Steven P. Stucker, C.P.G.
Lead Environmental Engineer

January 24, 2022

Mr. Matt King
Division of Environmental Remediation
NYSDEC, Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999

Re: ***Newly-Identified SWMU Assessment Plan***
National Grid Dewey/Kensington Service Center
RCRA Corrective Action Order on Consent # R9-4407-96-09

Dear Mr. King:

This letter presents an Assessment Plan to further characterize polychlorinated biphenyl- (PCB)-containing soil in an area northeast of the warehouse building (building DK-21) at the National Grid Company (National Grid) Dewey/Kensington Service Center in Buffalo, New York. The area northeast of building DK-21 was not previously identified as a Solid Waste Management Unit (SWMU) in the 6NYCRR Part 373 Hazardous Waste Management Permit for a former Hazardous Waste Treatment, Storage and Disposal Facility (TSDF) at the service center that was closed in 1992. Pursuant to Paragraph XV of the existing RCRA Corrective Action Order on Consent for the property between National Grid and the NYSDEC (Index No. R9-4407-96-09), National Grid submitted a June 24, 2021 letter to the NYSDEC which provided written notification regarding the discovery of the newly-identified SWMU at the facility. In the June 24, 2021 letter, National Grid proposed to prepare this SWMU Assessment Plan to evaluate the horizontal and vertical extent of PCB-containing soil in the area northeast of DK-21. National Grid also agreed to evaluate the existing monitoring well network at the site and propose additional groundwater investigation efforts, if needed, to evaluate potential groundwater issues associated with the newly-identified SWMU. National Grid intends to implement the SWMU assessment activities in a phased manner. Initially, soil characterization activities will be completed. The soil characterization results will be used to evaluate and identify the approach for any required groundwater assessment efforts.

Relevant background information regarding site history and the newly-identified SWMU is presented below followed by National Grid's approach for characterizing the extent of PCB-containing soil in the area northeast of the DK-21 warehouse building.

Background Information

The Dewey/Kensington Service Center is located at 114 Kensington Avenue between Dewey and Kensington Avenues in Buffalo, New York. A site location map is presented as Figure 1. A city of Buffalo Atlas (tax map) from 1891 indicates that the current service center property was an undeveloped

area located in the eastern portion of the St. Mary's Benevolent Society/Providence Retreat (St. Mary's) property. By the early 1900's, the property has been subdivided into two separate parcels, including a northern parcel located along Dewey Avenue and a southern parcel located along Kensington Avenue. A facility layout plan southern parcel located along Kensington Avenue is presented as Figure 2.

Northern Parcel

Based on available site history, the earliest recorded use of the northern parcel included several residential homes and a filling station that were located in the northeast corner of the parcel by the early 1900s. The Stewart Motor Car Company (Stewart) developed the remaining portion of the northern parcel beginning around 1912 and eventually displaced the homes and filling station located in the northeast corner of the parcel. Stewart used the northern parcel for automobile and truck manufacturing from approximately 1912 to 1939, operating from three main buildings that continue to be used by National Grid (current buildings DK-1 through DK-3). Stewart ceased production in 1939 and later that year, the property and buildings were purchased by Buffalo Electric Corporation (Predecessor to National Grid). National Grid and predecessor utility companies have continuously operated the northern parcel as a utility service center since 1939, with the tree main buildings currently used as crew headquarters, office space, storage areas, and work sops.

Southern Parcel

The southern parcel was initially developed as a warehousing facility by Cyphers Incubator Company in the early 1910's. Richards and Boynton Company (Richardson and Boynton), a manufacturer for home heating boilers acquired the southern parcel shortly after initial development. A Sanborn Fire Insurance Map from 1934 indicates that the current buildings located on the parcel were largely complete, with the following operations indicated:

- Machining/grinding and shipping (current Buildings DK-13, DK-15, and DK-17).
- Core Room and clay/pattern (current building DK-19).
- Foundry (current building DK-21).

Richardson and Boynton filed for bankruptcy in 1939, and Hewitt-Robins, Inc. (Hewitt-Robins) acquired the property and buildings in the mid-1940's. Hewitt-Robins used the southern parcel for manufacturing of latex and foam rubber products. Niagara Mohawk Power Corporation (predecessor to National Grid) purchased the southern parcel and buildings from Hewitt-Robins in 1975. Factory areas purchased from Hewitt-Robins (buildings DK-13, DK-15, DK-16, DK-17, DK-19, and DK-21) reportedly had dirt floors when the buildings were purchased by National Grid. Following purchase, National Grid modified the buildings to add floors, partitions and office space, hydraulic lifts, etc. National Grid continues to use the buildings located on the southern parcel as offices, vehicle maintenance garage, workshops, and storage/warehouse areas.

Previous RCRA Corrective Action Activities

National Grid historically stored and handled PCB-containing electrical equipment and generated PCB-containing used oil at both the northern and southern property parcels. In 1982, National Grid submitted a Hazardous Waste Treatment, Storage and Disposal Facility (TSDF) Permit for a tank storage operation located in building DK-14. The permit submittal resulted in the Dewey/Kensington Service Center being designated as an interim-status TSDF. NYSDEC action on National Grid's permit submittal was delayed as the agency focused on higher-priority commercial TSDF sites. NYSDEC review of the permit application resulted in public hearings during 1989 where several community groups expressed opposition to approval of the permit. Pursuant to a decision by a New York Administrative Law Judge, the NYSDEC ultimately issued a Part 373 Hazardous Waste Management Permit (Part 373 Permit No. 9-1402-00397/00001-0) in late 1990 which allowed National Grid to continue to operate the TSDF for a period of 18 months. The TSDF was closed in December 1992 in accordance with a NYSDEC-approved Closure Plan and National Grid has continued to operate as a large quantity less-than 90-day hazardous waste generator since that time. The Hazardous Waste Permit identified existing SWMUs at the facility (mostly solid waste and petroleum storage related areas) which were not judged to represent potential environmental concerns.

During 1989, National Grid collected soil samples in response to oil spill at building DK-4 located along the west side of the northern property parcel. Initial soil samples identified the presence of PCBs and subsequent characterization efforts delineated PCBs at concentrations up to 230 parts per million (ppm) on National Grid's property. PCBs were also identified on the adjacent St. Mary's School athletic field immediately west of the northern parcel. Subsequent response measures were implemented which achieved the removal of PCBs exceeding 1 ppm on the St. Mary's athletic field and removal of PCBs exceeding 10 ppm on National Grid's property. Following completion of the soil excavation activities (concurrent with the permit review efforts summarized above), the NYSDEC listed the service center property as a New York State Listed Inactive Hazardous Waste Site (Site Code 915144) with a Site Classification Code of 5 (indicating no further action required). On October 3, 2011, National Grid received official notification that the site was deleted from the New York State Registry of Inactive Hazardous Waste Disposal Sites.

In September 1992, excavation activities at the facility in the vicinity of building DK-13 (primarily utilized as a vehicle maintenance garage) revealed petroleum-impacted gravel and a broken vent line connected to an underground waste oil storage tank. The waste oil tank was subsequently removed, and four groundwater monitoring wells (ESI-1, ESI-2, ESI-3, and ESI-4) were installed in the vicinity of the former tank to supplement an existing monitoring well (MW-1) and to facilitate periodic groundwater monitoring in this area. During 1994, National Grid conducted soil and groundwater investigation activities which identified the presence of several volatile organic compounds (VOCs) and PCBs in groundwater at concentrations above NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 – Ambient Water Quality Standards and Guidance Values (NYSDEC, 1998,

amended 2000). The groundwater exceedances associated with the former DK-13 waste oil storage tank were designated as SWMU #7 at the facility.

In November 1997, National Grid entered into the existing Order on Consent with NYSDEC to guide future site monitoring and to establish a framework for implementing additional site investigation or remediation. As mandated in the Consent Order, semi-annual (spring and fall) groundwater monitoring events were conducted for monitoring wells located in the western portion of the Kensington Avenue parcel. The monitoring frequency and list of wells sampled during each groundwater monitoring event has been modified through time, as agreed to by NYSDEC. Currently, groundwater monitoring is conducted during one annual event and site inspections are conducted semi-annually.

Newly-Identified SWMU

As discussed during a June 24, 2021 letter, National Grid is planning to implement a paving project (the DK-21 Pavement Improvement Project) which will include the replacement of deteriorated pavement/concrete subbase material to support installation of new pavement in the area north and northeast of the DK-21 warehouse building. The planned work will also include the replacement of four catch basins in the area. To characterize soil that was planned for removal within the pavement project area, National Grid completed 13 soil borings to depths of up to 8 feet below grade. PCB analytical results for samples collected from the soil borings are shown on the Figure 3. PCBs were detected at 7 of the 13 borings at concentrations ranging from 5.69 ppm to 741 ppm. The DK-21 pavement project has been postponed while National Grid implements the proposed SWMU Assessment Efforts described below.

SWMU Assessment Activities

Additional SWMU assessment efforts to characterize the horizontal and vertical extent of PCB-containing soil in the area northeast of DK-21 will be conducted by Arcadis of New York, Inc. (ARCADIS) on behalf of National Grid. Based on the previous soil sampling results (presented on Figure 3), SWMU assessment efforts will focus on an approximately 46,575-square foot (1.07 acre) area as indicated on Figure 4. National Grid proposes to complete approximately 23 soil borings within the assessment area based on an approximately 45-foot by 45-foot sampling grid as shown on Figure 4. The actual location of the boring to be completed within each sampling grid will be selected based on access (National Grid is not proposing to relocate equipment to facilitate sampling), the presence of existing underground or overhead utilities, and based on the judgement of sampling personnel to focus on previous sampling results or suspect areas (based on surface staining, low points or cracks in existing pavement, etc.).

A project-specific Health and Safety Plan for the SWMU assessment field activities is included as Attachment A. The SWMU assessment activities will be conducted using the New York State Department of Health Generic Community Air Monitoring Plan (CAMP) included as Appendix 1A to the NYSDEC Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10, May 2010). The Generic CAMP is included as Attachment B.

The proposed SWMU assessment activities will include:

- Mobilizing to the site to identify proposed soil boring locations using Global Positioning System (GPS) methods and completing a geophysical survey to mark out utilities in the vicinity of proposed soil borings using ground penetrating radar and electroconductivity surveying methods. Concurrent with the geophysical survey, Arcadis will complete additional utility location efforts, including notifying Dig-Safe New York, visually observing aboveground and surface features at the site, and reviewing existing National Grid utility drawings.
- Mobilizing to the site approximately one week following completion of the geophysical survey and completing approximately 23 soil borings to an anticipated depth of approximately 12 feet below ground surface (bgs) or to refusal using direct-push sampling methods. Prior to completing each soil boring, Arcadis will soft dig to a depth of approximately 4 feet using bgs compressed air or vacuum excavation methods. Arcadis will then advance a 4-foot long macrocore sampler by direct push methods to a depth of approximately 12 feet bgs (or to refusal) at each sampling location.
- The soft dig cuttings from each boring will be segregated into two sample intervals, representing material from the first soil encountered below asphalt/pavement to a depth of approximately 2-feet bgs and from 2 to 4-feet bgs. The recovered soil cores at each location will also be segregated into 2-foot sampling intervals. The soil samples recovered from each 2-foot sampling interval (for both the soft dig cuttings and the recovered soil cores) will be visually characterized. Observations relative to the soil type (e.g., gravel, coarse sand, fine sand, etc.) and grain size characteristics (e.g., size sorting, and texture) will be noted. Other observations, including sedimentary structures, organic matter, and moisture will also be documented, as appropriate. The soft dig soil cuttings and the recovered soil cores will also be screened using a photoionization detector (PID).
- The samples recovered from each two-foot sampling interval at each boring will be containerized in clean laboratory-supplied glassware and submitted to Eurofins/TestAmerica (TestAmerica) laboratories in Amherst, New York. Arcadis will also collect and submit quality control samples [blind duplicates and matrix spike/matrix spike duplicates (MS/MSD)] at a frequency of one per twenty field samples. The recovered soil samples for the shallow interval (material from the first soil encountered beneath asphalt/pavement to a depth of 2 feet bgs) and from the 4 to 6-foot bgs interval at each boring location will initially be analyzed for PCBs using United States Environmental Protection Agency (USEPA) Method 8082. Additional samples from each boring may also be selected for laboratory analysis for PCBs based on elevated PID readings and/or obvious impacts [e.g., odors, staining, or sheens). Samples that are not initially designated for PCB analysis will be archived for potential latter analysis based on the analytical results for the initial samples.
- In addition to the samples selected for PCB analysis as specified above, National Grid will collect one soil sample from approximately every second boring for laboratory analysis for per- and polyfluoroalkyl substances (PFAS) by USEPA Modified Method 537 and 1,4 Dioxane by USEAP Method 8270D. Arcadis anticipates that approximately 12 field samples and one set of MS/MSD/duplicate samples will be submitted for analysis for PFAS and 1,4-dioxane.

- Analytical results for samples that are analyzed for PCBs and emerging contaminants will be reported using NYSDEC Analytical Services Protocol Category B data deliverables.

