NOVA GROUP
MITCHELL AIRPORT HYDRANT FUEL REPLACEMENT

21 August 2023

MEMORANDUM FOR WISCONSIN DEPARTMENT OF NATURAL RESOURCES

FROM: Mike Shrum
Nova Group
185 Devlin Road
Napa Ca 94558

SUBJECT: Materials Management Plan – Project # W9128-F22C-0030

1. Pursuant to Wisconsin Administrative Code NR 718, a materials management plan (MMP) is required for materials that could be removed that contain contaminants of concern. This memorandum serves as the material management plan that the Nova Group will follow during construction related to the Mitchell Fuel Hydrant Replacement Project which will be installed to the south of current fuel storage tanks.(see map)
This material management plan provides the process for handling soil that have the potential to contain contaminants of concern. This site is located in the NW ¼ Section 34 Township 6N, Range 22 42 East, 56'15.47"N and 87 53'18.52"W in Milwaukee County, Wisconsin.

2. **Project Area Site Soil Results** – With the construction of two storage tanks, POL facility, underground fuel piping, two Hydrant stands, electrical ductbank, pumphouse, and covered parking it was determined in concert with the Wisconsin Department of Natural Resources that a soils management plan for the management of perfluorinated contaminated soils should be established. After sampling multiple soil areas around the project to be removed, it was determined that perfluorinated compounds were present in the soils. Data for this determination was collected from the 45 borings and 9 monitor wells. Depths from 0-5 feet and 5-10 feet were recorded(90 samples total) Sampling reports in project area (see attachment) performed on May 4-11 2023 and the FY16 Phase 1 Regional Site Inspection for Perfluorinated Compounds report. Perfluorinated compounds were detected in most soil samples in the vicinity of planned area. Concentrations of PFOS ranged from .249 to 3190. ug/kg. Sample report and map are attached to this letter. A copy of the FY16 Phase 1 Regional Site Inspection for Perfluorinated Compounds can be located on the BRRTS website.

– **Site Soil Handling and Disposition Tank area** – Soil from construction activities will fall into two possible categories with different disposition procedures. Implementation for this soil management plan is expected to occur from August 2023 to September 2024.

- To facilitate the proposed installation of Tanks in the project area, soil will be excavated approximately 1 foot to remove top soil and Geopier system will be utilized. 5' of clean fill will be utilized on top of current surface.
- Soils with perfluorinated compounds(sample areas A-3 and A-4 on report page 11. Soils from excavations from 0-1 feet pursuant to the fill location will ultimately be stored on impervious surface and removed offsite. Current estimated soils to be managed in this option is 500 cubic yards dependent on if soil has no other contamination. This entire area will have a cover of concrete containment pad.
- However, it is anticipated that a large percentage of excess contaminated soil will remain following the installation of underground utilities, new clean backfill material, and backfilling the overexcavation of the remainder of project area. These remaining soils (discussed in the bullet point above) will be stockpiled on impervious surfaces adjacent to the tank area and will eventually be disposed of at a licensed solid waste facility in Whitelaw Wisconsin. Prior to disposal soils will be stored on site in accordance with NR 502. Current estimated soil to be managed in this option is approximately 4000 cubic yards.(not all excavations at once)Most of this area will be covered by asphalt with a backfill of rock underlayment.
- Soils with perfluorinated compounds may be used in pervious areas within the project site so long as the site conforms to NR 718.12 and is covered with minimum of one foot of clean soil, topsoil, and seeded. The location for soils to be reused would be within the backfill area of each excavation activity. These locations are greater than 100 feet South of the drainage ditch which has wetland characteristics, but which is not delineated as wetland per the Wisconsin Department of Natural Resources Surface Water Data Viewer database.

- Additionally, this ditch was determined as a non-navigable waterway in the past. This location poses no threat to public health, safety, or welfare for the environment as it is located on an industrial facility with a closed fence line. Additionally, contaminated soils would be covered with clean soil or below a pervious surface, therefore no direct contact can be made with contaminated soils. All contaminated soils in this area would be under both the industrial direct contact residual contact limit (RCL) and the non-industrial direct contact RCL. Only soils that were previously located in a pervious area (i.e. grass/gravel cover) will be reutilized under future planned pervious areas. A portion of soils will be removed and placed next to the excavation and then replaced in same footprint, in order to not introduce any additional contamination than what was previously there. This operation will prevent any increased risk for a pathway to groundwater as compared to if the soil was undisturbed by construction activities. Current estimated soils to be managed in this re use option is 1500-1750 cubic yards.

  Site Soil Handling and Disposition for Pumphouse- the pumphouse area (sample site A-9 and A10) showed contamination levels of 61.3ng/g at site A-9. There would be a total of 250 cubic yards that might be possible to backfill, but more than likely will have to be removed from the site. Soil site A-10 has no detectable amounts from 0-5 feet.

  Site Soil Handling and Disposition for POL building- The area for POL building is sample area A-32 at a level of 1.12ng/g and A-33 at a level of .494ng/g. The amount of excavation that will be required and possibly reusable is 550 cubic yards.

  Site Soil Handling and Disposition of trench areas-The various areas of trenching that will need to be excavated is approximately 1000 cubic yards.(contamination ranges from No detection to 29.2 ng/g. With the regulation of one foot of clean top soil required to be placed and the displacement of pipe, electrical ductbank, and drainage pipe, the average depth of 5 -10 feet, the total amount of 2500 cubic yards will most likely need to be removed from the site.

3. **Site Water Results** – According to a previous PFAS Preliminary Assessment (PA), prepared by AMEC Foster Wheeler and dated 2016, groundwater in the project area flows from south to north in the area.
4. **Site Water Handling and Disposition** – Dewatering of each excavation should not occur as the depth of excavations does not penetrate the current water table of 10' of current GL in most areas. (See map of utility underground profile and current test results) If water table level is reached, water will be stored in a tank, filtered and distributed on project site.

The above and attached is the Nova Group approach to material management for Hydrant Fuel Replacement Project General Mitchell Field, Milwaukee, Wisconsin.

If you have any additional questions, please feel free to contact me Mike Shrum at 707-204-8584 or mike.shrum@novagrp.com for your review of this material management plan.

Attachments:
1.
2. Map of PFOS areas
3. Lab Accreditations
4. Soil Sample locations May 2023
5. Cover Maintenance Plan
6. Site Safety plan

GROUND IMPROVEMENT NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING FILL AND SOILS CONTAINING ORGANIC MATERIAL WITHIN THE LOCATIONS SHOWN ON THIS SHEET. EXISTING FILL AND SOILS CONTAINING ORGANIC MATERIAL SHALL BE REMOVED UNTIL THE UNDERLYING NATIVE CLAY SUBGRADE IS EXPOSED AND VERIFIED BY THE CONTRACTOR'S GEOTECHNICAL ENGINEER. ASSUME 5' BELOW EXISTING GRADE AND A MINIMUM 5' OUTSIDE OF PROPOSED FOUNDATIONS FOR BID PURPOSES.

2. THE CONTRACTOR'S GEOTECHNICAL ENGINEER SHALL OBSERVE PROOFROLLING OF THE EXPOSED SUBGRADE. PROOFROLLING CAN BE ACCOMPLISHED USING A LOADED TANDEM-AXLE DUMP TRUCK WITH A GROSS WEIGHT OF AT LEAST 25 TONS, OR SIMILARLY LOADED EQUIPMENT. AREAS THAT DISPLAY EXCESSIVE DEFLECTION (PUMPING) OR RUTTING DURING PROOFROLL OPERATIONS SHOULD BE IMPROVED BY SCARIFICATION AND COMPACTION OR BY REMOVAL AND REPLACEMENT WITH COMPACTED ENGINEERED FILL.

3. ENGINEERED FILL FOR BACKFILLING THE IDENTIFIED AREAS ON THIS SHEET SHALL CONSIST OF WISDOT SECTION 305 COMPACTED 1 ¼" DENSE GRADED BASE CRUSHED STONE, GRAVEL OR CONCRETE MATERIAL COMPACTED IN 8" LIFTS MAXIMUM TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR PER ASTM D1557.

