

EMPLOYER ADDRESS: _____

TIME OF OCCURRENCE: _____

EMPLOYEE(S) INVOLVED: (Provide name and contact info)

_____

EQUIPMENT INVOLVED: (Provide make, model, serial #)

_____

DESCRIPTION & CAUSE OF ACCIDENT:

_____
_____
_____
_____
_____

WAS THERE INJURY: (If yes, please explain)

_____
_____
_____

WAS MEDICAL RESPONSE CALLED: (If yes, provide who was called, time, etc.)

_____

WERE THERE ANY WITNESSES: (If yes, provide name, contact info and statement on additional pages)

_____

CHECK ONE BELOW:

_____ ACCIDENT WAS UNAVOIDABLE DUE TO WORN EQUIPMENT
_____ ACCIDENT WAS DUE TO EMPLOYEE NEGLIGENCE
_____ ACCIDENT DUE TO IMPROPER EQUIPMENT MAINTENANCE
_____ ACCIDENT DUE TO IMPROPER USE OF EQUIPMENT

SUPERVISOR NOTES:

_____
_____
_____

REPORT PREPARED BY: _____
(Print, Sign, Title)

WARGO ENTERPRISES, INC. - WEEKLY PROJECT SAFETY CHECK LIST

JOB NAME: _____ **JOB No.:** _____

WORK WEEK: **From:** _____ **To:** _____

EQUIPMENT							
CONDITION							

EQUIPMENT							
CONDITION							

TRIP HAZARD

Hazard Description:

Remedy:

ELECTRICAL HAZARD

Hazard Description:

Remedy:

FALL HAZARD

Hazard Description:

Remedy:

FIRE EXTING.		**PPE**	
FIRST AID KIT			

PERFORMED BY: _____ **DATE:** _____

SIGNATURE: _____

WARGO ENTERPRISES, INC.
HOT WORK PERMIT

Project Name:_____Project #: _____

Date Written: _____ Expiration Date: _____

NOTE: Read instructions on page 2 before completing this permit.

Type of Hot Work: _____Internal Combustion Engines _____Hot Tapping

_____Sparking _____Work on Live Equipment _____Welding/Burning _____Other

Scope of Work: _____

What equipment preparation is required? (i.e., lockout/tagout, blinding pipes)

_____

Is any area cleanup required?_____Explain: _____

_____

Is work area ventilation required?_____What Type? _____

Is fire equipment required?_____What Type? _____

What methods are to be employed to control sparks? _____

What type of firewatch is required, if any? _____

What periodic air/gas testing is required? _____

What continuous air/gas testing is required? _____

What instruments are required? _____

Where should the continuous air monitor(s) be placed? _____

What PPE is required? _____

Who must be notified each time work commences? _____

Special Instructions: _____

_____

Signatures: Site Supervisor: _____
(Print & Sign)

Client Representative (if required): _____

Instructions for Hot Work Permit:

Hot Work will occur by permit only and is considered to be any of the following:

1. Use of Internal Combustion Engines (gasoline or diesel).
2. Use of Powered Tools that produce sparks in drilling, grinding, chipping, etc.
3. Any high temperature work such as welding, burning, soldering, stress relieving, and use of open flames.
4. Work on live equipment (requires supplemental documentation - see supervisor) involving any high temperature work done on equipment still in operation or known to contain flammable material.
5. Hot Tap (requires supplemental documentation - see supervisor) involving cutting into a piece of equipment known to contain flammable material.

A written permit, prepared and signed by authorized individuals, must be issued prior to any hot work in any area not specifically designated as a "free burning area".

Abbreviated Areas

The site superintendent or his designee will arrange via the Hot Work Permit to:

1. Ensure the work is necessary and can be done safely.
2. Determine the period in which the permit is valid.
3. Specify which type(s) of hot work is approved.
4. Describe exact work to be done and by whom.
5. Prepare equipment and/or area for work. Verify all requirements have been satisfied before issuing the permit.
6. Isolate equipment when required.
7. Clear area of combustible/flammable material (50 ft. radius, minimum).
8. Specify fire protection and equipment necessary for the work.
9. Specify if additional methods or equipment is necessary to control sparks (fire blanket, water sprays, etc.)
10. Specify duties of the firewatch, if firewatch is mandated.
11. Specify and perform types of air/gas tests that are required initially, continually and/or periodically. At a minimum, tests shall be performed for explosive gases and oxygen levels. If levels of combustible gases exceed 20 percent of the LEL or if levels of oxygen exceed 25 percent, work shall stop immediately.
12. Determine number and placement of continuous air/gas monitors where necessary.
13. Identify the authorized person to approve hot work start-up.
14. Secure appropriate signatures.
15. Distribute, post, and file necessary copies of the permit and gas test results.