- Soil cuttings, disposable sampling equipment, used personal protective equipment, and decontamination water generated during the field sampling activities will be containerized in 55-gallon drums. The drums will be labeled appropriately based on their contents and will be staged on-site temporarily for subsequent waste profiling, transportation, and off-site disposal by National Grid's waste disposal Contractor.

- Following receipt of all analytical results from the laboratory, An Arcadis data validator will review the results and prepare a Data usability Summary Report (DUSR) for each sample delivery group. Arcadis will prepare a SWMU Assessment Report that will include a summary of the sampling efforts, data summary tables and figures, DUSRs, and waste disposal documentation. The SWMU Assessment Report include conclusions and recommendations for any additional soil characterization sampling or groundwater investigation efforts that are indicated by the sampling results.

Please do not hesitate to contact me at 315-428-5652 if you have any questions or require additional information.

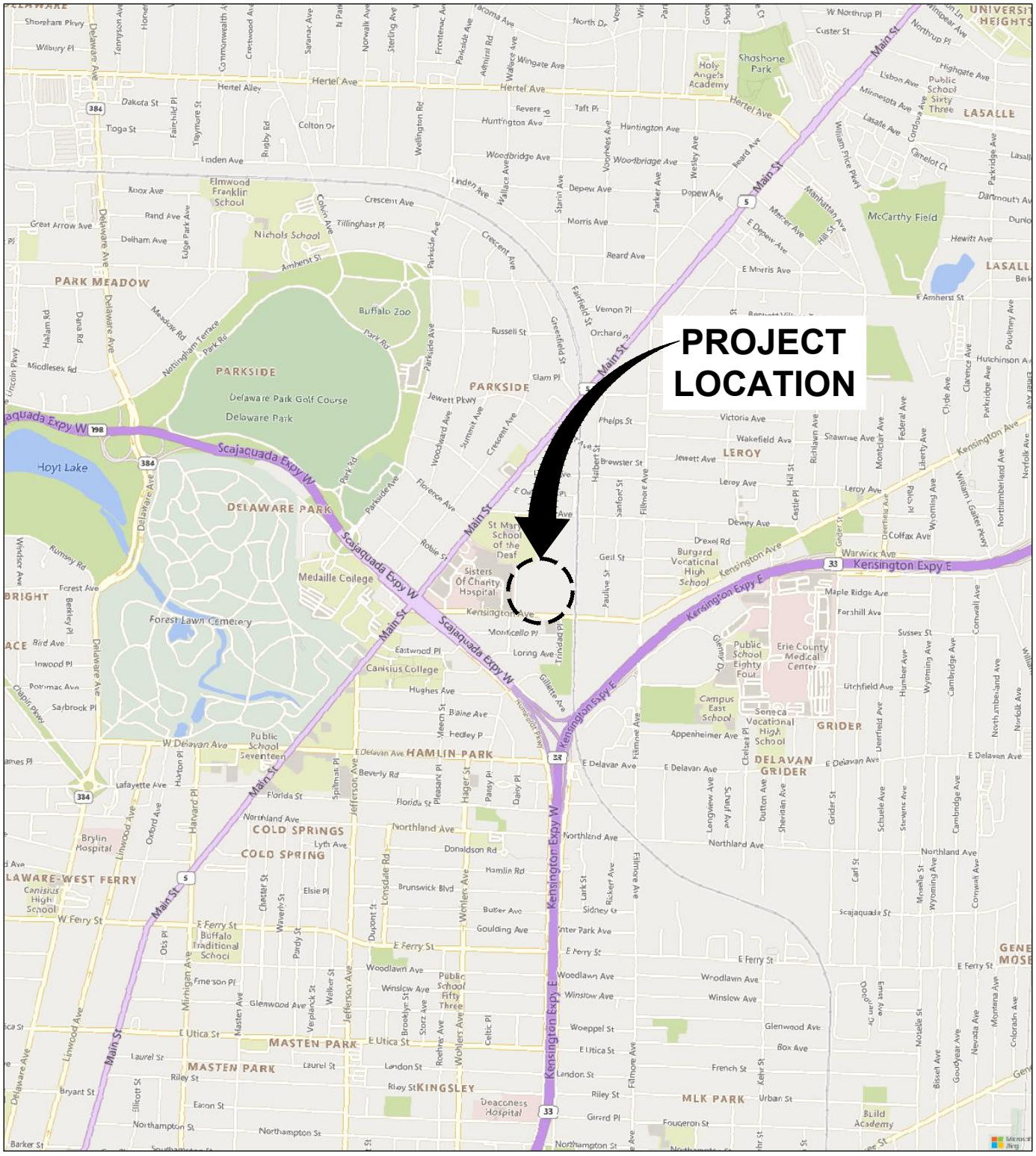
Sincerely,

Steven P. Stucker/jw

Steven P. Stucker, C.P.G.
Lead Environmental Engineer

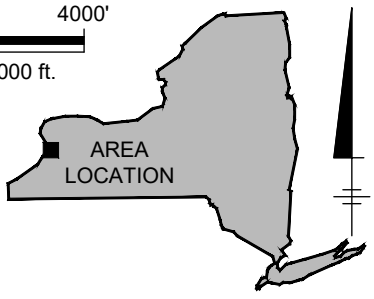
cc: Stan Radon, NYSDEC
Megan Kuczka, NYSDEC
Lisa Montesano, National Grid
Brian Stearns, P.E., National Grid
Michael Jones, Arcadis

Enclosures:
Figure 1 – Site Location Map
Figure 2 – Facility layout Plan
Figure 3 – Existing Soil Analytical Data
Figure 4 – Proposed Soil Boring Locations



0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.



NATIONAL GRID DEWEY/KENSINGTON SERVICE CENTER
CITY OF BUFFALO, ERIE COUNTY, NEW YORK

SWMU ASSESSMENT PLAN

SITE LOCATION MAP

ARCADIS

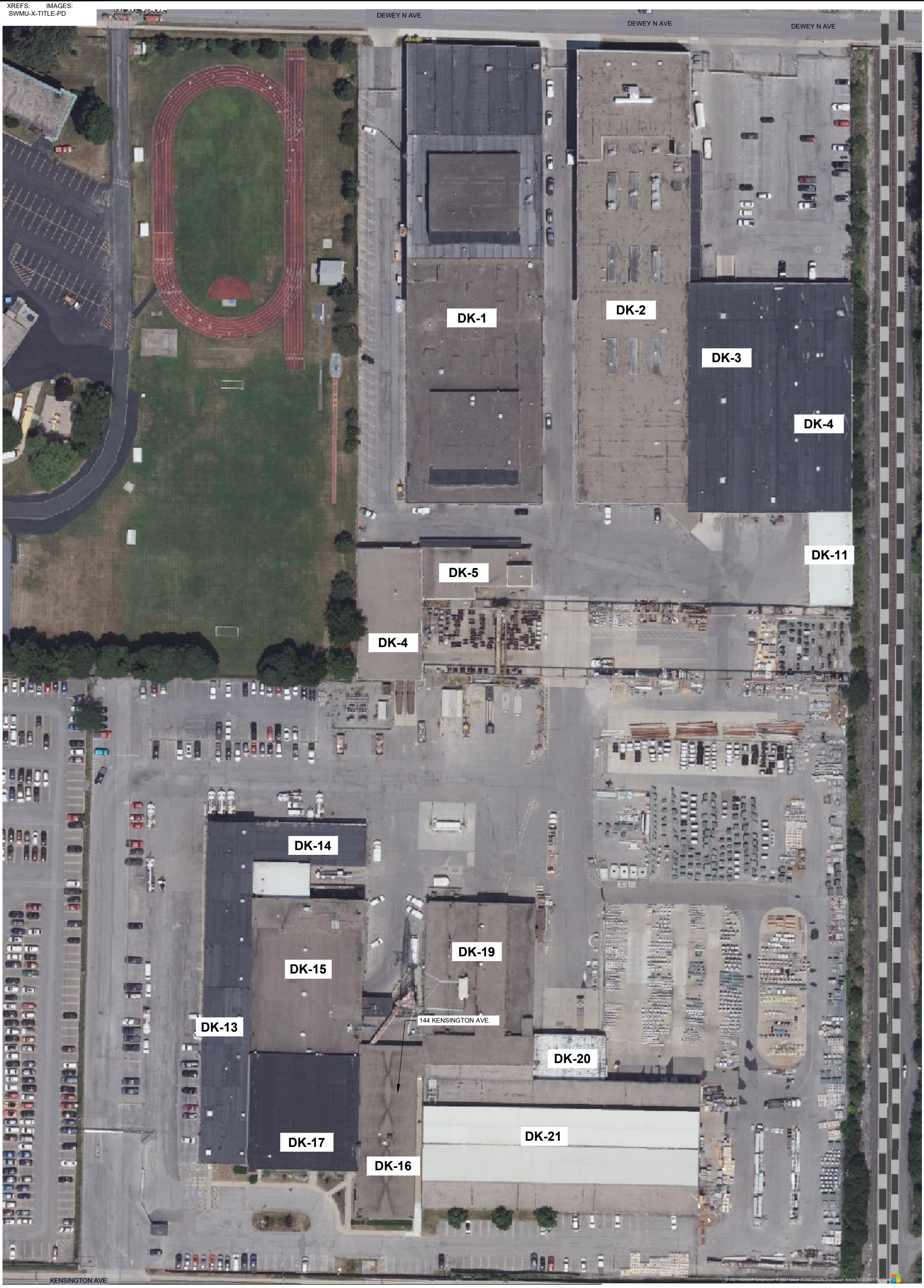
FIGURE 1

C:\Users\ksartori\ACCDocs\Arcadis\AUS-NATIONAL GRID-KENSINGTON AVE-BUFFALO New York\Project Files\2021\01-In Progress\01-DWG\B-SWIP-F01-SLM.dwg LAYOUT: 1 SAVED: 7/22/2021 12:41 PM ACADVER: 24.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/22/2021 12:44 PM BY: SARTORI, KATHERINE

XREFS: IMAGES:

C:\Users\Ksartori\OneDrive - ARCADIS\BIM360 - OneDrive Sync Location\AUS-NATIONAL GRID-KENSINGTON AVE-BUFFALO New York\2021\01-In Progress\01-DWG\SWMU-F02-FACILITY LAYOUT PLN.dwg LAYOUT: 2 SAVED: 1/4/2022 1:45 PM ACADVER: 24.0S (LMS TECH) PAGESETUP: ----
PLOTSTYLETABLE: ---- PLOTTED: 1/4/2022 3:33 PM BY: SARTORI, KATHERINE