Sample Potency Soil:
Red: Greater than 16.4 ppb
Green: considered clean dirt

LEGEND:

OVEREXCAVATION AND REPLACEMENT AREAS

LIMITS OF DISTURBANCE

PRIME BEEF DRIVE

PERFORMANCE AVENUE

A1 SOIL IMPROVEMENTS PLAN - NEW FUEL FACILITY
SCALE: 1"=30'

0 30' 60'

US Army Corps of Engineers
Omaha District

MARK	DESCRIPTION	DATE

ISSUE DATE: SEPTEMBER 2022
SOLICITATION NO.: W9128F-22-R-0006
CONTRACT NO.: W9128F22C0030
FILE NO.: AK-124-12-01

DESIGNED BY: M. LITWIN
DRAWN BY: J. EICHENBERGER
CHECKED BY: S. MCLAUGHLIN
SUBMITTED BY: J. RODDY
SIZE: 34X22
MT18-CG010.dwg

U. S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE, OMAHA, NE 68102

BURNS McDONNELL

DESC2001 POL FACILITIES REPLACEMENT
GENERAL MITCHELL IAP, WI

SOIL IMPROVEMENTS PLAN - NEW FUEL FACILITY

WISCONSIN
Stephen J. McLaughlin
E-46490-6
Carol Stream IL.
PROFESSIONAL ENGINEER
11/4/2022

SHEET ID
CG010

CONTRACT SET, CONTRACT NO.: W9128F22C0030, AWARD DATE: SEP 2022

SOIL AND GROUNDWATER SAMPLING REPORT TO SUPPORT WASTE PROFILING AND DISPOSAL

Job Site:

FUEL FACILITY REPLACEMENT
WISCONSIN AIR NATIONAL GUARD AT
GENERAL MITCHELL INTERNATIONAL AIRPORT
MILWAUKEE, WISCONSIN

For:

NOVA Group, Inc.
Attn: Walt Schwartz, PE
1305 Lumsden Road
Port Orchard, WA 98367

KPH Project # 23-400-101

Dean Jacobsen
Project Manager

Prepared by:

KPH Environmental
1237 West Bruce Street
Milwaukee, Wisconsin 53204

June 2023

TABLE OF CONTENTS

Soil and Groundwater Sampling Report
Fuel Replacement Facility
Wisconsin Air National Guard
General Mitchell International Airport

EXECUTIVE SUMMARY

KPH Environmental Corp (KPH), was retained by Nova Group, Inc., to conduct an investigation of soil and groundwater for waste profiling at the location of a planned Fuel Replacement Facility for the Wisconsin Air National Guard, General Mitchell International Airport, Milwaukee, Wisconsin. The purpose was to determine the contaminants that are present and to assist NOVA Group, Inc., in delineating contaminant concentrations within the planned construction area. The information gathered will be used for managing the soils excavated during construction and for waste profiling.

As part of this investigation KPH performed the following:

- Drilled 45 soil borings and collected soil samples from each boring from each 5 foot soil boring interval
- Installed 9 temporary monitoring wells and collected groundwater samples
- Had samples analyzed at the laboratory for volatile organic compounds (VOC), semi volatile organic compounds (SVOC), pesticides/herbicides, metals, reactive cyanide, reactive sulfide, ignitability, corrosivity, and perfluoroalkyl and polyfluoroalkyl compounds (PFA).

Soil samples were collected for laboratory analysis by the toxicity characteristic leaching procedure (TCLP). Results indicated that there were no detections for semi volatile organic compounds (SVOC), pesticides/herbicides, metals, reactive cyanide, reactive sulfide, or ignitability. Chlorobenzene was the only volatile organic compounds (VOC) detected, but at concentrations below the Wisconsin NR 661 Table 2 level for hazardous waste determination. Perfluoroalkyl and polyfluoroalkyl compounds (PFA) were detected in almost all of the samples collected. The most detections and highest concentrations of PFAs occurred in soil borings from the southwest part of the investigation area (Borings A-1 to A-9).

Groundwater samples were collected from the 9 temporary wells spaced throughout the investigation area. As with the soil sample results pesticides/herbicides, reactive cyanide, ignitability, and reactive sulfide were not detected. Some VOC and SVOC were detected in samples from 5 wells but below the NR140 enforcement standards (ES). One VOC, 1,2-Dichloroethane, was detected above the preventative action limit in Well A-2. Metals including cadmium, chromium, and lead were detected in all 9 samples with concentrations of metals being above the PALs in Wisconsin NR140, and some, like lead, above the ES in Wisconsin NR140. PFAs were detected in all samples. Currently Wisconsin does not have groundwater PALs or ESs for PFAs.

I. INTRODUCTION AND PURPOSE

KPH Environmental Corp., (KPH) was retained by Nova Group, Inc., to collect soil and groundwater samples at the location of a planned Fuel Replacement Facility for the Wisconsin Air National Guard at General Mitchell International Airport, Milwaukee, Wisconsin. The purpose of

this investigation is to gather information to assist in soil and groundwater waste profiling for the construction project.

Nova Group, Inc., authorized KPH to conduct the drilling and sampling, and to analyze samples collected. The field work (soil borings and soil sampling, temporary well installation, and groundwater sample collection) was conducted on May 4-11, 2023. Additional information on the work performed and results are contained in the following sections.

The area that has been identified for construction as the Wisconsin Air National Guard (WI ANG) Fuel Facility Replacement is currently a parking area, plus nearby grass covered areas southwest and north of the parking lot. See Appendix A for soil boring and well locations. KPH was informed that the WI ANG fire department used long stretches of road and grass in the southern third of Guard Central property for aqueous film-forming foam spray testing and calibration of vehicle equipment prior to August 2015. Foam was observed in the drainage ditch during various equipment testing events and the grassy area behind the CATM was used for testing at that time.

Based on this historical property usage, the soil and shallow groundwater were sampled in the area for per- and polyfluoroalkyl substances (PFAS) in 2019. PFCs (Perfluorinated Compounds) were detected in both shallow soil and ground water samples. No exceedances of the screening criteria were observed at that time.

KPH has been informed that NOVA Group, Inc., estimated that the planned construction of the fuel facilities will displace up to 19,700 in-place cubic yards of soil for items including duct bank excavation, site civil excavation, fuel line excavation, storm drain and containment drain, and pre-construction over excavation areas. Because of the limited placement options for this soil within WI ANG operated areas on Mitchell Airport property and considering an estimated 30 percent expansion factor for excavated soils, transportation and disposal of an estimated 25,600 cubic yards at off-site locations needs to be evaluated and considered.

Because the sampling was intended to aid NOVA Group, Inc., in evaluating waste disposal options, the soils were sampled for PFA concentrations, as well as waste profiling parameters. By pre-sampling the soils and groundwater in place with attention to subsequent off-site disposal options, the project can be planned to avoid generating stockpiles of soil that could delay construction due to delays in transportation and disposal off-site.

II. SUMMARY OF INVESTIGATION ACTIVITIES

A. SOIL BORINGS AND SAMPLING

Nova Group, Inc., prepared maps of the investigation area, choosing locations of the soil borings, along with the depth of each boring. A map showing the soil boring locations is in Appendix A. Soil sampling was conducted from May 5-10. A total of 45 soil borings were drilled, labeled A-1 to A-45.

KPH installed soil borings at each location using the direct push drilling technology. Baake Field Services of Grafton, Wisconsin, was retained to provide and operate the direct push equipment. This equipment was used based upon soil types of clay, silt, and sand that were anticipated. The boring locations chosen by Nova Group, Inc., were spaced throughout the planned construction area with the majority on the south end at the current parking lot, and southwest grassy area where the fire fighting practice foam was used in the past. Boring depths ranged from 5 feet to 20 feet below ground surface. The direct push method uses a 5 foot long steel core sampler with a plastic tube inside. As the core sampler is pushed into the ground soil accumulates inside the plastic tube. When the core sampler is withdrawn from the ground the plastic tube with soil is removed and cut open. The soil inside is then inspected and logged for soil types, moisture, and any visual or olfactory evidence of contamination.

Composite samples were collected from each five foot interval (e.g., 0 to 5 foot depth, 5 to 10 foot depth, etc.) for laboratory analysis. The purpose was to have samples that are representative of the excavated soil material. A total of 90 soil samples were collected for lab analysis. Each sample was composited in a stainless steel bowl and then labeled sample containers supplied by the laboratories were filled. Containers were then placed in a cooler on ice. Drilling and sampling equipment was decontaminated with lab grade soap and water, and rinsed with potable water and then deionized water.

At the end of each day sample coolers were taped and sealed, and then shipped with chain of custody forms by overnight service to the laboratories. Samples were collected for TCLP analysis of the following at Pace Analytical of Mount Juliet, Tennessee:

- VOCs by USEPA Methods 1311 and 8260D
- SVOCs by USEPA Methods 1311 and 8270D
- Priority Pollutant Metals by USEPA Methods 1311 and 6010C/7470
- Pesticides/Herbicides by USEPA Methods 1311 and 8151/8081
- Reactive Cyanide & Sulfide by SW 846 Ch 7/ASTM D4978
- Corrosivity (pH) by USEPA 9045, and
- Ignitability (Flash Point) by USEPA 010.

Samples collected for PFAs were analyzed at Alpha Analytical of Mansfield, Massachusetts using USEPA Method 1633 for the 40 PFA compounds.

Soil sample results are summarized and discussed in Section III A. The lab reports are in Appendix B.

B. WELLS AND GROUNDWATER SAMPLING

Nova Group, Inc, selected the locations of the temporary monitoring wells. Nine (9) temporary monitoring wells were installed at locations spaced throughout the planned construction area. The borings chosen for wells were those with depths of 15 to 20 feet and included A-2, A-18, A-29, A-33, A-37, A-38, A-40, A-43, and A-45. These depths were based upon the anticipated water table depth of 5 to 10 feet below ground surface. The approximate water depth for each

boring was determined by visually observing the soil samples from each interval and looking for saturated soils.

When the well depth was reached the wells were installed. The materials consisted of 1-inch outside diameter Schedule 40 polyvinyl chloride (PVC) with 10-feet of machine slotted screens with a Schedule 40 PVC riser up to the ground surface. A sand filter pack was poured around the screen and the remaining boring space was filled with granular bentonite up to approximately 2 inches below ground surface. A PVC cap was placed on each well.