WARGO ENTERPRISES, INC.
CONFINED SPACE ENTRY PERMIT

Project Name:_____ **Project #:** _____

Permit Number:_____ **Permit Expiration Date/Time:** _____

District/Location:_____ **Department:** _____

Confined Space to be entered: _____

Description of Work to be performed: _____

_____

Nature of Hazards in Confined Space:

____ Oxygen deficiency (less than 19.5% at sea level)
____ Flammable gases or vapors (greater than 10% of the lower flammable limit or greater than 23.5% oxygen at sea level)
____ Toxic gases or vapors (greater than the permissible exposure limit)
____ Mechanical hazards
____ Electrical shock
____ Materials harmful to the skin
____ Engulfment
____ Other: _____

Pre-Entry Preparation:

_____ Notify affected departments of service interruption
_____ Isolate - blanked or double valve, with lock and tag
_____ Energy sources neutralized
_____ Cleaned, drained, washed, and purged
_____ Ventilation to provide fresh air
_____ Emergency response team available
_____ Employees informed of specific confined space hazards
_____ Operating and rescue procedures reviewed and available to each employee
_____ Atmospheric Test in compliance
_____ Attach hot work permit
_____ Other: _____

Equipment Required for Entry and Work:

____ Respirator
____ Lifeline and safety harness
____ Protective clothing
____ Hearing protection
____ Other: _____

Electrical Equipment/Tools:

____ Low voltage
____ Ground-fault current interrupters
____ Approved for hazardous locations
Respiratory protection (specify): _____
Communication aid (specify): _____
Rescue equipment (specify): _____

Authorized Entrants:

_____

_____

Authorized Attendants:

_____

_____

Problems Encountered:

_____

_____

Atmospheric Monitoring:

Test	Acceptable Limit	Check if Required	Time: Results	Time: Results	Time: Results	Time: Results	Time: Results	Time: Results
Oxygen – minimum%	>19.5%							
Oxygen – maximum%	22.0%							
Flammability	10% LEL							
H_2S	10 ppm							
Toxic:								
SO_2	0.2 ppm							
Carbon Monoxide	30ppm							
Other:								

Name of employee conducting atmospheric monitoring: _____

Entry Supervisor Authorization:

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space.

Name:_____ Signature: _____

Date:_____ Time: _____

Reviewer Name (print):_____ Reviewer Signature: _____

ATTACHMENT 4

PROJECT DOCUMENTATION FORMS

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

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:

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TAILGATE SAFETY MEETING FORM

Project Name: Date: Time:

Project Number: Client:

Work Activities:

HOSPITAL INFORMATION:

Name:

Address: *City:* *State:* *Zip:*

Phone No.: *Ambulance Phone No.*

SAFETY TOPICS PRESENTED:

Chemical Hazards:

Physical Hazards: Slips, Trips, Falls

PERSONAL PROTECTIVE EQUIPMENT:

Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D
Activity:	*PPE Level:*	A	B	C	D

New Equipment:

Other Safety Topic (s): Environmental Hazards (aggressive fauna)

Eating, drinking, use of tobacco products is prohibited in the Exclusion Zone (EZ)

ATTENDEES

Name Printed	Signatures

Meeting conducted by:

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

DAILY LOG	DATE			
	REPORT NO.			
	PAGE		OF	

PROBLEM IDENTIFICATION REPORT

Date:

Project:

Job No:

Location:

CQA Monitor(s):

Client:

Contractor:

Contractor's Supervisor:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:

Ambient Air Temp. - P.M.:

Wind Direction:

Wind Speed:

Precipitation:

Problem Description:

Problem Location (reference test location, sketch on back of form as appropriate):

Problem Causes:

Suggested Corrective Measures or Variances:

Linked to Corrective Measures Report No. *or Variance Log No.*

Approvals (initial):

CQA Engineer:

Project Manager:

Signed:

CQA Representative

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

DAILY LOG	DATE			
	REPORT NO.			
	PAGE		OF	

CORRECTIVE MEASURES REPORT

Date:

Project:

Job No:

Location:

CQA Monitor(s):

Client:

Contractor:

Contractor's Supervisor:

WEATHER CONDITIONS:

Ambient Air Temp. - A.M.:

Ambient Air Temp. - P.M.:

Wind Direction:

Wind Speed:

Precipitation:

Corrective Measures Undertaken (reference Problem Identification Report No.)

Retesing Location:

Suggested Method of Minimizing Re-Occurrence:

Approvals (initial):

CQA Engineer:

Project Manager:

Signed:

CQA Representative