XREFS: IMAGES:
SWMU-X-TITLE-PD



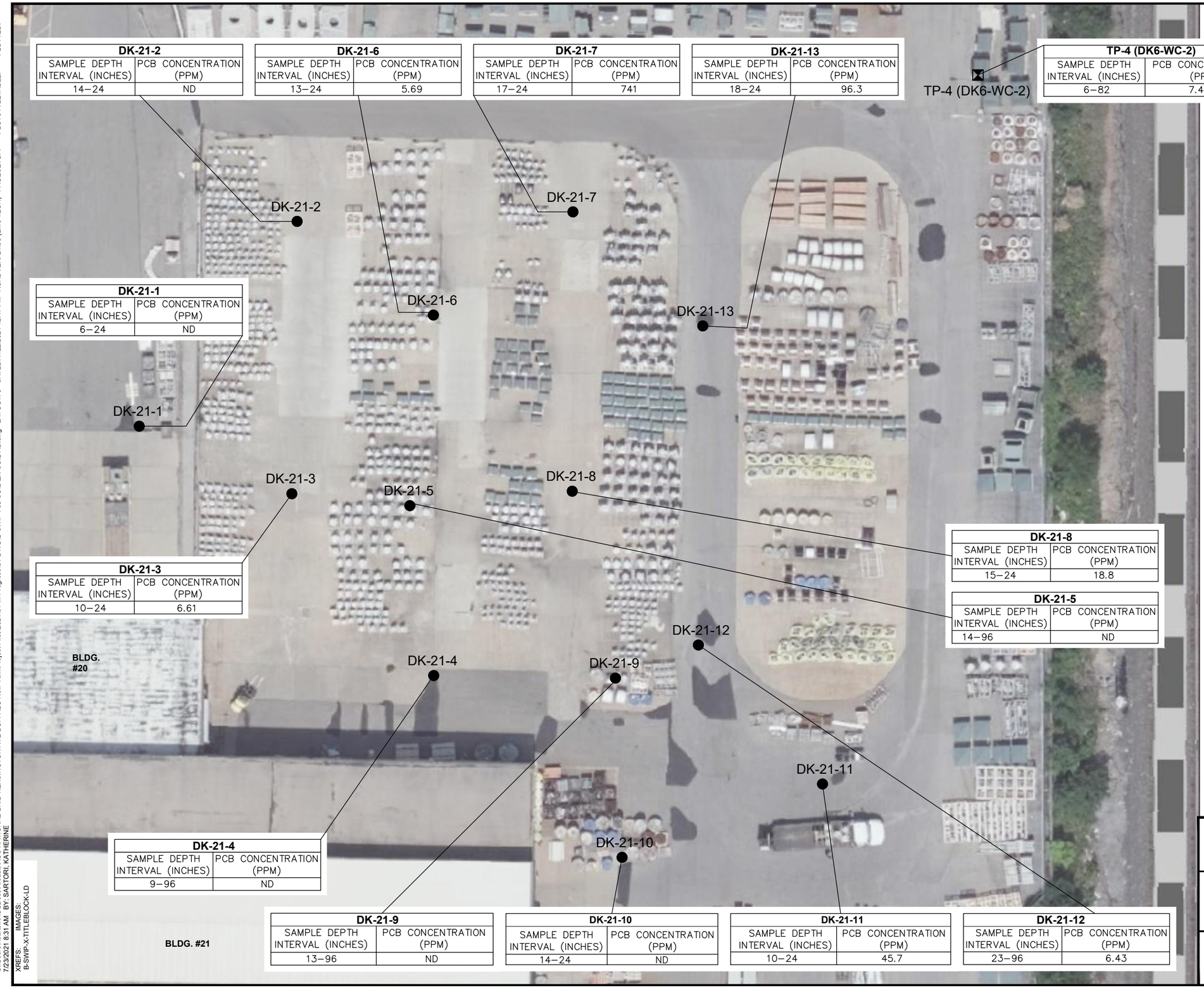
0 50' 100'
GRAPHIC SCALE

NATIONAL GRID DEWEY/KENSINGTON SERVICE CENTER
CITY OF BUFFALO, ERIE COUNTY, NEW YORK
SWMU ASSESSMENT PLAN

FACILITY LAYOUT PLAN

ARCADIS

FIGURE
2



DK-21-2	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
14–24	ND

DK-21-6	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
13–24	5.69

DK-21-7	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
17–24	741

DK-21-13	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
18–24	96.3

TP-4 (DK6-WC-2)	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
6–82	7.47

DK-21-1	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
6–24	ND

DK-21-3	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
10–24	6.61

DK-21-8	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
15–24	18.8

DK-21-5	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
14–96	ND

DK-21-4	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
9–96	ND

DK-21-9	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
13–96	ND

DK-21-10	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
14–24	ND

DK-21-11	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
10–24	45.7

DK-21-12	
SAMPLE DEPTH INTERVAL (INCHES)	PCB CONCENTRATION (PPM)
23–96	6.43

LEGEND:

- EXISTING SOIL SAMPLING LOCATION
- EXISTING TEST PIT

NOTES:

1. SOIL PROBES LOCATIONS ARE APPROXIMATE.
2. IMAGERY OBTAINED FROM © 2021 MICROSOFT CORPORATION © 2021 MAXAR ©CNES (2021) DISTRIBUTION AIRBUS DS © 2021 TOM TOM.
2, ND = NOT DETECTED.
4. PPM = PARTS PER MILLION.
5. EXISTING SOIL SAMPLES DK–21–1 THROUGH DK–21–13 COLLECTED IN MARCH 2021 BY GZA GEOENVIRONMENTAL SERVICES OF N.Y.
6. EXISTING SOIL SAMPLE DK–6 TEST PIT (TP–4) COLLECTED IN OCTOBER 2020 BY GZA GEOENVIRONMENTAL SERVICES OF N.Y.

0 10' 20'
GRAPHIC SCALE

NATIONAL GRID DEWEY/KENSINGTON SERVICE CENTER
CITY OF BUFFALO, ERIE COUNTY, NEW YORK
SWMU ASSESSMENT PLAN

EXISTING SOIL ANALYTICAL DATA

ARCADIS

FIGURE 3

LEGEND:

- EXISTING SOIL SAMPLING LOCATION
- EXISTING TEST PIT
- PROPOSED SOIL BORING LOCATION

NOTES:

1. IMAGERY OBTAINED FROM © 2021 MICROSOFT CORPORATION © 2021 MAXAR ©CNES (2021) DISTRIBUTION AIRBUS DS © 2021 TOM TOM.
2. PROPOSED SOIL BORING LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED IN THE FIELD BASED ON FIELD CONDITIONS.

0 15' 30'
GRAPHIC SCALE

NATIONAL GRID DEWEY/KENSINGTON SERVICE CENTER
CITY OF BUFFALO, ERIE COUNTY, NEW YORK
SWMU ASSESSMENT PLAN

PROPOSED SOIL BORING LOCATIONS

ARCADIS

FIGURE
4

Attachment A

Project-Specific Health and Safety Plan

Site Specific Health and Safety Plan

Revision 18 b

Project Name:	**Dewey/ Kenington Service Center** **Buffalo, New York**
Project Number:	30094243
Client Name:	National Grid
Date:	12/27/2021
HASP Expires	12/27/2022
Revision:	

Approvals:

HASP Developer: Makenna Guarnieri/ Carey Healy

Project Manager: Michael C. Jones

HASP Reviewer: Daniel Zuck

HASP Reviewer Name Typed

HASP Reviewer Signature (handwritten or digital signature)

Health and Safety Plan

Table of Contents

Arcadis Culture of Caring

Arcadis is committed to a Culture of Caring that ensures each Arcadis employee, part time as needed employee (PTAN), temporary agency employee under Arcadis day to day control, Inexperienced Workers and contractor (cumulatively referred to here as "field staff") goes home at the end of the day free from injury or illness. I certify that the following has been performed with all Arcadis field staff on this project either in person or virtually through Teams:

[X] Reviewed the HASP including a discussion of hazard identification and controls.

[ ] If conducting activities deemed by Arcadis to be "High Risk", frontline management has reviewed applicable H&S standards (Job Safety Analysis [JSA] when authorized by H&S) for these activities with field staff.

[ ] If permit to work is required, frontline management has reviewed the permit(s) with field staff.

[X] Reviewed proactive H&S engagement expectations/injury prevention actions.

[X] Reviewed Stop Work Authority.

[X] Reviewed the incident reporting process and expectations including when WorkCare should be contacted by staff (WorkCare incident intervention for all minor, non-emergency injuries) and that the WorkCare phone number is programmed into field team cell phone.

[X] For Inexperienced Workers, a mentor has been assigned for the new task being performed.

For short service employees (SSEs), PTANS* and temporary agency employees* :

[ ] Provided coaching and mentoring on Arcadis H&S expectations during project work. Reviewed in detail specific hazards and controls and provided a resource who can be contacted if individual has questions regarding planned or unplanned work tasks.

Mentor/Resource # _____ _____
Name Phone Number

Signed:

Carey Healy Task Manager

* Upon hiring/contracting for the first time.

Emergency Information

Site Address: National Grid Dewey/ Kensington Service Center
144 Kensington Avenue
Buffalo, New York 14214

Emergency Phone Numbers:

Emergency (fire, police, ambulance)		911
Emergency (facility specific, if applicable):		
Emergency Other (specify):		
Primary Client Contact:	Steven Stucker	315-428-5652
WorkCare (non-life-threatening injury/illness):		1-888-449-7787
Project H&S:	Dan Zuck	315-671-9152
Task Manager:	L. Carey Healy	315-671-9338
Project Manager:	Michael Jones	315-671-9211
H&S Specialist:	Alec MacAdam	720-454-0948
Area H&S Director:	Andrew McDonald	410-200-3752

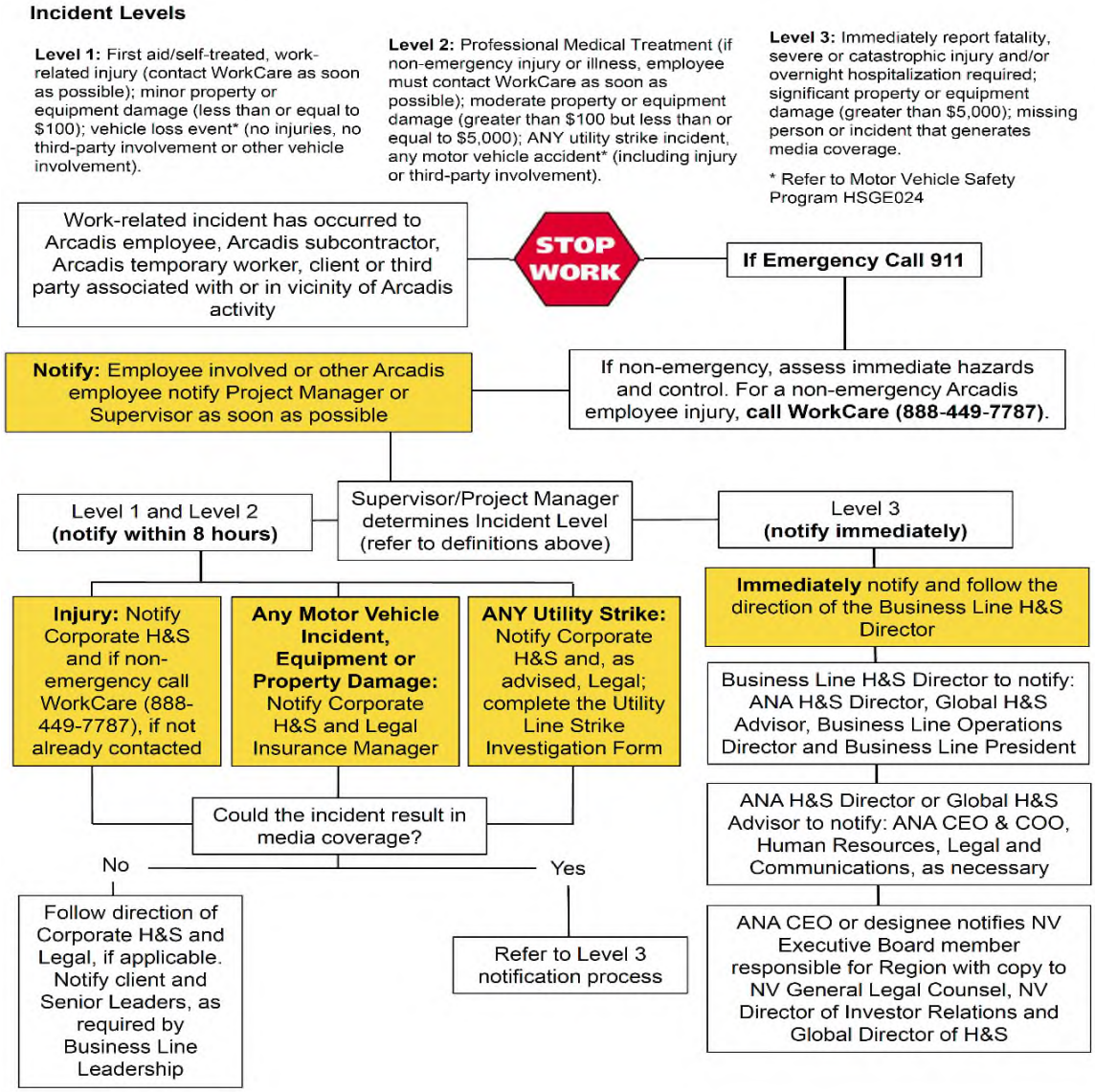
Hospital Name and Address: Sisters of Charity
2157 Main Street
Buffalo, NY 14214

Hospital Phone Number: 716-862-1000

Other Important Phone Numbers:

Poison Control Center	1-800-222-1222
Nat. Response Ctr. (spills in reportable quantities)	1-800-424-8802
U.S. Coast Guard (spills to water)	1-800-424-8802

Incident Reporting Protocol Within Arcadis



Client Incident Reporting Protocol

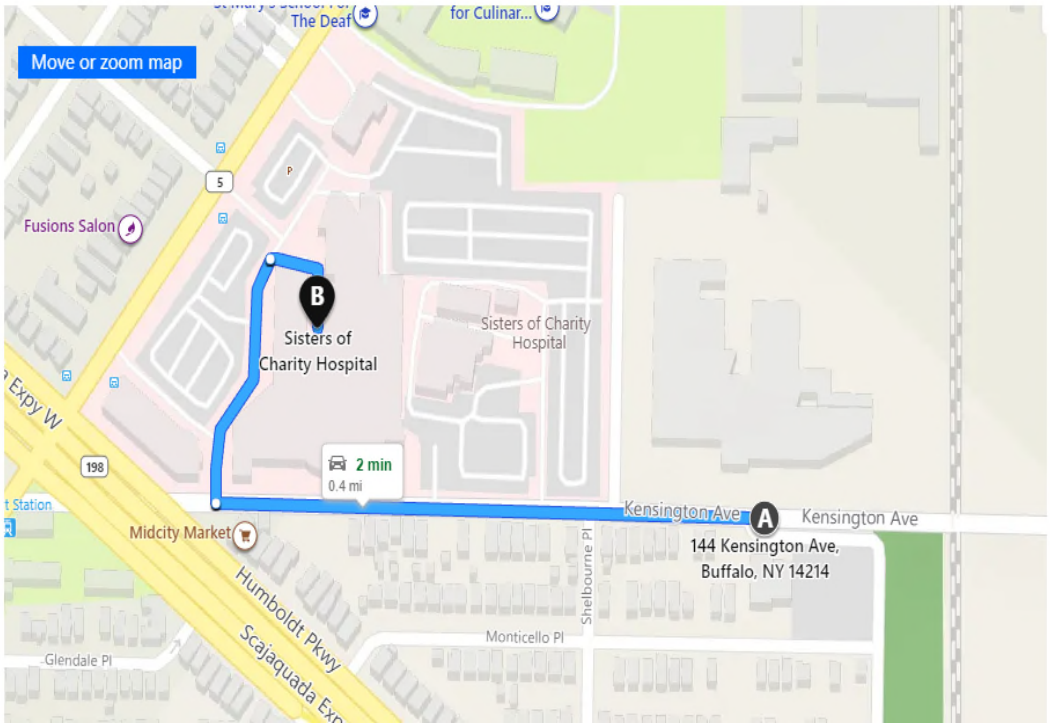
1. Dial 911/ Facility Emergancy Number/ WorkCare as applicable
2. Contact PM/Supervior - Mike Jones
3. Contact Corporate H&S- Andrew McDonald
4. Contact Client- Steven Stucker

Route to the Hospital

A 144 Kensington Ave, Buffalo, NY 14214

1.	Head **west** on **Kensington Ave** toward Trinidad Pl	0.3 mi
2.	Turn **right** Krispy Krunchy Chicken on the corner	0.1 mi
3.	Keep **right** to get onto **road**	249 ft
4.	Arrive at your destination on the left	

B Sisters of Charity Hospital



Site Map Showing Assembly Areas

Site Type

This project is an active facility which historically has the following attributes:

Inactive Hazard Waste Management Facitity	
Utility	
Parking Lot/Private Drive (NON ROW)	

Work in parking lots will require preparation of a Non-ROW Traffic Safety Plan.