Groundwater samples were collected on May 10-11, 2023. Before samples were collected the water depth in a well was measured with an electronic water level indicator. Approximately 3 well volumes of water were then purged from a well, or the well was purged dry. One (1) groundwater sample was then collected from each temporary well to represent the groundwater in that area. High density polyethylene (HPDE) tubing was inserted into the well riser with separate tubing dedicated to each well. The tubing was then connected to a portable peristaltic pump to collect the samples. With a peristaltic pump the water sample does not come into contact with the pump, only with the interior of the tubing. The labeled lab supplied containers were then filled with water and placed into coolers on ice.

At the end of each day sample coolers were taped and sealed, and then shipped with chain of custody forms by overnight service to the laboratories. Samples were collected for analysis of the following at Pace Analytical of Mount Juliet, Tennessee:

- VOCs by USEPA Method 8260D
- SVOCs by USEPA Method 8270D
- Priority Pollutant Metals by USEPA Method 6010C/7470
- Pesticides/Herbicides by USEPA Method 8151/8081
- Reactive Cyanide & Sulfide by SW 846 Ch 7/ASTM D4978
- Corrosivity (pH) by USEPA 9045, and
- Ignitability (Flash Point) by USEPA 010.

Samples collected for PFAs were analyzed at Alpha Analytical of Mansfield, Massachusetts using USEPA Method 1633.

Groundwater sample results are summarized and discussed in Section III B, with the lab reports in Appendix C.

III. RESULTS OF COMPOUNDS DETECTED

A. Soil Samples

A summary of the soil samples results is as follows:

There were no detections of reactive sulfide, pesticides, herbicides, or SVOCs by the TCLP method in any of the soil samples. Chlorobenzene was the only VOC detected, and was found in the following samples:

Soil Boring	Sample Depth	Chlorobenzene milligrams/Liter (mg/L)
A-2	0-5	0.105
A-2	10-15	0.0584
A-3	5-10	0.0855
A-3	10-15	0.125
A-4	5-10	0.0652
A-7	5-10	0.0795
A-15	0-5	0.0877
A-15	5-10	0.141
A-17	0-5	0.0083
A-18	5-10	0.153
A-19	0-5	0.0661
A-29	0-5	0.0758
A-29	5-10	0.0767
A-36	0-5	0.109
A-36	5-10	0.149
A-37	0-5	0.0590
A-37	5-10	0.0772
A-40	0-5	0.112
A-43	15-20	0.0682
A-45	0-5	0.162
A-45	5-10	0.0953
A-45	15-20	0.0848

In Wisconsin NR661 the Table 1 maximum concentration of contaminants for the toxicity characteristic regulatory level for chlorobenzene is 100 mg/L.

Reactive cyanide was detected in five (5) samples:

Soil Boring	Sample Depth	Reactive Cyanide (mg/kg)
A-2	0-5	0.272
A-7	0-5	0.133
A-8	0-5	0.468
A-15	0-5	0.377
A-15	5-10	0.341

The metal copper was detected in samples A-40 10-15 at 0.102 mg/L and A-29 5-10 at 0.151 mg/L.

There are no NR661 Table 1 levels for reactive cyanide or copper.

Soil pH values for all samples ranged between 7.5 and 8.5, which is slightly basic, but not corrosive. None of the samples were ignitable.

Some of the 40 PFA compounds were detected in all samples except A-33 5-10, A-37 5-10, A-38 5-10, A-39 10-15, A-41 15-20, A-41 5-10, A-43 10-15, A-43 10-15, A-43 15-20, and A-44 10-15. Where detected, concentrations of individual PFA compounds ranged from 0.191 nanograms per gram (ng/g) to 3,190 ng/g. In general, the highest concentrations were in the shallower soil sample depths and were detected in borings A-1 to A-8 and A-19.

The Wisconsin DNR has calculated a generic non-industrial direct contact residual contaminant level (RCL) for the PFA Perfluorooctanesulfonic Acid (PFOS) of 1,260 ng/g. This level was exceeded in six (6) samples: A-1 0-5 at 3,190, A-2 0-5 at 2,780, A-2 5-10 at 1,640, A-3 0-5 1 at 640 ng/g, in A-4 0-5 at 2,850 ng/g, and A-19 0-5 at 1,290 ng/g. There are no NR661 Table 1 levels for PFA compounds.

The laboratory reports for each soil sample, along with a table summarizing PFA results, are in Appendix B.

B. Groundwater Samples

A summary of the groundwater sample results is as follows:

There were no detections of reactive sulfide, reactive cyanide, pesticides, or herbicides in any of the groundwater samples. The pH of the water samples was around 6.91 - 7.57. None of the samples were ignitable. The following VOCs were detected in the groundwater samples:

- Acetone in A-18 at 0.111 mg/L, which is below Wisconsin NR 140 Enforcement Standard and Preventative Action Limit.
- 2-Butanone (Methyl Ethyl Ketone) in A-18, A33, and A-43 at 0.0122 mg/L, 0.00473 mg/L, and 0.00401mg/L, respectively. These concentrations are below Wisconsin NR 140 Enforcement Standard and Preventative Action Limit.
- Naphthalene in A-33 at 0.00739 mg/L, which is below Wisconsin NR 140 Enforcement Standard and Preventative Action Limit.
- 1,2-Dichloroethane in A-2 at 0.000756 mg/L, which is below Wisconsin NR 140 Enforcement Standard but above the Preventative Action Limit.
- Methyl tert-butyl ether in A-2 at 0.000970 mg/L, which is below Wisconsin NR 140 Enforcement Standard and Preventative Action Limit.

The following SVOCs were detected in the sample from A-33:

- Fluoranthene at 0.00110 mg/L, Fluorene at 0.00237 mg/L, Naphthalene at 0.00437 mg/L, Phenanthrene at 0.00645 mg/L, and Pyrene at 0.000994mg/L. All of these concentrations are below the Wisconsin NR 140 Enforcement Standards and Preventative Action Limits for each compound.

SVOCs were not detected in any of the other groundwater samples.

Metals, including beryllium, cadmium, chromium, copper, lead, nickel, and zinc were detected in each of the nine wells.

- Beryllium was above the Enforcement Standard in A-2, and above the Preventative Action Limit in A-18, A-43, and A-45.
- Cadmium was above the Enforcement Standard in A-45, and above the Preventative Action Limit in A-2, A-18, A-38, A-40, and A-43.
- Chromium was above the Preventative Action Limit in in each well.
- Copper was above the Preventative Action Limit in in A-40
- Lead concentrations were above the NR 140 Enforcement Standard in each well.
- Nickel was above the Enforcement Standard in A-2 and A-45, and above the Preventative Action Limit in the other seven wells.

There is no Enforcement Standard or Preventative Action Limit for Zinc. A table summarizing metal results is in Appendix C.

PFAs were detected in groundwater samples from each of the nine wells. Concentrations of individual PFAs that were detected ranged from 1.74 ng/L to 236,000 ng/L. Highest concentrations were from wells A-2 and A-18, which are closets to the former fire training area. Lowest concentrations were in wells A-43 and A-45, to the north of the parking lot. Wisconsin DNR groundwater regulation NR 140 does not have an Enforcement Standard or Preventative Action Limit for any of the PFA compounds.

The laboratory reports for each groundwater sample, along with a table summarizing PFA results, are in Appendix C.