Surrounding Land Use and Topography

The site is between Dewey and Kensington Avenue. The site is located in a primarily industrial/commercial area. To the east of the site there is a railroad and the Sisters of Charity Hospital is located west of the Site. Residential homes are south of the Site.

Simultaneous Operations (SimOps)

SimOps is expected or will be conducted in proximity to Arcadis work activities on the project site. SimOps creates unique hazards that could affect Arcadis employees and subcontractors and SimOps hazards identified on site will be addressed in the JSA or similar governing document (i.e. permit) for affected Arcadis work tasks. If the SimOps work activities create a high hazard to Arcadis staff or subcontractors, Arcadis will utilize stop work until the SimOps activity is complete or will coordinate work activities with SimOps workers and/or client to ensure SimOps work hazards are mitigated.

Site Background

The Dewey Avenue Service Center is an active facility located at 144 Kensington Avenue between Dewey and Kensington Avenues in Buffalo, New York. The service center previously included a hazardous waste management facility permitted by the NYSDEC (Part 373 Permit No. 9-1402-00397/00001-0). The hazardous waste management facility was closed in December 1992 in accordance with a NYSDEC-approved closure plan.

National Grid is planning to implement a paving project (the DK-21 Pavement Improvement Project) which will include the replacement of deteriorated pavement/concrete subbase material in a Solid Waste Management Unit (SWMU) and an area northeast of the DK-21 warehouse building. To

characterize soil that was planned for removal within the pavement project area, National Grid completed 13 soil borings to depths of up to 8 feet below grade. PCBs were detected at 7 of the 13 borings at concentrations ranging from 5.69 ppm to 741 ppm.

The area northeast of Building DK-21 was not previously identified as a SWMU in the 6NYCRR Part 373 Hazardous Waste Management Permit for a Hazardous Waste Treatment, storage and Disposal Facility at the service center. The work covered under this HASP is the soil investigation northeast of Building DK-21.

Project Tasks

The following tasks are identified for this project:

1	Drilling - Using mechanical methods
2	Sampling - Soil sampling using direct push technology
3	Utilities - Clearance
4	Waste - Containment of IDW in small containment devices greater than 10 gallons but less than or equal to
5	Survey - Geophysical
6	Mobilization - Loading and unloading vehicles

Supplemental requirements associated with the above task(s):
The Arcadis Utility Clearance Checklist must be used for utility clearance activities.

Site access agreements and/or a discussion of proper procedures for accessing off-site non-client owned private property must be provided to the field team.

[X] Required Checklists/Work Forms

- *Tailgate Safety Briefing Form*
- *Vehicle Inspection Checklist*
- *Utility and Structures Checklist*

[ ] Required Permits

- *Not Applicable*

[X] Required H&S Standards

- *Heavy and Mechanized Equipment_ARC HSCS00*
- *Utility Location Procedures_ARC HSFS019*

Short Service Employees (SSEs)

SSEs (employees who are employed with Arcadis for less than 1 year or are Inexperienced Workers) are not anticipated to be working on this project. If staffing changes occur during this project and SSEs are utilized, the project team working in conjunction with the SSE's administrative supervisor will ensure requirements of ARC HSGE019 "Short Service Employees" are completed. SSE's will be identified in the project Tailgate Safety Meeting Form.

Roles and Responsibilities

	Name	Role	Short Service Employee
1	Michael Jones	Project Manager (PM)	No
2	Michael Jones	Associate Project Manager (APM)	No
3	L. Carey Healy	Task Manager	No
4	Doug Richmand	Field Technical Lead	No
5	Ray Wagner	Site Safety Officer (SSO)	No

Training

All Arcadis employees are required to have the following training to be on site:

- Defensive Driving - Smith On-Line
- HAZCOM GHS/EAP (non-certificate)
- H&S Program Orientation (non-certificat
- Hazwoper 40-Hour
- Hazwoper 8-Hour Annual Refresher
- None
- None
- None
- None
- None
- None
- None
- None

Client specific:

Other:

Selected Arcadis employees are required to have the following additional training:

	Names or Numbers from above
DOT HazMat #1	4 and 5
Fire Extinguisher (non-certificate)	4 and 5
BBP (Bloodborne Pathogens)	4 and 5
First Aid/CPR	4 and 5
Hazwoper 8-Hour Supervisor	1 person on team
Heavy Equipment	4 and 5
None	
None	
None	
None	
None	
None	
None	
None	
None	
None	

Other:

The Arcadis Fundamental H&S Principles

Staff working on any of the task(s) listed above must utilize the six Arcadis Fundamental H&S Principles to ensure work is conducted safely. These principles include: 1) Use of TRACK, 2) H&S Planning, 3) Stop Work Authority, 4) "If Not Me Then Who", 5) Stewardship, and 6) Incident Reporting. Every project team member plays an important role in project health and safety. This is more than just having a HASP, training, or PPE. Proactive staff engagement with these principles is critical to a safe work environment.

General Task Hazard Assessment and Risk Control (HARC)

General:	Hazards Applicable to All Project Tasks

The 12 hazard category HARC ratings are not available in this General THA. The mitigated and unmitigated ratings for the hazards presented are based on the Risk Assessment Matrix below. Modify hazards and ratings as necessary to meet project needs.

Risk Assessment Matrix		Likelihood Ratings			
Consequences Ratings		A	B	C	D
People	Property	0 Almost Impossible	1 Possible but Unlikely	2 Likely to Happen	3 Almost Certain to Happen
1-Slight or No Health Effect	Slight or No Damage	0-Low	1-Low	2-Low	3-Low
2-Minor Health Effect	Minor Damage	0-Low	2-Low	4-Medium	6-Medium
3-Major Health Effect	Local Damage	0-Low	3-Low	6-Medium	9-High
4-Fatalities	Major Damage	0-Low	4-Medium	8-High	12-High

Hazard #1

Driving - On road - Injury or vehicle damage from motor vehicle accident or incident

Suggested FHSHB Ref:	3.4	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Smith System (on line)
Mitigated Risk:	MEDIUM	JSAs
Comments:	Use Smith System "5-Keys" when driving. See Driving JSA for details.	

Hazard #2

Driving - Driver - Injury, death or property damage due to driver distraction, fatigue, etc.

Suggested FHSHB Ref:	3.4, 3.21	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Smith System (on line)
Mitigated Risk:	LOW	Driver awareness and use of stop work authority
Comments:	Use route planning. Keep eyes moving while driving. See Driving JSA.	

Hazard #3

Biological - skin/eye irritation or damage from poisonous plants

Suggested FHSHB Ref:	3.17.11	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	LOW	See HASP Tick/Poisonous Plant Section
Mitigated Risk:	LOW	Job Briefing/Site Awareness
Comments:	Use skin pre-treatment lotions when available.	

Hazard #4

Biological - bites or stings from exposure to insects or arachnids

Suggested FHSHB Ref:	3.17: 2,3,7,8,9,10	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	LOW	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	Job Briefing/Site Awareness
Comments:	Do body check daily. For ticks see also HASP Tick/Poisonous Plant section	

Hazard #5

Biological - cuts, scrapes, skin/eye puncture from exposure to physically damaging plants

Suggested FHSHB Ref:	3.17.11	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Job Briefing/Site Awareness
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:		

General Task HARC (continued)

Hazard #6		
Environmental - Thermal stress - Injury or illness from heat or cold		
Suggested FHSHB Ref:	3.16	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Field H&S Handbook (see ref. above)
Mitigated Risk:	LOW	JSAs
Comments:	Use job rotation or rest breaks. Stay hydrated and eat regularly.	
Hazard #7		
Environmental - Inclement weather -Injury or equipment damage from inclement weather		
Suggested FHSHB Ref:	3.12	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Weather Monitoring
Mitigated Risk:	LOW	Cont./Emerg. Planning
Comments:	Use 30/30 rule for lightning. See FHSHB for details.	
Hazard #8		
Motion - Musculoskeletal - Injury from lifting, twisting , stooping, or awkward body positions		
Suggested FHSHB Ref:	3.29.1	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Engineering Controls (specify in comments)
Mitigated Risk:	LOW	Admin. Controls (specify in comments)
Comments:	Use proper lifting techniques. Use job rotation when applicable. See FHSHB for details.	
Hazard #9		
Motion - Musculoskeletal - Injury from repeated work activity or body motion		
Suggested FHSHB Ref:	3.29.2	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Engineering Controls (specify in comments)
Mitigated Risk:	LOW	Admin. Controls (specify in comments)
Comments:	Use proper lifting techniques. Use job rotation when applicable. See FHSHB for details.	
Hazard #10		
Sound - Noise - Injury or illness due to noise exposure		
Suggested FHSHB Ref:	3.15	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Engineering Controls (specify in comments)
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:	Increase distance from source if possible. Maintain equipment.	
Hazard #11		
Gravity - Falls - Injury due to slips and trips		
Suggested FHSHB Ref:	3.26.4, 4.11	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Site Awareness
Mitigated Risk:	LOW	Housekeeping
Comments:	Use footwear appropriate for site conditions, plan routes and do not hurry while walking.	

Task Specific HARC

Task 1:	Drilling - Using mechanical methods

HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low): FHSHB Ref: 4.5

Biological	L	Chemical	L	Driving	-	Electrical	M
Environmental	L	Gravity	M	Mechanical	M	Motion	H
Personal Safety	L	Pressure	L	Radiation	-	Sound	M

Hazard #1

Mechanical - Pinch point - Injury by pinching of body part in mechanical process

Suggested FHSHB Ref:	3.27.4	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Machine Guarding
Mitigated Risk:	LOW	Inspections
Comments:	Maintain equipment to manufacturer's recommendations.	

Hazard #2

Environmental - Utilities - Injury or property damage from utility strike/damage

Suggested FHSHB Ref:	3.36	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Specialized Checklist/Forms
Mitigated Risk:	MEDIUM	Inspections
Comments:	Hand-clearing and geophysical surveys are required. Site awareness to detect any signs of unmarked.	

Hazard #3

Motion - Cuts and scrapes - Injury from moving object impacting skin or eye

Suggested FHSHB Ref:	2.5, 3.22	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	JSAs
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:		

Hazard #4

Motion - Struck by - Bodily injury from impact with moving object

Suggested FHSHB Ref:	2.5, 3.22	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	JSAs
Mitigated Risk:	LOW	Site Awareness
Comments:		

Hazard #5

Chemical - liquids, skin or eye irritation/damage/allergy

Suggested FHSHB Ref:	3.9, 3.22, 3.30, 3.33	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	HASP
Comments:		

Hazard #6

Chemical - solids/particulates, skin or eye irritation/damage/allergy

Suggested FHSHB Ref:	3.9, 3.22, 3.30, 3.33	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	HASP
Comments:		

Task Specific HARC (continued)

Task 2:	Sampling - Soil sampling using direct push technology

HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low): FHSHB Ref: 3.9

Biological	L	Chemical	L	Driving	-	Electrical	H
Environmental	L	Gravity	M	Mechanical	M	Motion	M
Personal Safety	L	Pressure	L	Radiation	-	Sound	M

Hazard #1

Mechanical - Pinch point - Injury by pinching of body part in mechanical process

Suggested FHSHB Ref:	3.27.4	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Machine Guarding
Mitigated Risk:	LOW	Inspections
Comments:	Maintain equipment to manufacturer's recommendations.	

Hazard #2

Environmental - Utilities - Injury or property damage from utility strike/damage

Suggested FHSHB Ref:	3.36	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	HIGH	Specialized Checklist/Forms
Mitigated Risk:	MEDIUM	Inspections
Comments:	Hand-clearing and geophysical surveys are required. Site awareness to detect any signs of unmarked	

Hazard #3

Motion - Cuts and scrapes - Injury from moving object impacting skin or eye

Suggested FHSHB Ref:	2.5, 3.22	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	JSAs
Mitigated Risk:	LOW	PPE (see HASP "PPE" section)
Comments:		

Hazard #4

Motion - Struck by - Bodily injury from impact with moving object

Suggested FHSHB Ref:	2.5, 3.22	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	JSAs
Mitigated Risk:	LOW	Site Awareness
Comments:		

Hazard #5

Chemical - solids/particulates, skin or eye irritation/damage/allergy

Suggested FHSHB Ref:	3.9, 3.22, 3.30, 3.33	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	HASP
Comments:		

Hazard #6

Chemical - liquids, skin or eye irritation/damage/allergy

Suggested FHSHB Ref:	3.9, 3.22, 3.30, 3.33	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	HASP
Comments:		

Task Specific HARC (continued)

Task 3:	Utilities - Clearance

HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low): FHSHB Ref: 3.36

Biological	L	Chemical	L	Driving	-	Electrical	H
Environmental	L	Gravity	L	Mechanical	M	Motion	M
Personal Safety	L	Pressure	L	Radiation	-	Sound	L

Hazard #1

Environmental - Utilities - Injury or property damage from utility strike/damage

Suggested FHSHB Ref: 3.36

Overall Unmitigated Risk: HIGH

Mitigated Risk: MEDIUM

Comments:

To mitigate this hazard, use TRACK and the following:

Specialized Checklist/Forms

Inspections

Task Specific HARC (continued)

Task 4:	Waste - Containment of IDW in small containment devices greater than 10 gallons bu

HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low): FHSHB Ref: 3.3

Biological	L	Chemical	M	Driving	-	Electrical	-
Environmental	M	Gravity	M	Mechanical	L	Motion	M
Personal Safety	L	Pressure	L	Radiation	-	Sound	L

Hazard #1

Chemical - liquids, skin or eye irritation/damage/allergy

Suggested FHSHB Ref:	3.9, 3.22, 3.30, 3.33	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	HASP
Comments:		

Hazard #2

Chemical - solids/particulates, skin or eye irritation/damage/allergy

Suggested FHSHB Ref:	3.9, 3.22, 3.30, 3.33	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	HASP
Comments:		

Hazard #3

Mechanical - Pinch point - Injury by pinching of body part in mechanical process

Suggested FHSHB Ref:	3.27.4	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	Field H&S Handbook (see ref. above)
Comments:	Use proper tools when sealing drum to prevent pinch hazard.	

Task Specific HARC (continued)

Task 5:	Survey - Geophysical							
HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low):						FHSHB Ref:		3.9
Biological	M	Chemical	-	Driving	-	Electrical	L	
Environmental	M	Gravity	L	Mechanical	-	Motion	M	
Personal Safety	L	Pressure	-	Radiation	-	Sound	L	

Hazard #1

Driving - Off road - Injury or vehicle damage from object impact/vehicle rollover/improper load securement

Suggested FHSHB Ref:	3.4.2.1	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	Smith System (on line)
Mitigated Risk:	LOW	Field H&S Handbook (see ref. above)
Comments:		

Hazard #2

Gravity - Struck by - Injury from falling object

Suggested FHSHB Ref:	3.26.2	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	Job Briefing/Site Awareness
Comments:		

Task Specific HARC (continued)

Task 6:	Mobilization - Loading and unloading vehicles

HARC Unmitigated Hazard Types (H-High, M-Medium, L-Low): FHSHB Ref: 3.9

Biological	-	Chemical	L	Driving	-	Electrical	L
Environmental	L	Gravity	M	Mechanical	L	Motion	M
Personal Safety	L	Pressure	L	Radiation	L	Sound	L

Hazard #1

Gravity - Struck by - Injury from falling object

Suggested FHSHB Ref:	3.26.2	To mitigate this hazard, use TRACK and the following:
Overall Unmitigated Risk:	MEDIUM	PPE (see HASP "PPE" section)
Mitigated Risk:	LOW	Job Briefing/Site Awareness
Comments:	Contents of vehicle may shift during transit. Open tailgate slowly and only if it appears safe from inside the vehicle.	

Hazard Communication (HAZCOM)/Global Harmonization System (GHS)

[ ] HAZCOM/GHS for this project is managed by the client or general contractor

List the chemicals anticipated to be used by Arcadis on this project per HAZCOM/GHS requirements.
(Modify quantities as needed)

	Preservatives	Qty
[ ]	Not applicable	
[X]	Hydrochloric acid	<500 ml
[ ]	Nitric acid	<500 ml
[ ]	Sulfuric acid	<500 ml
[X]	Sodium hydroxide	<500 ml
[ ]	Zinc acetate	<500 ml
[ ]	Ascorbic acid	<500 ml
[ ]	Acetic acid	<500 ml
[ ]	Isopropyl alcohol	< 4 gal.
[ ]	Formalin (<10%)	< 4 gal.
[ ]	Methanol	<500 ml
[ ]	Sodium bisulfate	<500 ml

	Decontamination	Qty
[ ]	Not applicable	
[X]	Alconox	≤ 5 lbs
[ ]	Liquinox	≤ 1 gal
[ ]	Acetone	≤ 1 gal
[ ]	Methanol	≤ 1 gal
[ ]	Hexane	≤ 1 gal
[ ]	Isopropyl alcohol	≤ 4 gal
[ ]	Nitric acid	≤ 1 L
[ ]	Other:	

	Calibration	Qty.
[ ]	Not applicable	
[X]	Isobutylene/air	1 cyl
[ ]	Methane/air	1 cyl
[ ]	Pentane/air	1 cyl
[ ]	Hydrogen/air	1 cyl
[ ]	Propane/air	1 cyl
[ ]	Hydrogen sulfide/air	1 cyl
[ ]	Carbon monoxide/air	1 cyl
[ ]	pH standards (4,7,10)	≤ 1 gal
[ ]	Conductivity standards	≤ 1 gal
[ ]	Other:	

	Fuels	Qty.
[ ]	Not applicable	
[X]	Gasoline	≤ 5 gal
[X]	Diesel	≤ 5 gal
[ ]	Kerosene	≤ 5 gal
[ ]	Propane	1 cyl
[ ]	Other:	

	Kits	Qty.
[ ]	Not applicable	
[ ]	Hach (specify):	1 kit
[ ]	DTECH (specify):	1 kit
[ ]	Other:	1 kit

	Remediation	Qty.
[ ]	Not applicable	
[ ]		
[ ]		
[ ]		
[ ]		
[ ]		

	Other:	Qty.
[ ]	Not applicable	
[X]	Spray paint	≤ 6 cans
[ ]	WD-40	≤ 1 can
[ ]	Pipe cement	≤ 1 can
[ ]	Pipe primer	≤ 1 can
[ ]	Mineral spirits	≤ 1 gal

	DOT(1):	Qty.
[ ]	MOT eligible soils	
[ ]	MOT eligible water	
[ ]	MOT eligible solids	
[ ]	MOT eligible liquids	
[ ]		
[ ]		
[ ]		

(1) Attach applicable Materials of Trade (MOT) generic shipping determination. SDS not generally applicable to this category.

SDSs for this project are attached to this HASP.

Air Monitoring

☐ There are no atmospheric chemical, radiological, or particulate hazards on this project requiring air monitoring.

☐ Air monitoring is the responsibility of the client or subcontractor.

Constituents of Interest:

Time Weighted Averages (TWAs) are ACGIH 8-Hr Threshold Limit Values (TLVs) unless noted.

PCBs	Anticipated Breathing Zone Concentration <=	0.5	mg/m3
TWA 0.5 mg/m3, skin	LEL/UEL (%):	NA/NA	
STEL NA	VD (Air = 1):	NA	
IDLH 5 mg/m3, NIOSH	VP (mmHg):	0.001	
1,4-Dioxane			
TWA 20 ppm, skin	LEL/UEL (%):	2.0/22	
STEL NA	VD (Air = 1):	NA	
IDLH 500 ppm, NIOSH	VP (mmHg):	29	
None			
TWA NA	LEL/UEL (%):	NA	
STEL NA	VD (Air = 1):	NA	
IDLH NA	VP (mmHg):	NA	
None			
TWA NA	LEL/UEL (%):	NA	
STEL NA	VD (Air = 1):	NA	
IDLH NA	VP (mmHg):	NA	
None			
TWA NA	LEL/UEL (%):	NA	
STEL NA	VD (Air = 1):	NA	
IDLH NA	VP (mmHg):	NA	

TWA - Time Weighted Average (ACGIH TLV unless noted)

STEL - Short Term Exposure Limit

IDLH - Immediately Dangerous to Life and Health

LEL/UEL - Lower /Upper Explosive Limit

RGD - Relative Gas Density

VP - Vapor Pressure

Notes:

One or more constituents above is listed with a skin notation. Avoid conditions where dusts, mists, or aerosols are created. Avoid skin contact with impacted media.

Required Monitoring Instruments, Action Levels and Monitoring Frequency

Gray fields below are not automated. *Make necessary selections from drop down menus.*

Air monitoring for volatile organics is not required. 10.6

			Computed action levels have been manually adjusted.
<	NA		Continue working
	NA	- NA	Levels sustained > 5 minutes, monitor continuously and review engineering controls and PPE. Proceed with caution.
>	NA		Stop work and contact SSO

Particulate/aerosol monitoring is not required. Re-evaluate if visible dusts or aerosols cannot be controlled.

Action levels are in mg/m3			Computed action levels have been manually adjusted.
<	NA		Continue working
	NA		Levels sustained > 5 minutes, monitor continuously and review engineering controls and PPE. Proceed with caution.
>	NA		Stop work and contact SSO

Breathing zone air monitoring using the above instruments will be performed at the following frequency:

Select

Multigas (including LEL/O2 and Hg vapor) monitoring is not required.

LEL/O2 Meter	0-5% LEL	Continue work
LEL/O2 Monitoring Not Required	>5-10% LEL	Continually monitor, review engineering controls, proceed with caution
	>10% LEL	Stop work, evacuate, contact SSO
	19.5%-23.5% O2	Normal, continue work
	<19.5% O2	O2 deficient, stop work, evacuate, contact SSO
	>23.5% O2	O2 enriched, stop work, evacuate, contact SSO

Additional Gas/Vapor Monitoring is Not Required

		1/2 TLV	Stop Work Action Level	Comments
	Ammonia	12.5 ppm	25 ppm	
	Carbon dioxide	2500 ppm	5000 ppm	
	Carbon monoxide	12.5 ppm	25 ppm	
	Chlorine	0.05 ppm	0.1 ppm	
	Hydrogen cyanide	2.35 ppm (skin)	4.7 ppm* (skin)	
	Hydrogen sulfide	0.5 ppm	1 ppm	
	Nitrogen dioxide	0.1 ppm	0.2 ppm	
	Phosphine	0.025 ppm	0.05 ppm	
	Sulfur dioxide	0.125 ppm	0.25* ppm	
	Mercury vapor	0.0125 mg/m3	0.025 mg/m3	

* Ceiling or STEL value

All air-monitoring instruments must be calibration checked daily, if used, per manufacturer's instructions. Calibration checks, including calibration gases used, must be documented.

Compound specific monitoring using indicator tubes or chips is not required.

Indicator:		≤TWA	Continue work
Tube	Chip	>TWA	Stop work, review engineering controls and PPE, contact SSO
Compound(s):			

Indicator tube/chip monitoring frequency: Not applicable

Tick and Poisonous Plant Hazards

For all projects with outdoor work, biological hazards must be addressed in the tailgate safety meeting each day. The following controls must be used to mitigate biological hazards while working and must also be discussed in the tailgate safety meeting. For low risk situations, the discussion must include exposure to weeds/vegetation near fences, buildings, etc.

Controlling Tick Hazards

Risk Guide for Ticks:

Low	Paved areas; parking lots; well manicured lawns and fields; no work taking place within 15 feet of vegetated areas; work in REGIONS with no tick populations; sub-freezing temperatures, snow or ice cover on ground.*
Medium	Brush hogged fields, wetlands, and grasslands; forested areas with little undergrowth; weeds less than knee height; moderately dense foliage; sporadic or moderately vegetated shaded areas; average leaf accumulation and decaying material on the ground; work taking place in fields after application of insecticide; work in REGIONS with a recognized moderate tick populations; outdoor work during spring, summer and fall months.*
High	Uncut fields, wetlands, forested areas, and grasslands; weeds taller than knee height; heavy dense foliage; heavily vegetated shaded areas; excessive accumulations of leaves and decaying material on the ground; work in REGIONS with recognized heavy tick populations; areas with posted tick hazard warnings; outdoor work during spring, summer and fall months.*

*Cold weather does not eliminate risk of exposure to deer ticks as they may be active all year in areas that experience subfreezing temperatures.