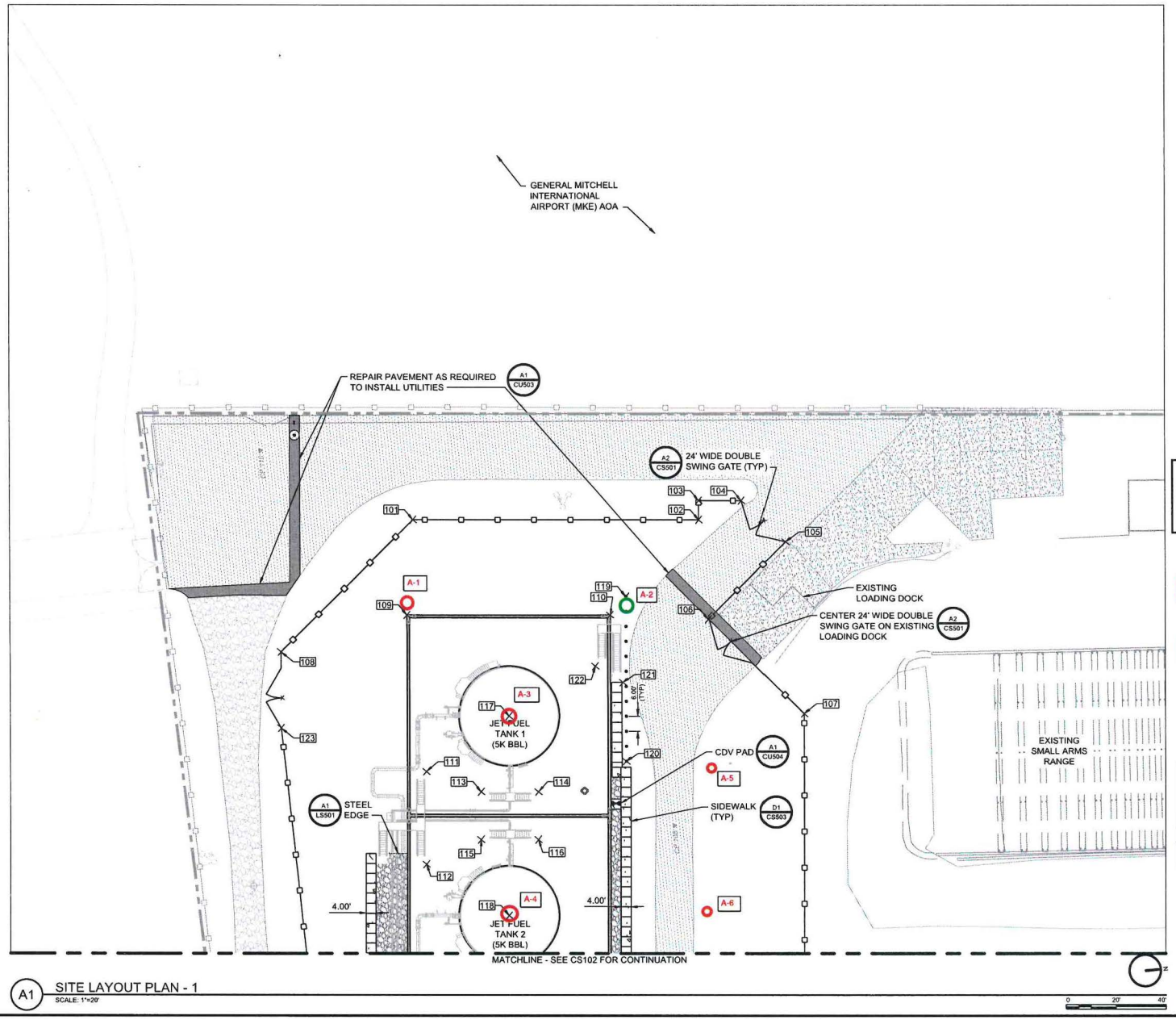
IV. LIMITATIONS

The care and skill given to our procedures insures the most reliable test results possible. The findings and conclusions of KPH represent our professional opinions extrapolated from limited data. No other warranty is expressed or implied.

This report and the information contained herein are prepared for the use and possession of Nova Group, Inc. No other person or entity may rely on this report or any information contained herein.

APPENDICES

A. SOIL AND GROUNDWATER SAMPLE LOCATION MAP



A1 SITE LAYOUT PLAN - 1
SCALE: 1"=20'

NOTES:

1. SEE SHEET CS100 FOR GENERAL SITE NOTES.
2. SEE SHEET CS110 FOR COORDINATE POINTS TABLE.
3. SEE SHEET CG101 AND CG110 FOR ADDITIONAL SITE LAYOUT AND COORDINATE INFORMATION.
4. FOR SECURITY FENCE AND GATES LOCATED IN EXISTING PAVED AREA, CONTRACTOR SHALL CORE DRILL INTO EXISTING PAVEMENT SECTION AS REQUIRED FOR FENCE AND GATE FOUNDATIONS.
5. SEE SHEET CS111 FOR ELECTRICAL STRUCTURE LOCATION PLAN.

LEGEND:

- ASPHALT PAVEMENT — E1 CS505
- GRAVEL — C1 CS505
- GUARD POST — E7 CS503
- SECURITY FENCE — E2 CS501

Soil Boring and Monitoring Well Locations May 5-11, 2023

Boring Locations

Monitoring Wells

KEY PLAN

US Army Corps of Engineers® Omaha District

NO.	MARK	DESCRIPTION	DATE
0			1/11/22

U. S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE, OMAHA, NE 68102

DESC/2001 POL FACILITIES REPLACEMENT
GENERAL MITCHELL IAP, WI

Stephen J McLaughlin E-46480-6 Carol Strean IL PROFESSIONAL ENGINEER WISCONSIN

01/17/2022

SHEET ID
CS101

ADVERTISEMENT - NOT FOR CONSTRUCTION

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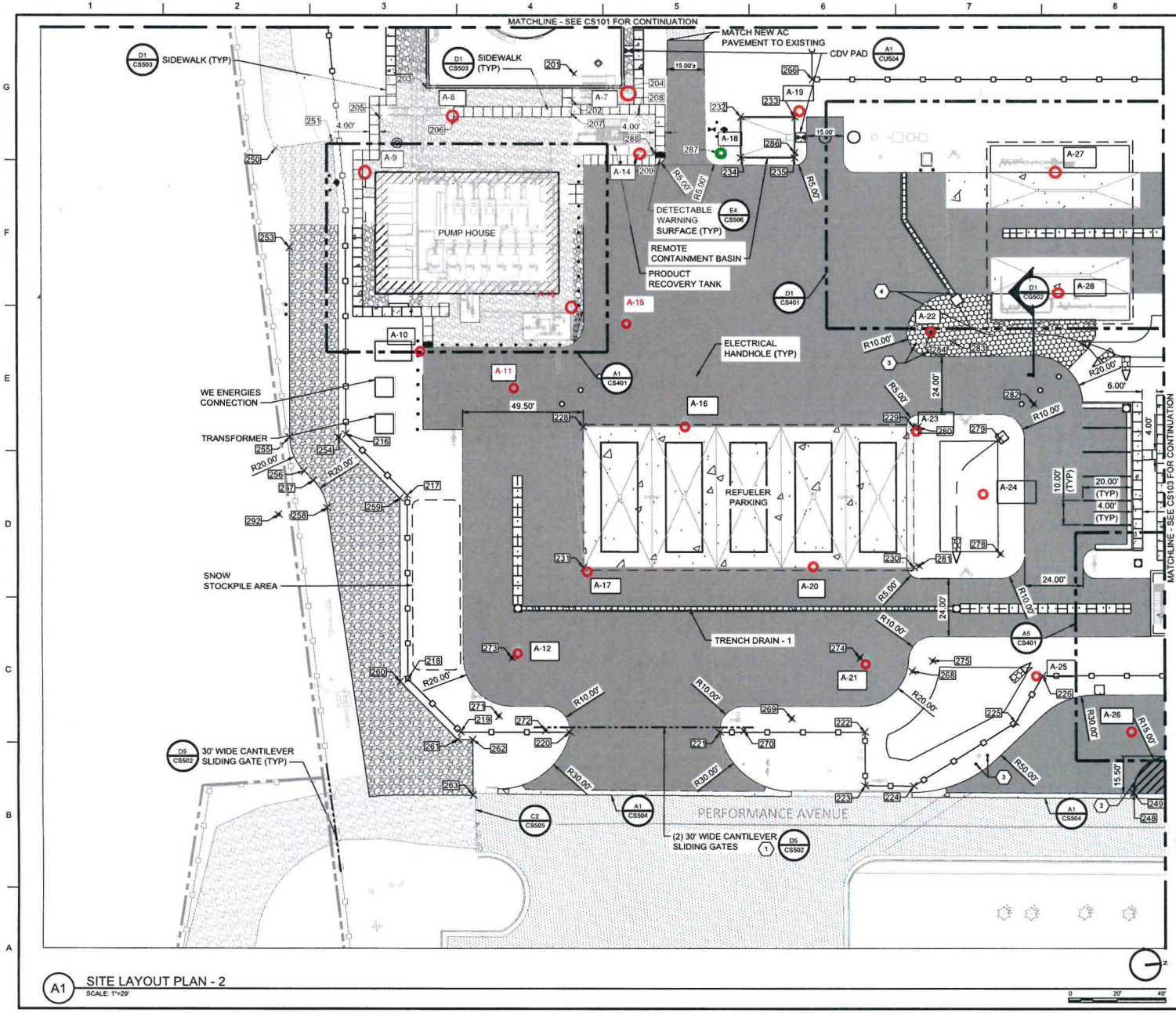

NOTES:

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3. SEE SHEET CG102 AND CG110 FOR ADDITIONAL SITE LAYOUT AND COORDINATE INFORMATION.
4. SEE SHEET CS111 FOR ELECTRICAL STRUCTURE LOCATION PLAN.