Ticks are ranked as a **Low** risk for this project

Care should be taken to avoid walking through or working in tall grasses, overgrown or bushy vegetation to the extent reasonable and practical. No single control is effective against ticks.

Select required controls below:

Engineering Controls

- [ ] Mowing of work area
- [ ] Clearing overgrown vegetation
- [ ] Pesticide application
- [ ] Other: _____

Administrative Controls

- [X] Complete tick check morning/evening
- [ ] Scheduled tick check: _____
- [ ] Inspect backpacks, equipment cases, etc. daily
- [ ] Vehicle cab - maintain good housekeeping
- [ ] Other: _____

Personal Protective Equipment

- [ ] Light colored clothing
- [ ] Light colored hat/hardhat
- [ ] Pants tucked in boots
- [ ] Shirt tucked into pants
- [X] Long sleeved shirt and long pants
- [ ] White Tyvek pants
- [ ] White coveralls/Tyvek
- [ ] Taped cuffs/pant legs
- [ ] Tick gators
- [ ] Double sided tape/duct tape sticky side out
- [ ] Insect mesh/netting for face/head or whole body suit
- [ ] Other: _____

Heat stress signs/symptoms and controls to also be addressed in tailgate safety meeting if temperatures >80°F

Repellents

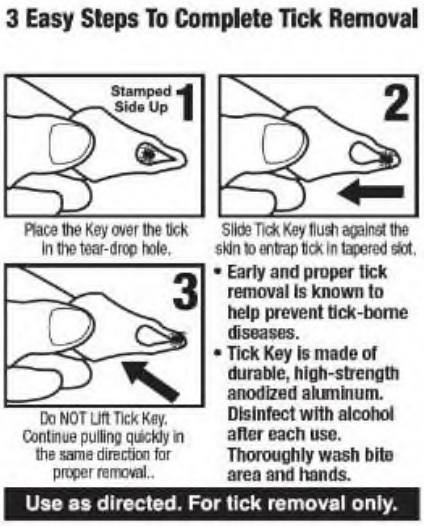
- [X] Repellents will not be used
- [ ] Permethrin impregnated clothing (purchased)
- [ ] Permethrin (0.5% self applied/treated to clothing)
- [ ] Deet 20-40% applied to skin
- [ ] Other: _____

If repellents are not used, additional PPE controls must be considered.

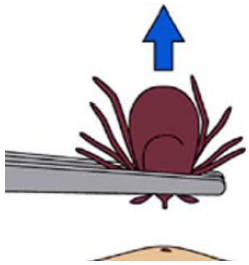
Tick Removal and First Aid

Ticks removed within 24 hours of embedment represent a very low risk for adverse outcomes. Perform tick checks as directed above. To properly remove a tick:

Using a Tick Removal Tool



Using Tweezers



1) Use point tip tweezers, if available, to reduce potential of crushing the ticks body
2) Grasp the tick as close to skin as possible
3) Pull upward with even pressure.

Do not crush tick with fingers

After removal, wash affected area with alcohol or iodine. Wash hands thoroughly after removal.
Document date/time of the removal in field notes, field form or H&S app.
If rash or fever develops, call WorkCare

Poisonous Plants (Poison Ivy, Poison Oak, Poison Sumac)

All work outdoors, regardless of time of year, must address poisonous plant hazards and controls in the tailgate safety meeting. For low risk projects, the discussion should consider potential vegetation exposure near fences, buildings, work near trees, etc.

Controlling Exposure to Poisonous Plants

Poisonous Plants are ranked as a **Low** risk on this project

Select required controls below:

Engineering Controls

- [ ] Not applicable
- [ ] Mowing of work area
- [ ] Clearing overgrown vegetation
- [ ] Herbicide application
- [ ] Other: _____

Administrative Controls

- [X] Identify and avoid (see ID Quick Guide below)
- [X] Watch for signs or symptoms of exposure
- [ ] Vehicle cab - maintain good housekeeping
- [ ] Other: _____

Personal Protective Equipment

- [X] Gloves
- [X] Hat/hardhat/head covering
- [ ] Pants tucked in boots
- [ ] Shirt tucked into pants
- [X] Long sleeved shirt and long pants
- [ ] White coveralls/Tyvek
- [ ] Taped cuffs/pant legs
- [ ] Dust mask (during burning activities, etc.)
- [ ] Other: _____

Heat stress signs/symptoms and controls to also be addressed in tailgate safety meeting if temperatures >80°F

Repellents

X	Repellents will not be used
	Barrier creams
	Other: _____

Skin Decontamination

	Wash with post-exposure soap and water
	Wash with soap and water (use hot water if available)
X	Hot shower at end of day
	Other: _____

Equipment Decontamination

Due to the low risk associated with poisonous plants on this project, portable equipment and tools may still have a potential to be contaminated with urushiol (the oil that causes allergic reactions and dermatitis in poisonous plants covered by this plan). It is recommend to decontaminate handles, grips, and hand holds of tools and equipment with post-exposure soap and water or alcohol spray (if safe to do so for the equipment/tool being decontaminated) as a best practice.

Clothing Decontamination

Wash work clothing in hot water separate from other clothing. Even though there is a low risk for poisonous plants on this project, work boots should be considered potentially contaminated with urushiol. Decontaminate with post-exposure soap and water or hot soap and water. If safe for the boot, consider spraying with alcohol spray of post exposure soap is not available.

First Aid

If skin irritation or other signs of allergic reaction develops contact WorkCare for assistance. Document date and time of exposure, if known, in field notes, field form or H&S app.

Identification Quick Guide

Ticks:

American Dog Tick

Blacklegged (Deer) Tick

Brown Dog Tick

Groundhog Tick

Gulf Coast Tick

Lone Star Tick

Rocky Mountain Wood Tick

Soft Tick

Poison Ivy:

Poison Oak:

Poison Sumac:

For other biological hazards, address the hazards and controls in the JSA for the work task.

Personal Protective Equipment (PPE)

See JSA or Permit for the task being performed for required PPE. If work is not conducted under a JSA or Permit, refer to the governing document for PPE requirements. At a minimum, the following checked PPE is required for all tasks during field work (outside of field office trailers and vehicles) not covered by a JSA or Permit on this project:

Minimum PPE required to be worn by all staff on project:						Specify Type:
X	Hard hat		Snake chaps/guards		Coveralls:	
X	Safety glasses		Briar chaps		Apron:	
	Safety goggles		Chainsaw chaps	X	Chem. resistant gloves:	Nitrile
	Face shield		Sturdy boot		Gloves other:	
X	Hearing protection	X	Steel or comp. toe boot		Chemical boot:	
	Rain suit		Metatarsal boot		Boot other:	
	Other:			X	Traffic vest, shirt or coat:	Class II
					Life vest:	

Task specific PPE: See Task Specific JSAs
Comments:

Medical Surveillance

All Arcadis employees and subcontractors performing field work will be required to be current in HAZWOPER medical surveillance.

Client and DOT mandated drug and alcohol testing is not required for this project and will not be performed.

Hazardous Materials Shipping and Transportation

A shipping determination package has been prepared, reviewed and is attached to this HASP.

Traffic Safety and Traffic Safety Plans (TSPs)

All or portions of the project work will be conducted in a parking lot and/or private roadway. A Non-ROW TSP addressing this work is attached to this HASP.

Arcadis Commercial Motor Vehicles (CMVs)

CMVs operated by Arcadis employees on public roadways will be utilized on this project. Arcadis defines a CMV as any single vehicle with a gross vehicle weight rating (GVWR) ≥10,001 pounds or a truck and trailer combination with a combined GVWR ≥10,001 pounds (GVWR of truck + GVWR of trailer = ≥10,001 pounds). Arcadis drivers of these vehicles will be required to be participants in the Arcadis CMV Program.

Site Control

Site control requirements are addressed in the applicable task JSA for this project. JSAs requiring site control are attached to this HASP.

Decontamination

Decontamination protocols are addressed in the applicable task JSA(s) for this project. The applicable JSAs are attached to this HASP.

Sanitation

The project scope is a mobile work operation. The project field team will have reasonable access to restroom facilities within 10 minutes of the work area where the mobile work activity is actively taking place. Potable water will be carried by the field team in the vehicle used for the project. Unless alternate requirements are stipulated in a plan supplement (i.e. Heat Injury and Illness Prevention Plan), permit or JSA, bottled or water coolers with potable water will be provided to project workers at 1 gallon/worker/day.

Safety Briefings

Arcadis will lead all safety briefings on this project and will document the safety briefing on a Tailgate Safety Briefing form or logbook. Safety briefings will be conducted once at the beginning of each work day unless the Site Safety Officer deems more frequent safety briefings will be required based on work being conducted. All project workers, including Arcadis subcontractors, will be required to attend the safety briefing. Site visitors and project workers not on duty during the morning safety briefing will receive the safety briefing upon their arrival onto the project site for the day.

Employee Health and Safety Engagement

The CPM or APM is responsible for reviewing and establishing H&S engagement goals for the project. These goals are summarized below.

Hazard Observations (via H&S App or TIP) required at the following frequency on this project:

Close Call reporting (via H&S app) goals for this project:

Other (specify):

Safety Equipment and Supplies

Safety equipment/supply requirements are addressed in the JSA or Permit for the task being performed. If work is not performed under a JSA or Permit, the following safety equipment is required to be present on site in good condition unless otherwise noted (Check all that apply):

X	First aid kit		Insect repellent:
	Bloodborne pathogens kit		Sunscreen
X	Fire extinguisher		Air horn
	Eyewash (ANSI compliant)	X	Traffic cones
X	Eyewash (bottle)		2-way radios
	Drinking water		Heat stress monitor
	Other:		See Tick and Poisonous Plant Hazards section for addtional equipment/supply information.

International Travel

International travel is not required for this project.

Spill Control and Containment

Site Control protocols will be addressed in the project JAS for the tasks (s) performed.

Use of Electronic Devices in Areas of Increased Safety Risk

Use of electronic devices (tablets, laptops, and/or cell phones) to collect data or document work is not anticipated on this project. If electronic devices are used, distraction hazards and use must be addressed and documented in the job briefing/safety briefing.

Signatures

I have read, understand and agree to abide by the requirements presented in this health and safety plan. I understand that I have the absolute right to stop work if I recognize an unsafe condition affecting my work until corrected.

Printed Name	Signature	Date

Add additional sheets if necessary

You have an absolute right to STOP WORK if unsafe conditions exist!

Attachment A
JSAs

Job Safety Analysis

General

JSA ID	18599	**Status**	(2) Review
Job Name	Environment-Air knife/hydro knife	**Created Date**	12/16/2021
Task Description	Oversight of Air-Knife Operation	**Completed Date**	
Template	False	**Auto Closed**	False

Client / Project

Client	National Grid
Project Number	30094243
Project Name	NG - SIR Dewey/Kensington PCB Review/Inv
PIC	Young, Terry
Project Manager	Jones, Michael

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Guarnieri, Makenna	1/6/2022	12/16/2021	Brien, Jason	☑
HASP Reviewer	Zuck, Daniel	12/30/2021		Locklear, Christine	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Check and clear proposed hydro-knife locations for the presence of underground and overhead utilities	1	Staff can be hit by vehicular traffic	Wear reflective traffic vest. Establish work zone with cones.	Utility Clearance H&S Standard: ARCHSFS019
		2	Underground utilities can be encountered	Follow ARCADIS policy on utility location	
2	Pre-operation inspection and maintenance	1	Poorly maintained equipment may break causing injury	Inspect equipment while deenergized before use. Ensure that all guards are protective and in-place. Inspect any cables, cords, or tubes for fraying or other damage.	Arcadis H&S Handbook Sections 3.9 and 3.36
		2	Pinch Hazards to Hands	Wear gloves appropriate for hazard while maintaining dexterity. Keep hand in field of vision and watch for/ keep hands clear of hazards (ie. "blade" edge of air knife, moving components, pressured lines, pressure release valves).Do not hurry through work activities. Depressurize equipment before performing maintenance.	
		3	Awkward body positions and twisting	Plan inspection activity and do not hurry through task, stretch before crawling or squatting. Avoid Overreaching.	
		4	Entanglement in equipment components	Do not circumvent protective guards or shields, ensure equipment is depressurized and not operational when accessing engine compartment if intrusion required.	
		5	Excessive force turning bolts or lifting heavy components	Use automated methods to loosen tight bolts, do not use excessive force or torque when using hand tools. Do not use "cheater bars".	
		6	Flying debris during decontamination or cleaning activites	Wear adequate eye and face protection when removing soils or solid media from component of equipment by using pressure washer.	
		7	Exposure of hands and arms to hot engine components	Take time to allow the engine to cool, wear protective gloves and forearm protection.	
3	Clear hole using the hydro-knife	1	Subsurface could have material that may contain rocks/sharp objects. Flying debris could cause injury to eyes, face, arms and legs; Water spray could contain mud, sharp debris or chemicals of concern;	Stay back a minimum of five feet from the hydro-knife while in operation by the contractor. Wear safety glasses, leather gloves, hardhat.	H&S handbook Sections 3.9 and 3.36
		2	Operation of the hydro-knife generates excessive noise.	Hearing protection is required when the equipment is in operation	
		3	Vacuum unit has a large amount of suction.	Do not put any part of your body near the end of the hose.	

3	Clear hole using the hydro-knife	4	Strike or impact hazard with other workers, equipment, or structures	Keep eyes moving and watch for unanticipated worker movement. Keep workers 5 ft from any extendable areas of equipment. Maintain 360 degrees of awareness and ensure an adequate communication method with other workers. All workers to know emergency STOP hand signals.	
		5	Exposure to tools, air, "blade", and metal edges resulting in cuts or lacerations to hands during maintenance	Keep all guards in place. wear protective gloves that allow for good dexterity. mitigate sharp surfaces to extent practical.	
		6	Utility contact (subsurface or above ground)	Follow utility clearance procedure prior to any intrusive work with equipment. Immediately stop work if any unusual or unanticipated condition encountered.	
		7	Contract stress to knees and hands	Use padding or knee pads if kneeling on hard surfaces for an extended period of time. Avoid placing weight on hands for extended periods of time.	
4	Barricade open holes	1	Holes can be difficult to see depending on their size, and site workers could twist their ankle or fall if they step on an open hole.	Holes can be as large as 6-8 inches in diameter and as deep as 7 feet. Heavy cones, orange barrels or cones with caution tape should be used to protect the holes.	
		2	Lifting hazards from carrying heavy cones or orange barrels.	Minimize number of cones lifted at one time. Use team lift approach when possible.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	faceshield	if operating within 5 feet of air-knife	Required
	faceshield	if operating within 5 feet of air-knife	Required
	safety glasses		Required
Foot Protection	steel-toe boots		Required
Hand Protection	work gloves (specify type)	leather	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs		Required
Miscellaneous PPE	traffic vest--Class II or III	Class II	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	eye wash (specify type)	Bottle	Required
Traffic Control	barricades		Required
	traffic cones		Required

Job Safety Analysis

General

JSA ID	18596	**Status**	(2) Review
Job Name	Environment-Drilling, soil sampling, well installation	**Created Date**	12/16/2021
Task Description	Drilling and soil sampling	**Completed Date**	
Template	False	**Auto Closed**	False

Client / Project

Client	National Grid
Project Number	30094243
Project Name	NG - SIR Dewey/Kensington PCB Review/Inv
PIC	Young, Terry
Project Manager	Jones, Michael

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Guarnieri, Makenna	1/6/2022	12/16/2021	Brien, Jason	☑
HASP Reviewer	Zuck, Daniel	12/30/2021		Locklear, Christine	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Set up necessary traffic and public access controls	1	Struck by vehicle due to improper traffic controls	Use a buddy system for placing site control cones and/or signage. Position vehicle so that you are protected from moving traffic. Wear Class II traffic vest	
2	Utility Clearance	1	Potential to encounter underground or above ground utilities while drilling.	Complete utility clearance in accordance with the ARCADIS Utility Clearance H&S Standard.	ARCADIS H&S Standard ARCHSFS019
3	General drill rig operation	1	Excessive noise is generated by rig operation.	When the engine is used at high RPMs or soil samples are being collected, use hearing protection.	
		2	During drill rig operation, surfaces will become hot and cause burns if touched, and COCs in the soils more readily vaporize generating airborne contaminates.	Due to friction and lack of a drilling fluid, heat will be produced during this method. Mainly drill augers. Be careful handling split spoons. Wear proper work gloves. When soils and parts become heated, the COC could volatilize. Air monitoring should always be performed in accordance with the HASP.	
		3	Moving parts of the drilling rig can pull you in causing injury. Pinch points on the rig and auger connections can cause pinching or crushing of body parts.	Stay at least 5 feet away from moving parts of the drill rig. Know where the kill switch is, and have the drillers test it to verify that it is working. Do not wear loose clothing, and tie long hair back. Avoid wearing jewelry while drilling. Cone off the work area to keep general public away from the drilling rig.	
		4	Dust and debris can cause eye injury and soil cuttings and/or water could contain COCs.	Wear safety glasses and stay as far away from actual drilling operation as practicable. Wear appropriate gloves to protect from COCs.	
		5	Drilling equipment laying on the ground (i.e. augers, split spoons, decon equipment, coolers, etc), create a tripping hazard. Water from decon buckets generate mud and cause a slipping hazard.	Keep equipment and trash picked up, and store away from the primary work area.	
		6	The raised derrick can strike overhead utilities, tree limbs or other elevated items	Never move the rig with the derrick up. Ensure there is proper clearance to raise the derrick, and that you are far enough away from overhead power lines. See the Utility Clearance H&S Standard for guidance.	

4	Direct push drilling	1	The drill rods will be handled by workers most of the time rather than the rig doing it, therefore pinch points can cause lacerations and crushing of fingers/body parts.	Keep a minimum of 5 feet away from drill rig operation and moving parts.	H&S Handbook Section 3.36
		2	The direct push rigs are usually meant to fit in spaces where larger rig can't. Tight spaces can pin workers.	Do not put yourself between the rig and a fixed object. Use Spotters or a tape measure to ensure clearances in tight areas. Pre-plan equipment movement from one location to the next.	
		3	Some direct push equipment is controlled by wireless devices. These controls can fail and equipment can strike workers or cause damage to property.	The drill rig should be used in a large open area to test wireless controls prior to moving to boring locations. The operator of the rig will test the kill switch with wireless remote prior to use. Operator will stay in range of rig while moving so that wireless signal will not be too weak and cause errors to the controls.	
		4	Sampling sleeves must be cut to obtain access to soil. Cutting can cause lacerations.	It's preferable to let the driller cut the sleeves open. Many drillers have holders for the sleeve to allow for stability when cutting. If you cut the sleeves, use a hook blade, change blade regularly, and cut away from the body.	
		5	Soil cores may contain contaminated media.	Wear nitrile gloves and saftey glasses for protection from contaminated media when logging soil borings.	
		6	Icy pavement means slips may occur	Use driveway salt when needed. Where boots with good tread. Walk path before carrying gear.	
5	Sample collection and processing	1	Injuries can result from pinch points on sampling equipment, and from breakage of sample containers.	Care should be taken when opening sampling equipment. Look at empty containers before picking them up, and do not over-tighten container caps. Use dividers to store containers in the cooler so they do not break.	Sample Cooler Handling JSA
		2	Lifting heavy coolers can cause back injuries.	Use two people to move heavy coolers. Use proper lifting techniques.	
6	Soil cutting and purge water management	1	Moving full drums can cause back injury, or pinching/crushing injury.	Preferably have the drilling contractor move full drums with their equipment. If this is not practicable, use lift assist devices such as drum dollies, lift gates, etc. Employ proper lifting techniques, and perfrom TRACK to identify pinch/crush points. Wear leather work gloves, and clear all walking and work areas of debris prior to moving a drum.	Drum Handling JSA

PPE	**Personal Protective Equipment**		
Type	**Personal Protective Equipment**	**Description**	**Required**
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Required
Foot Protection	steel-toe boots	with good treads, with yak tracks or micro spikes	Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile	Required
	work gloves (specify type)	leather	Required
Head Protection	hard hat		Required
Hearing Protection	ear muffs		Recommended
	ear plugs		Required
Miscellaneous PPE	traffic vest--Class II or III	Class II	Required
Respiratory Protection	dust mask		Recommended

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Decontamination	Decon supplies (specify type)	Driller to provide and manage	Recommended
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
Personal	eye wash (specify type)	bottle	Required
	water/fluid replacement		Recommended
Traffic Control	barricades		Required
	traffic cones		Required

Job Safety Analysis

General

JSA ID	18617	**Status**	(2) Review
Job Name	General Industry-Driving - Commercial Motor Vehicles	**Created Date**	12/27/2021
Task Description	Driving and operating CMVs	**Completed Date**	
Template	False	**Auto Closed**	False

Client / Project

Client	National Grid
Project Number	30094243
Project Name	NG - SIR Dewey/Kensington PCB Review/Inv
PIC	Young, Terry
Project Manager	Jones, Michael

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Guarnieri, Makenna	1/17/2022	12/27/2021	Brien, Jason	☑
HASP Reviewer	Zuck, Daniel	1/10/2022		Locklear, Christine	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	CMV Pre-Trip Inspection	1	Failure to perform inspection may lead to CMV accident, damage to CMV or regulatory citation.	Perform required pre-trip inspections by checking general condition of CMV. Sign the Post-Trip Inspection report from previous day or shift, if any deficiency corrected. Do not operate a CMV with an identified deficiency that will affect operation of CMV. Ensure emergency equipment is present, in good condition and unobstructed.	DOT Fact Sheets 007a and 006d
2	Cargo Inspection	1	Failure to inspect cargo may lead to unstable CMV operation, damage to cargo or CMV, CMV accident or regulatory citation.	Inspect cargo: Loaded properly in bed of truck or on trailer, adequately secured to prevent movement, inspect securing devices. Use edge protection if sharp edged cargo is present and using tiedowns. Use flagging to mark projecting loads. Ensure any required shipping papers are present and in order.	DOT Facts 006b
3	Coupling and Uncoupling Trailers	1	Improper coupling of trailers may lead to separation of trailer from truck during operation, damage trailer and/or truck, create an accident or result in regulatory citation.	Ensure hitch, ball and trailer are compatible. Verify trailer is properly seated on the hitch ball and secure. Ensure safety chains are used and crossed. Ensure electrical connections are compatible and functional, verify lights and braking systems are operational.	DOT Facts 006c
4	Driving the CMV	1	Improper operation of a CMV may result in accident, injury, death or regulatory citation.	Operate CMVs according to local speed laws. Only drive in approved lanes, where regulated. Maintain Smith System 5 Keys while driving, add seconds to 4 second rule when carrying heavy cargo. Keep eyes moving in all directions, including vertically. Use warning devices when stopped on side of roadway.	DOT Facts 005a and 005b
5	Slowing and Stopping the CMV	1	Improper braking or stopping of a CMV may cause load shifts damaging cargo or CMV, create accident by rear ending other vehicles, or cause CMV to be struck by other vehicle or train.	Brake early and gradually, slow and proceed with caution at railroad grade crossings. Stop at railroad grade crossings if transporting placarded quantity of hazmat per ARCADIS Transportation Safety Program. Use gear shifting to aid in slowing CMV, if so equipped. Account for extra cargo weight when applying brakes. Trailers over 1500 pounds GVWR required to have brakes.	DOT Facts 005a
		2	Weather Conditions	Know day to day weather conditions, allow space between vehicles to allow for more reaction time and to stop. Be aware of the surroundings and more cautious in icy/snowy conditions.	

6	Backing and Parking	1	Improper backing may result in striking other objects or persons, cause trailer to jackknife causing damage to trailer, truck or cargo.	Avoid situations where backing will be required. Use Smith System, GOAL prior to backing or ARCADIS spotter program. Plan all backing. Back slowly 1-3 mph. Keep eyes moving continuously and monitor front of the CMV as well as back of the CMV when backing. Avoid blind side backing situations.	DOT Facts 005a
		2	Improper parking of CMV or trailer may create difficulty in leaving parking area potentially resulting in accident, or result in regulatory citation if parked illegally.	Use pull through parking when permitted. Park in open areas of parking lots and select routes that reduce exposure to pedestrians in parking lots. Use horn in a proactive manner to communicate with other drivers and pedestrians.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Hand Protection	work gloves (specify type)	Leather or other during trailer coupling	Required
Miscellaneous PPE	traffic vest--Class II or III		Required

Supplies

Type	Supply	Description	Required
Miscellaneous	fire extinguisher		Required
	first aid kit		Required
	flashlight		Required
	Other	Spare fuses	Required
Traffic Control	Other	Warning devices (triangles, etc.)	Required

Job Safety Analysis

General

JSA ID	18597	**Status**	(2) Review
Job Name	Environment-Drum sampling/handling	**Created Date**	12/16/2021
Task Description	Handling Drums	**Completed Date**	
Template	False	**Auto Closed**	False

Client / Project

Client	National Grid
Project Number	30094243
Project Name	NG - SIR Dewey/Kensington PCB Review/Inv
PIC	Young, Terry
Project Manager	Jones, Michael