LEGEND:

- ASPHALT PAVEMENT — E1 CS505
- RIPRAP — A1 CG502, E1 CG502
- GRAVEL — C1 CS505
- VALLEY GUTTER — A1 CS503
- GUARD POST — E7 CS503
- SECURITY FENCE — E2 CS501
- TRENCH DRAIN — D1 CU508
- CURB AND GUTTER — C7 CS504

Soil Boring and Monitoring Well Locations May 5-11, 2023

Boring Locations

Monitoring Wells

KEY PLAN

A1 SITE LAYOUT PLAN - 2
SCALE: 1"=20'

0 20' 40'

US Army Corps of Engineers ® Omaha District

NO.	MARK	DESCRIPTION	DATE
0			01/17/22

U. S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE, OMAHA, NE 68102

DESC2001 POL FACILITIES REPLACEMENT
GENERAL MITCHELL IAP, WI

SHEET ID
CS102

ADVERTISEMENT - NOT FOR CONSTRUCTION

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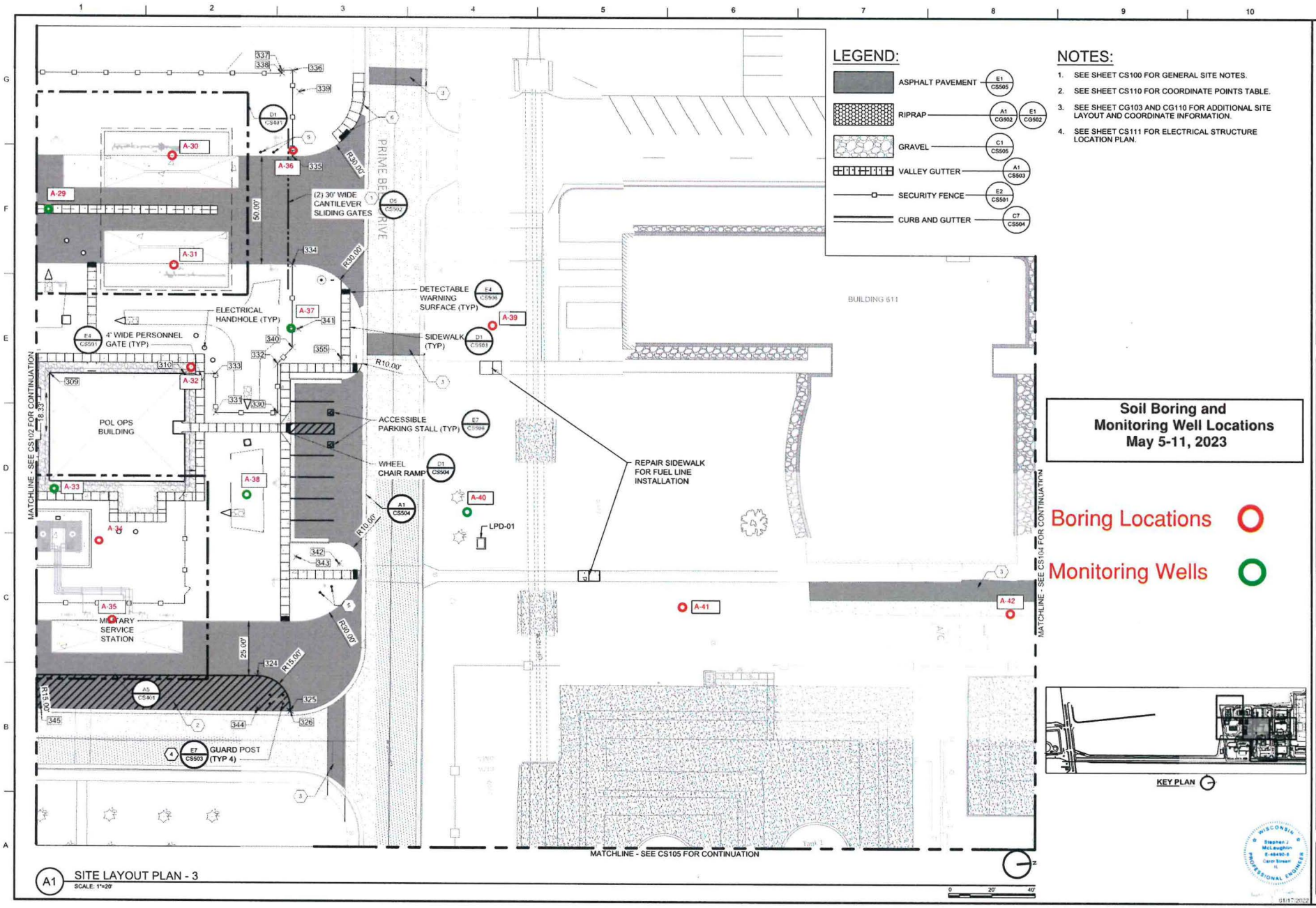

A1 SITE LAYOUT PLAN - 3
SCALE: 1"=20'

US Army Corps of Engineers® Omaha District

MARK	DESCRIPTION	FTA	DATE
0			01/12/22

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE, OMAHA, NE 68102

DESC2001 POL FACILITIES REPLACEMENT
GENERAL MITCHELL IAP, WI

SHEET ID
CS103

\\BMCD\DFS\CLIENTS\ANF\USCOE\NWO\107341_GENMITCHMILCON\DESIGN\CIVIL\SHEETS\MT18-CS101.DWG 1/12/2022 9:47 AM JCEICHENBERGER

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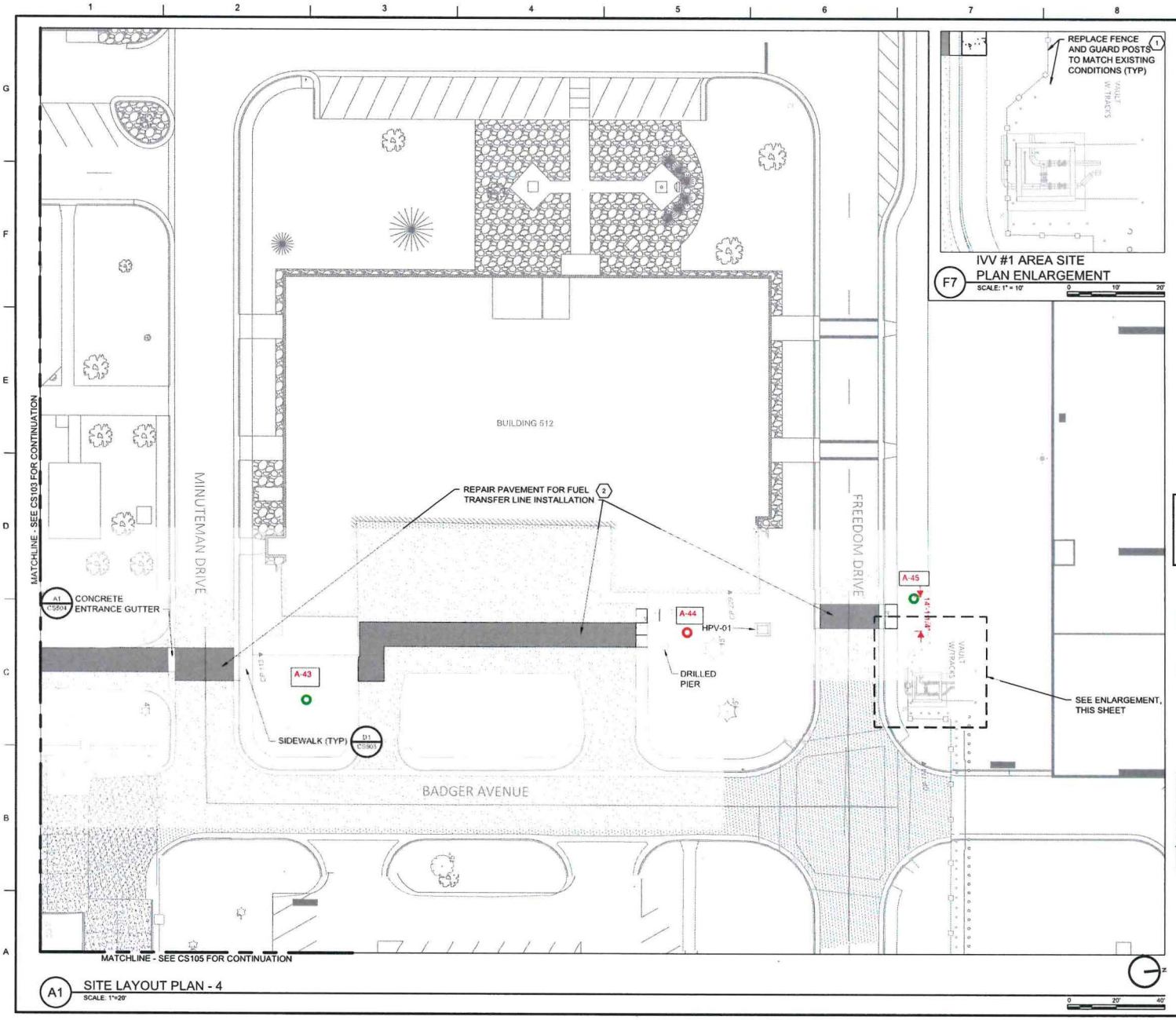


A1 SITE LAYOUT PLAN - 4
SCALE: 1"=20'

F7 IVV #1 AREA SITE PLAN ENLARGEMENT
SCALE: 1" = 10'

NOTES:

1. SEE SHEET CS100 FOR GENERAL SITE NOTES.
2. SEE SHEET CS110 FOR COORDINATE POINTS TABLE.
3. SEE SHEET CG103 AND CG110 FOR ADDITIONAL SITE LAYOUT AND COORDINATE INFORMATION.

LEGEND:

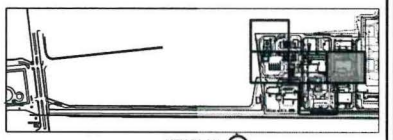
ASPHALT PAVEMENT — E1 CS505

CURB AND GUTTER — C7 CS504

Soil Boring and Monitoring Well Locations May 5-11, 2023

Boring Locations

Monitoring Wells



KEY PLAN

Stephen J. McLaughlin E-46480-6 Carol Stream IL WISCONSIN PROFESSIONAL ENGINEER

01/17/2022

US Army Corps of Engineers ® Omaha District

MARK	DESCRIPTION	DATE
0		01/17/22

U. S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE, OMAHA, NE 68102

DESC2001 POL FACILITIES REPLACEMENT
GENERAL MITCHELL IAP, WI

SHEET ID
CS104

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B. SOIL SAMPLE LABORATORY REPORTS

PFA Soil Sample Results

Compound	A-1 0-5 Results (ng/g)	A-1 5-10 Results (ng/g)	A-2 0-5 Results (ng/g)	A-2 5-10 Results (ng/g)	A-2 10-15 Results (ng/g)	A-3 0-5 Results (ng/g)	A-3 5-10 Results (ng/g)	A-4 0-5 Results (ng/g)	A-4 5-10 Results (ng/g)	A-4 10-15 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	1.77	0.962	1.42	1.35	1.49	5.25	15.2	1.39	1.75	2.06
Perfluoropentanoic Acid (PFPeA)	5.01	1.91	5.72	4.19	3.14	22.4	27.6	5.84	7.12	3.95
Perfluorobutanesulfonic Acid (PFBS)	9.97	4.99	4.24	8.21	10.7	110	70	6.97	21.7	11
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	13.5	8.41	9.31	8.62	7.93	93.9	44	10.8	28.5	12.3
Perfluoropentanesulfonic Acid (PFPeS)	24.8	10.1	46.6	30.8	14.1	385	14.2	41.8	111	10.8
Perfluoroheptanoic Acid (PFHpA)	2.5	1.05	2.12	1.78	1.27	16.4	0.911	3.54	10.3	1.29
Perfluorohexanesulfonic Acid (PFHxS)	353	57	1120	324	66.6	1630	17.2	780	600	37.8
Perfluorooctanoic Acid (PFOA)	12.8	1.74	55.2	12	3.82	61.8	0.832	36.9	16	1.74
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	2.75	ND	213	47.9	12.9	123	1.91	54.5	26.2	3.49
Perfluoroheptanesulfonic Acid (PFHpS)	83.7	0.682	137	71.8	1.22	35.5	1.58	173	3.25	0.276
Perfluorononanoic Acid (PFNA)	2.82	ND	3.48	2.9	ND	2.1	ND	5.36	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	3190	47.8	2780	1640	41.5	1640	52.8	2850	22.8	3.13
Perfluorodecanoic Acid (PFDA)	0.484	ND	1.42	ND	ND	0.217	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	1.97	1.32	ND	1.33	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	3.2	ND	2.24	ND	ND	0.302	ND	0.267	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	0.398	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	2.39	ND	2.98	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	11	ND	7.59	0.397	ND	1.52	ND	0.966	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	0.406	ND	0.581	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-5 0-5 Results (ng/g)	A-6 0-5 Results (ng/g)	A-7 0-5 Results (ng/g)	A-7 5-10 Results (ng/g)	A-8 0-5 Results (ng/g)	A-9 0-5 Results (ng/g)	A-9 5-10 Results (ng/g)	A-10 0-5 Results (ng/g)	A-11 0-5 Results (ng/g)	A-12 0-5 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	0.922	ND	7.05	2.5	9.25	ND	1.06	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	2.56	2.32	22.6	3.18	29	1.88	2.12	0.436	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	3.76	7.22	67.3	4.14	197	11	7.9	0.951	0.499	0.233
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	4.92	9.08	112	5.71	162	16.8	12.3	1.37	0.6	0.419
Perfluoropentanesulfonic Acid (PFPeS)	29.7	34.8	170	3.12	366	17.9	9.49	0.467	2.13	0.217
Perfluoroheptanoic Acid (PFHpA)	3.04	3.89	17.1	0.53	21.3	2.59	1.55	ND	0.858	ND
Perfluorohexanesulfonic Acid (PFHxS)	508	228	2190	14.6	1180	145	33.1	1.28	31	2.71
Perfluorooctanoic Acid (PFOA)	19.5	6.47	78.4	1.19	33.7	5.8	1.17	ND	3.02	0.372
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	20.3	ND	1.13	1.07	ND	ND	4.38	ND
Perfluoroheptanesulfonic Acid (PFHpS)	24.7	4.02	55.8	ND	13.6	2.82	0.282	ND	0.273	ND
Perfluorononanoic Acid (PFNA)	2.94	0.391	1.55	ND	ND	ND	ND	ND	0.21	ND
Perfluorooctanesulfonic Acid (PFOS)	741	157	245	1.69	174	61.3	9.14	1.31	8.55	9.1
Perfluorodecanoic Acid (PFDA)	0.222	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	0.238	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	0.802	0.287	ND	ND	0.261	0.273	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-13 0-5 Results (ng/g)	A-13 5-10 Results (ng/g)	A-14 0-5 Results (ng/g)	A-15 0-5 Results (ng/g)	A-15 5-10 Results (ng/g)	A-16 0-5 Results (ng/g)	A-17 0-5 Results (ng/g)	A-18 0-5 Results (ng/g)	A-18 5-10 Results (ng/g)	A-18 10-15 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.05
Perfluoropentanoic Acid (PFPeA)	ND	0.687	ND	ND	ND	ND	ND	0.405	1.6	2.2
Perfluorobutanesulfonic Acid (PFBS)	0.774	0.632	1.27	0.881	0.217	0.341	0.277	1.07	4.19	5
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	0.75	0.647	1.39	1.02	0.465	0.325	0.269	1.4	6	6.07
Perfluoropentanesulfonic Acid (PFPeS)	0.742	ND	4.68	1.25	ND	0.746	ND	3.04	2.39	2.33
Perfluoroheptanoic Acid (PFHpA)	0.229	ND	0.94	0.401	ND	0.262	ND	0.611	0.315	0.234
Perfluorohexanesulfonic Acid (PFHxS)	6.66	ND	20.2	11	0.225	9.94	1.58	27.2	3.49	3.12
Perfluorooctanoic Acid (PFOA)	0.568	ND	0.917	1.47	0.31	0.738	0.475	1.98	0.307	0.679
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	1.16	1.76	ND	ND	ND	4.51	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	0.576	ND	2.02	0.48	ND	0.992	ND	1.29	ND	ND
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	11	0.229	192	15	0.791	61.5	2.69	81.8	1.17	ND
Perfluorodecanoic Acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	0.8	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	ND	ND	ND	ND	ND	ND	ND	0.58	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-19 0-5 Results (ng/g)	A-19 5-10 Results (ng/g)	A-20 0-5 Results (ng/g)	A-21 0-5 Results (ng/g)	A-22 0-5 Results (ng/g)	A-23 0-5 Results (ng/g)	A-24 0-5 Results (ng/g)	A-24 5-10 Results (ng/g)	A-25 0-5 Results (ng/g)	A-26 0-5 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	0.799	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	2.07	1.9	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	1.61	3.34	0.278	0.208	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	2.63	4.63	0.35	0.256	0.2	0.294	ND	0.292	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	3.39	9.56	0.867	0.52	0.488	0.652	ND	0.316	ND	ND
Perfluoroheptanoic Acid (PFHpA)	0.567	1.64	0.676	0.328	0.408	0.278	ND	0.276	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	68.9	80.5	4.88	15.5	33	48.4	1.32	1.64	0.284	0.322
Perfluorooctanoic Acid (PFOA)	3.85	4.24	0.915	1.54	2.92	3.71	0.29	0.34	ND	0.228
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	4.29	8.86	1.76	1.89	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	19.6	4.11	ND	ND	1.34	1.56	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	1.91	0.455	ND	ND	0.888	0.485	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	1290	293	2.47	15.5	43.8	73.7	2.4	ND	0.339	0.346
Perfluorodecanoic Acid (PFDA)	1.62	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	1.42	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	1.58	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	0.894	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	3.8	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	2.2	0.487	ND	ND	ND	0.414	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	0.375	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	0.703	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-26 5-10 Results (ng/g)	A-27 0-5 Results (ng/g)	A-28 0-5 Results (ng/g)	A-29 0-5 Results (ng/g)	A-29 5-10 Results (ng/g)	A-29 10-15 Results (ng/g)	A-29 15-20 Results (ng/g)	A-30 0-5 Results (ng/g)	A-31 0-5 Results (ng/g)	A-32 0-5 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	ND	0.372	ND	0.275	0.285	0.219	0.306	ND	ND	ND
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	ND	0.443	0.327	0.377	0.4	0.295	0.36	ND	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	ND	0.53	0.412	0.589	0.608	0.491	0.567	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ND	0.332	0.389	0.361	0.223	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	0.665	1.77	1.6	6.66	10.3	8.64	8.22	2.7	3	ND
Perfluorooctanoic Acid (PFOA)	0.209	0.823	0.444	0.62	0.655	0.627	0.605	0.282	0.293	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.4	3.78	1.06	1.56	0.967	1.15	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	ND	0.316	0.363	0.666	0.227	ND	ND
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	ND	3.42	0.303	8.02	3.11	2	11.9	27.7	5.51	1.12
Perfluorodecanoic Acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	ND	0.649	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-33 0-5 Results (ng/g)	A-33 5-10 Results (ng/g)	A-33 10-15 Results (ng/g)	A-34 0-5 Results (ng/g)	A-35 0-5 Results (ng/g)	A-35 5-10 Results (ng/g)	A-36 0-5 Results (ng/g)	A-36 5-10 Results (ng/g)	A-37 0-5 Results (ng/g)	A-37 5-10 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	ND	ND	0.476	ND	ND	ND	ND	ND	0.82	ND
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	0.921	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	ND	ND	1.2	ND	ND	ND	ND	ND	0.9	ND
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	1.25	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ND	ND	0.484	ND	ND	ND	ND	ND	0.868	ND
Perfluorohexanesulfonic Acid (PFHxS)	0.752	ND	2.2	0.764	1.17	0.985	2.09	1.17	4.86	ND
Perfluorooctanoic Acid (PFOA)	ND	ND	ND	ND	ND	ND	0.32	ND	1.73	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	ND	ND	ND	0.206	ND	0.342	ND
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	0.191	ND	1.54	ND
Perfluorooctanesulfonic Acid (PFOS)	0.494	ND	ND	0.835	1.39	ND	24.4	2.85	56.7	ND
Perfluorodecanoic Acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-37 10-15 Results (ng/g)	A-37 15-20 Results (ng/g)	A-38 0-5 Results (ng/g)	A-38 5-10 Results (ng/g)	A-38 10-15 Results (ng/g)	A-39 0-5 Results (ng/g)	A-39 5-10 Results (ng/g)	A-39 10-15 Results (ng/g)	A-40 0-5 Results (ng/g)	A-40 5-10 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	ND	0.688	ND	ND	0.338	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	0.249	0.688	ND	ND	0.527	0.566	0.232	ND	0.494	ND
Perfluoropentanesulfonic Acid (PFPeS)	ND	0.558	ND	ND	0.393	0.239	ND	ND	0.454	ND
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	ND	0.634	0.225	ND	0.197	8.71	3.6	ND	9.32	0.517
Perfluorooctanoic Acid (PFOA)	ND	ND	ND	ND	ND	1.84	0.829	ND	1.15	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	ND	ND	0.351	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	0.623	ND	ND	17.7	1.62	ND	10.3	1.34
Perfluorodecanoic Acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-40 10-15 Results (ng/g)	A-41 0-5 Results (ng/g)	A-41 5-10 Results (ng/g)	A-41 10-15 Results (ng/g)	A-42 0-5 Results (ng/g)	A-42 5-10 Results (ng/g)	A-42 10-15 Results (ng/g)	A-43 0-5 Results (ng/g)	A-43 5-10 Results (ng/g)	A-43 10-15 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	ND	ND	ND	ND	0.849	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	ND	0.786	ND	ND	2.83	ND	ND	ND	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	ND	0.31	ND	ND	0.278	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	ND	1.23	ND	ND	2.63	ND	ND	ND	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	ND	0.484	ND	ND	0.738	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ND	0.691	ND	ND	2.11	ND	ND	ND	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	0.347	5.75	ND	0.275	14.3	ND	ND	0.996	0.299	ND
Perfluorooctanoic Acid (PFOA)	ND	2.42	ND	ND	3.62	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ND	ND	0.793	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	ND	0.206	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	ND	0.698	ND	ND	0.92	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	ND	9.68	ND	ND	14.6	0.956	ND	2.76	0.252	ND
Perfluorodecanoic Acid (PFDA)	ND	0.643	ND	ND	0.301	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PFA Soil Sample Results