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Guarnieri, Makenna	1/6/2022	12/16/2021	Brien, Jason	☑
HASP Reviewer	Zuck, Daniel	12/30/2021		Locklear, Christine	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Inspect Drums for signs of Bulging, Leaking, Crystals, Temperature, and Odor	1	Exposure to chemicals stored in drum or container.	Read drum labels for information about contents. Review all relevant MSDSs about chemical contents. If labels are not attached, call PM or Local H&S Representative.	None
		2	Contents of the drum can cause fire/explosion hazard.	Use air monitoring meters to screen drums. % LEL and VOCs (PPM). If either of the values are above the action levels described in the HASP or MSDS then Stop Work, move away from the area, and reassess the situation. Call PM and H&S staff for support.	
2	Remove lids or bungs from Drums	1	Hand Injuries can occur from sharp edges, pinch points, and from use of hand tools.	Wear appropriate work gloves. When removing ring from drum, fingers can get pinched between ring and drum. Keep fingers clear of this space. Select proper tool for task. If large amount of drums will be encountered, use a speed or drum wrench.	Employee H&S Field book, Section III Subpart II, page 104. Also Section III Subpart L, page 38.
		2	Rapid depressurization from empty or partially full drums can cause flying parts or volatile COCs releasing on staff.	Do not handle or open bulging drums (contact Corp H&S for assistance). Bleed any built up pressure by carefully loosening bung prior to removing ring. Keep face and arms away from bung opening when loosening. Slightly lift lid, insert end of air monitoring device to monitor air inside drum.	
		3	Use of mechanical tools to remove bolts from drum lids causes excessive noise.	Wear hearing protection.	
		4	Splashing can occur if filling drum, or collecting samples.	Wear eye and face protection. Pour liquids into drum slowly to minimize splashing.	
		5	When working with COCs that have fire/explosive properties, sparking or heat could cause fire/explosion.	Use brass or non Spark Hand Tools if such a hazard exists or is suspected.	
3	Sample Contents from Drums	1	Exposure to COCs can occur by contacting impacted contents.	Select proper dermal protection for task, at a minimum nitrile gloves should be worn. Wear appropriate eye face and body protection as outlined in the HASP.	
		2	Staff can be exposed to chemical vapors/fumes when sampling.	Conduct air monitoring as outlined in the HASP, and if required, select appropriate respiratory protection for the task.	
		3	Sharp edges and broken sample containers can cause lacerations.	Discard any broken sample ware or glass properly. Do not over tighten sample containers.	

3	Sample Contents from Drums	4	Chemical burns or skin irritation can occur from contact with sample preservatives.	Wear chemical protective gloves when collecting samples, or when handling damaged sample containers.	
4	Replace drum lids	1	Hand Injuries can occur from sharp edges, pinch points, and from use of hand tools.	see step 2 above	
5	Moving and Storing Drums	1	Drum storage areas can be accessed by the general public, or may not be secure.	Calculate how many drums will be stored in new location. Ensure that drums are not easily accessed by the general public. Do not store such that drums impede pedestrian or vehicular traffic.	
		2	Muscle strain can occur when lifting/pulling/pushing drums.	Drums that are full can weigh as much as 800 lbs. Use a lift assist device whenever possible, and use a team lift approach. When moving soil drum generated by drilling, have drillers use their equipment to move the drums. Using dolly, slightly lift drum away from dolly to install forks under drum. Slowly let drum come back down and rest on dolly. Using hook on top of dolly, ensure it latches on top of drum bung.	
		3	Body parts can be pinched between lift device, or drum and the ground.	Be aware of hand and foot placement during drum staging. Do not hurry through task.	
		4	When moving, the drum can tip or the dolly could become unstable from uneven ground surface.	Plan travel route with drum prior to moving. With drum secure on dolly, have one employee pull back on dolly, and other employee slowly push back on drum toward dolly. Have second worker act as spotter for traffic, pedestrians, and any trip hazards along the way.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Dermal Protection	chemical protective suit (specify type)	Tyvek	Required
	long sleeve shirt/pants		Recommended
Eye Protection	faceshield		Required
	safety goggles		Required
Hand Protection	chemical resistant gloves (specify type)	Nitrile	Required
	work gloves (specify type)	Leather	Required
Head Protection	hard hat		Required
Hearing Protection	ear plugs		Required
Miscellaneous PPE	traffic vest--Class II or III	Class II	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	Other	Dolly	Required
Traffic Control	traffic cones		Required

Job Safety Analysis

General

JSA ID	18600	**Status**	(2) Review
Job Name	Environment-Sample cooler handling	**Created Date**	12/16/2021
Task Description	Sample Cooler Handling	**Completed Date**	
Template	False	**Auto Closed**	False

Client / Project

Client	National Grid
Project Number	30094243
Project Name	NG - SIR Dewey/Kensington PCB Review/Inv
PIC	Young, Terry
Project Manager	Jones, Michael

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Guarnieri, Makenna	1/6/2022	12/16/2021	Brien, Jason	☑
HASP Reviewer	Zuck, Daniel	12/30/2021		Locklear, Christine	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	Transfer field samples to sample packing area	1	Lifting heavy coolers may result in muscle strain especially to lower back.	Use proper lifting techniques and keep back straight. Use buddy system for large coolers, Use mechanical aids like hand trucks if readily available to move coolers. Do not over fill coolers with full sample containers for temporary movement to the sample prep area. Ensure an adequate supply of sample coolers are in field.	
		2	Hazards to hands from broken glass caused by over tightening lids or improper placement in cooler	Inspect all bottles and bottle caps for cracks/leaks before and after filling container. Do not over tighten sample lids. Clean up any broken bottles immediately, avoid contact with sample preservatives. Wear leather gloves when handling broken glass.	
		3	Exposure to chemicals (acid preservatives or site contaminants) on the exterior of sample bottles after filling.	Wear protective gloves for acid preservatives and safety glasses with side shields during all sample container handling activities (before and after filling), Once filled follow project specific HASP PPE requirements for skin and eye protection.	
		4	Samples containing hazardous materials may violate DOT/IATA HazMat shipping regulations	All persons filling a sample bottle or preparing a cooler for shipment must have complete ARCADIS DOT HazMat shipping training. Compare the samples collected to the materials described in the Shipping Determination for the Project and ensure consistent. Re-perform all Shipping determinations if free product is collected and not anticipated during planning.	
2	Sample cooler selection	1	Sample coolers with defective handles, lid hinges, lid hasps cracked or otherwise damaged may result in injury (cuts to hands, crushing of feet if handle breaks etc)	Only use coolers that are new or in like new condition, No rope handled coolers unless part of the manufacturer's handle design.	ARCADIS Shipping Guide US-001
		2	Selection of excessively large coolers introduces lifting hazards once the cooler is filled.	Select coolers and instruct lab to only provide coolers of a size appropriate for the material being shipped. For ordinary sample shipping sample coolers should be 48 quart capacity or smaller to reduce lifting hazards.	
3	Pack Samples	1	Pinch points and abrasions to hands from cooler lid closing unexpectedly	Beware that lid could slam shut; block/brace if needed; be wary of packing in strong winds. New coolers may be more prone to self closing, tilt cooler back slightly to facilitate keeping lid open.	H&S Handbook Sections 3.9, 3.22, and 3.29

3	Pack Samples	2	Awkward body positions and contact stress to legs and knees when preparing coolers on irregular or hard ground surfaces.	Plan cooler prep activities. Situate cooler where neutral body positions can be maintained if practical, like truck tailgate. Avoid cooler prep on rough gravel surfaces unless knees and legs protected during kneeling.	
		3	Frostbite or potential for oxygen deficiency when packing with dry ice. Contact cold stress to fingers handling blue ice or wet ice	Dry ice temperature is -109.30F. Wear thermal protective gloves. DO NOT TOUCH with bare skin! Dry ice sublimates at room temp and could create oxygen deficiency in closed environment. Maintain adequate ventilation! Do not keep dry ice in cab of truck. Wear gloves when handling blue ice or gaging wet ice. Dry Ice is DOT regulated for air shipping, follow procedures in Shipping Determination.	
4	Sealing, labeling and Marking Cooler	1	Cuts to hands and forearms from strapping tape placement or removing old tape and labels	Do not use a fixed, open-blade knife to remove old tags/labels, USE SCISSORS or other safety style cutting device. Only use devices designed for cutting. Do not hurry through task.	H&S Handbook Sections 3.22 and 3.29
		2	Lifting and awkward body position hazards from taping heavy coolers, dropping coolers on feet during taping.	Do not hurry through the taping tasks, ensure samples in cooler are evenly distributed in cooler to reduce potential for overhanging cooler falling off edge of tailgate/table when taping.	
		3	Improper labeling and marking may result in violation of DOT/IATA HazMat shipping regulations delaying shipment or resulting in regulatory penalty	Do not deviate from ARCADIS Shipping Guide or Shipping Determination marking or labeling requirements.	
5	Offering sample cooler to a carrier or lab courier for shipment.	1	Lifting heavy coolers may result in muscle strain especially to lower back.	See lifting hazard controls above.	
		2	Carrier refusal to accept cooler may cause shipping delay and/or result in violation of DOT HazMat shipping regulations.	Promptly report all rejected and refused shipments to the ARCADIS DOT Program Manager. Do Not re-offer shipment if carrier requires additional labels markings or paperwork inconsistent with your training or Shipping Determination without contacting the ARCADIS DOT Compliance Manager.	

PPE — Personal Protective Equipment

Type	Personal Protective Equipment	Description	Required
Eye Protection	safety glasses		Required
Hand Protection	chemical resistant gloves (specify type)	nitrile	Required
	work gloves (specify type)	ANSI Level 2 cut resistant gloves	Required

Supplies

Type	Supply	Description	Required
Communication Devices	mobile phone		Required
Miscellaneous	first aid kit		Required
	Other	Scissors	Required

Job Safety Analysis

General

JSA ID	18598	**Status**	(2) Review
Job Name	General Industry-Site inspection/walk – commercial/manufacturing	**Created Date**	12/16/2021
Task Description	Site Walk	**Completed Date**	
Template	False	**Auto Closed**	False

Client / Project

Client	National Grid
Project Number	30094243
Project Name	NG - SIR Dewey/Kensington PCB Review/Inv
PIC	Young, Terry
Project Manager	Jones, Michael

User Roles

Role	Employee	Due Date	Completed Date	Supervisor	Active
Developer	Guarnieri, Makenna	1/6/2022	12/16/2021	Brien, Jason	☑
HASP Reviewer	Zuck, Daniel	12/30/2021		Locklear, Christine	☑

Job Steps

Job Step No.	Job Step Description		Potential Hazard	Critical Action	H&S Reference
1	PPE verification	1	Lack of adequate PPE at the facility could lead to injury	Prior to traveling to the site, ask the facility representative/escort for information on the types of PPE required. Verify that all necessary PPE is being worn and that PPE is in good working condition.	ARC HSGE015
2	Site safety orientation	1	Inability to quickly and safely exit an unfamiliar facility during an emergency	At the start of the site walk, ask the facility representative/escort for information regarding alarms, evacuation routes, and assembly areas.	
		2	Inability to recognize hazards prior to handling chemicals	At the start of the site walk, ask the facility representative/escort for the location of Safety Data Sheets.	
3	Site walk	1	Slips (icy conditions), trips and falls	Use caution when walking on uneven or wet surfaces. Use proper footwear with good traction. Pay attention to where you are walking-including foot placement. Walk in designated areas and pathways. Maintain a safe distance from open holes and unprotected edges. Use handrails on stairways.	H&S Field Handbook Section 3.12.4, H&S Field Handbook Section 3.16.5
		2	Hypothermia/ frostbite	Assess weather conditions and wear proper clothing to avoid hypothermia/ frost bite and freezing.	
		3	Falling snow/ice	Assess the site for falling snow/ice from trees/ powerlines. Use caution when walking the site and around trees and powerlines. Wear a hard hat.	
		4	Hazardous atmosphere or entrapment in a confined space	Do not enter confined spaces, crawl spaces, tanks, utility vaults, or trenches.	
		5	Vehicle traffic	Use caution when walking in areas with vehicle. Maintain a safe distance from moving vehicles and equipment. Use caution when walking near busy roadways. Wear type II or III traffic vest.	
4	Mobilization and Equipment Setup	1	Inadequate communication of project plans	Notify Arcadis Project Manager- Use Buddy System.	Arcadis Field H&S Handbook- Section 3.29
		2	Back strain from unpacking equipment	Avoid lifting heavy/ awkward equipment > 50 pounds without assistance. Use proper lifting techniques.	

PPE	Personal Protective Equipment		
Type	**Personal Protective Equipment**	**Description**	**Required**
Dermal Protection	long sleeve shirt/pants		Required
Eye Protection	safety glasses		Recommended
Foot Protection	steel-toe boots	with good tread	Required
Hand Protection	work gloves (specify type)	leather for warmth	Required
Head Protection	hard hat		Required
Miscellaneous PPE	traffic vest--Class II or III	Class II	Required

Supplies			
Type	**Supply**	**Description**	**Required**
Communication Devices	mobile phone		Required
Miscellaneous	first aid kit		Required
Personal	eye wash (specify type)	Bottle	Required
Traffic Control	traffic cones		Required

Arcadis U.S., Inc.
1 Executive Drive, Suite 303
Chelmsford
Massachusetts 01824
Phone: 978 937 9999
Fax:
www.arcadis.com

Attachment B

Generic Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009