Compound	A-43 15-20 Results (ng/g)	A-44 0-5 Results (ng/g)	A-44 5-10 Results (ng/g)	A-44 10-15 Results (ng/g)	A-45 0-5 Results (ng/g)	A-45 5-10 Results (ng/g)	A-45 15-20 Results (ng/g)
Perfluorobutanoic Acid (PFBA)	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic Acid (PFPeA)	ND	ND	ND	ND	0.572	ND	ND
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	ND	0.262	ND	ND	0.882	ND	ND
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ND	ND	0.35	ND	ND
Perfluorohexanesulfonic Acid (PFHxS)	ND	0.802	0.303	ND	2.61	1.35	0.67
Perfluorooctanoic Acid (PFOA)	ND	0.294	ND	ND	0.874	ND	ND
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic Acid (PFNA)	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonic Acid (PFOS)	ND	3.37	1.1	ND	13.3	7.22	ND
Perfluorodecanoic Acid (PFDA)	ND	ND	ND	ND	0.199	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND

C. GROUNDWATER SAMPLE LABORATORY REPORTS

PFA Grounwater Sample Results

Compound	Well A-2 Results (ng/L)	Well A-18 Results (ng/L)	Well A-29 Results (ng/L)	Well A-33 Results (ng/L)	Well A-37 Results (ng/L)	Well A-38 Results (ng/L)	Well A-40 Results (ng/L)	Well A-43 Results (ng/L)	Well A-45 Results (ng/L)
Perfluorobutanoic Acid (PFBA)	9500	3770	318	383	380	209	81.1	14.8	25.8
Perfluoropentanoic Acid (PFPeA)	23200	7060	1160	1240	1350	710	220	18	43.8
Perfluorobutanesulfonic Acid (PFBS)	80400	9230	697	938	1800	771	201	27.9	27.1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	32	ND	7.92	22.1	8.07	ND	ND	ND
Perfluorohexanoic Acid (PFHxA)	60200	10800	1150	1550	2410	1260	299	17	45.9
Perfluoropentanesulfonic Acid (PFPeS)	84900	2790	1930	990	1290	583	118	33.4	48.4
Perfluoroheptanoic Acid (PFHpA)	6800	258	244	391	329	188	34.6	4.23	11.6
Perfluorohexanesulfonic Acid (PFHxS)	236000	7460	12100	876	1070	195	506	381	372
Perfluorooctanoic Acid (PFOA)	11600	598	447	38.2	32.9	12.5	40.8	11.5	23.8
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	39300	234	1450	29.7	155	ND	79.2	ND	20.6
Perfluoroheptanesulfonic Acid (PFHpS)	ND	206	237	ND	ND	ND	1.74	2.6	7.37
Perfluorononanoic Acid (PFNA)	ND	58.5	15.2	ND	ND	ND	ND	ND	1.81
Perfluorooctanesulfonic Acid (PFOS)	19800	5910	1380	7.56	4.79	5.4	46.3	44	248
Perfluorodecanoic Acid (PFDA)	ND	3.68	ND	ND	ND	ND	ND	ND	ND
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonamide (PFOSA)	ND	7.07	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic Acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic Acid (PFTeDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanesulfonic Acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	11.5	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	18.3	ND	ND	ND	ND	ND	ND	ND
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	3.39	ND	ND	ND	ND	ND	ND	ND
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	7.5	ND	ND	ND	ND	ND	ND	ND
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Metal Groundwater Sample Results

	Well A-2 Results (mg/L)	Well A-18 Results (mg/L)	Well A-29 Results (mg/L)	Well A-33 Results (mg/L)	Well A-37 Results (mg/L)	Well A-38 Results (mg/L)	Well A-40 Results (mg/L)	Well A-43 Results (mg/L)	Well A-45 Results (mg/L)	NR140 PAL (mg/L)	NR 140 ES (mg/L)
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.001	0.01
Beryllium	0.00525	0.00188	ND	ND	ND	ND	ND	0.00158	0.00163	0.0004	0.004
Cadmium	0.00458	0.00299	ND	ND	ND	0.00181	0.004	0.00242	0.00879	0.0005	0.005
Chromium	0.0628	0.0226	0.0204	0.0201	0.012	0.0201	0.0256	0.0388	0.0268	0.01	0.1
Copper	0.0578	0.0417	0.065	0.0706	0.0415	0.0677	0.159	0.0479	0.0843	0.13	1.3
Lead	0.158	0.0602	0.0435	0.0374	0.032	0.0436	0.095	0.0529	0.0592	0.0015	0.015
Nickel	0.191	0.0708	0.0428	0.063	0.0204	0.0362	0.057	0.0443	0.107	0.02	0.1
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	0.05
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	0.05
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0004	0.002
Zinc	0.482	0.269	0.202	0.214	0.143	0.255	0.505	0.239	0.908	NS	NS

ND = Not Detected
NS = No Standard

D. COPIES OF FIELD NOTES

E. HEALTH AND SAFETY PLAN

Site Health & Safety Plan

Project:
SOIL AND GROUNDWATER SAMPLING
TO SUPPORT WASTE PROFILING AND DISPOSAL

Job Site:

FUEL FACILITY REPLACEMENT
WISCONSIN AIR NATIONAL GUARD AT
GENERAL MITCHELL INTERNATIONAL AIRPORT
MILWAUKEE, WISCONSIN

For:
NOVA Group, Inc.
Attn: Walt Schwartz, PE
1305 Lumsden Road
Port Orchard, WA 98367

Prepared By:
KPH Environmental
1237 West Bruce Street
Milwaukee, Wisconsin 53204

May 2023

A. INTRODUCTION

This project consists of drilling soil borings, collecting soil samples, installing temporary monitoring wells, and collecting groundwater samples for waste profiling at the location of a planned Fuel Replacement Facility for the Wisconsin Air National Guard, General Mitchell International Airport, Milwaukee, Wisconsin.

The following regulations have been referenced for this plan:

1. 29 CFR, Part 1910: Occupational Safety and Health Administration (OSHA) General Industry and Health Standards.
2. 29 CFR, Part 1926: OSHA Construction Industry Standards.
3. 40 CFR, Part 261: Environmental Protection Agency (EPA) Characteristics of Hazardous Waste.

This plan discusses the safety procedures to be followed, training, and accident reporting, and includes the following:

- Personnel
- Training
- Personal Protective Equipment
- Emergency Procedures for Accidents and Exposures
- Procedures for Toxic and Hazardous Materials
- Hazardous Identification & Control Mechanisms
- Interfacing & Control of Subcontractors
- Occupational Noise Exposure
- Hazard Communication and Hazardous Chemicals

Owner Information:
128th Air Refueling Wing
1919 East Grange Avenue
Milwaukee WI 53207

Project Information:
Fuel Replacement Facility
128th Air Refueling Wing
1919 East Grange Avenue

Contractor:
KPH Environmental Corp.
1237 West Bruce Street
Milwaukee, Wisconsin 53204
(414) 647-1530

B. KPH ENVIRONMENTAL CORP., SAFETY PERSONNEL

The KPH Environmental Corp., Safety & Occupational Health Officer for this project will be Ken Harenda II. The KPH Environmental Corp., Competent Person shall be Dean Jacobsen. All can be reached at (414) 647-1530.

Prior to the start of on site work, a safety meeting will be with representatives of KPH and the subcontractor (direct push drilling) personnel to review project safety and health requirements.

C. EMPLOYEE TRAINING AND SITE SAFETY

The applicable safety and health regulations and standards will be met through the enforcement of this Safety Plan by the KPH Environmental Corp., Safety & Occupational Health Officer and the KPH Environmental Corp., Competent Person. Personnel will be instructed on the plan's contents and will be trained where required by the regulations.

1. Employee Training

All employees that will work on this project will be trained & certified in their respective disciplines, where applicable. This training will vary depending upon the employee's job position and assignments. Employees will also undergo annual refresher courses as needed. Training will be accomplished by the Safety & Occupational Health Officer, or by reliable outside sources. When practicable, employees who have not had the complete training session will be assigned a class. Employees must have completed all training before working on the job site. Specialized training will be conducted for a new hazard for which there has been no previous or similar experience in the workplace.

Employees must report injuries or suspected injuries or illness due to working conditions to the KPH Environmental Corp., office as soon as possible and no later than the end of the workday.

2. Project Safety Management

No person shall be required or instructed to work in surroundings or under conditions that are unsafe or dangerous to his or her health. Engineering controls will be used to the extent possible to reduce or eliminate hazards. Each employee is responsible for complying with applicable safety and occupational health requirements, wearing prescribed safety and health equipment, reporting unsafe conditions/activities, preventing avoidable accidents, and working in a safe manner.

The 128th Air Refueling Wing, Nova Group, Inc., or their designated representative may immediately stop work when an employee is deemed to be in imminent danger of serious injury or loss of life. KPH Environmental Corp., shall immediately correct the unsafe condition. Work shall not resume until authorized by the 128th Air Refueling Wing or Nova Group, Inc.

D. PERSONAL PROTECTIVE EQUIPMENT

Section 29 CFR 1910.132 requires employers and employees to provide, use, and maintain personal protective equipment (PPE) wherever it is necessary by reasons of hazards of process or environment.

It is important that personal protective equipment and safety requirements be appropriate to protect against the potential hazards at the job site. Protective equipment has been selected based on the expected contaminant type(s) and route of entry. Changes will be made if new hazards are identified during the project.

1. Selection

KPH Environmental Corp., evaluates the potential job hazards of the site. The evaluation includes the project activities, potential job hazards, monitoring activities, safety levels, PPE, site safety practices, warning and communication procedures, emergency procedures, and emergency contacts. Safety equipment shall be provided based on expected hazard to be encountered during drilling, soil sampling, and groundwater sampling.

The employee is responsible for wearing appropriate PPE. The Safety & Occupational Health Officer or Competent Person shall see that appropriate PPE is worn by all employees in operations where there is exposure to hazardous conditions. Site conditions will be monitored to determine appropriate PPE if site conditions change. PPE will be provided by subcontractors for their personnel. The employee must use and properly care for the personal protective equipment and clothing provided by employer and have training in the proper use of personal protective equipment.

2. Protective Equipment

Minimum safety equipment and clothing will be required for all workers and visitors who enter the work area on the job site:

- Safety glasses or cover goggles.
- General work clothes. Clothing to protect against chemical exposure is not required for this project.
- Hearing protection, when necessary, for loud noises
- Hard hat (near operating heavy machinery or where potential head injuries exist)
- Protective gloves for potential contact with expected chemical compounds to be encountered, including perfluoroalkyl and polyfluoroalkyl compounds (PFA).
- Use of respirators is not required for this project. Individual employees may use respirators at their discretion.

3. Eye Protection

Drilling and sampling activities may put dust particles into the air. Employees must use appropriate eye protection when exposure to eye hazards from particles or liquids will occur.

Each affected employee will use eye protection that provides side protection. Detachable side protectors (e.g., clip-on or slide-on side shields) are acceptable. Each employee who wears prescription lenses while engaged in operations that involve eye hazards must wear eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses. Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.

Protective eye and face devices shall comply with ANSI Z87.1–1989, ‘‘American National Standard Practice for Occupational and Educational Eye and Face Protection’’ or shall be demonstrated to be equally effective.

4. Head Protection

KPH Environmental Corp., shall ensure that each affected employee is provided with a protective hard hat when working in areas where there is a potential for injury to the head from moving objects or low clearances. Hard hats meeting the ANSI standard will be available on the job site.

5. Hand Protection

KPH Environmental Corp., shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; and punctures. KPH Environmental Corp., shall base the selection of the appropriate hand protection on an evaluation of the performance characteristics of the hand protection relative to the task(s) to be performed, conditions present, duration of use, and the hazards and potential hazards identified. Gloves will be required for protection from chemical exposures in soil or groundwater.

E. EMERGENCY PROCEDURES FOR ACCIDENT & EXPOSURES

1. Accidents & Exposures

All accidents that occur incidentally to an operation will be investigated, reported, and analyzed. Accidents may involve physical injuries, or exposures to chemicals through soil or groundwater contact.

Employees are responsible for reporting all injuries, occupationally related illnesses, spills, or exposures as soon as possible to the Safety & Occupational Health Officer or Competent Person. The Safety & Occupational Health Officer or Competent Person shall not decline to accept a report of injury from a subordinate. KPH Environmental Corp., and the Safety & Occupational Health Officer

or Competent Person are responsible for reporting all injuries to the 128th Air Refueling Wing and Nova Group within 48 hours. This notification shall also include exposure work hours and a log of occupational injuries and illnesses - OSHA Form 300 or equivalent as prescribed by 29 CFR 1904.

An accident or exposure that appears to have any of the consequences listed below shall be immediately reported to the 128th Air Refueling Wing and Nova Group. These accidents and exposures will be investigated in depth to identify all causes and to recommend hazard control measures. KPH Environmental Corp., is responsible for notifying OSHA when one or more of the employees are seriously injured.

a. Fatal injury,
b. Permanent totally disabling injury,
c. Permanent partial disabling injury,
d. Three or more persons admitted to a hospital
e. Spill or exposure that may affect other contractors or building occupants

Except for rescue and emergency measures, the accident scene shall not be disturbed until it has been released by the investigating official. KPH Environmental Corp., is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. KPH Environmental Corp., will assist and cooperate fully with OSHA.

2. Emergency Procedures for Spills

The employee that first identifies the emergency will notify the competent person. The competent person shall evaluate the situation and contact the Safety & Occupational Health Officer and the 128th Air Refueling Wing and Nova Group for advice if necessary. Considering personal safety, the Safety & Occupational Health Officer or Competent Person and KPH personnel will remedy the emergency (e.g., use of fire extinguishers, spill containment, etc.) if possible.

For non-life-threatening situations, an employee injured or otherwise incapacitated shall be decontaminated following normal procedures with assistance from fellow workers, if necessary, before exiting the workplace to obtain proper medical treatment.

For life-threatening injury or illness, worker decontamination shall take least priority after measures to stabilize the injured worker, remove them from the workplace and secure proper medical treatment.

F. TOXIC/HAZARDOUS MATERIALS

1. General

KPH Environmental Corp., does not anticipate using or generating any toxic/hazardous materials during the project. However, KPH has been informed that fire fighting foams containing PFA compounds have been used in the planned work during past site activities. The possibility of direct contact with PFA compounds or residues does exist during the drilling and sampling work.

Appropriate precautions and use of hand and eye protections will be used to avoid contact with any potential PFA containing materials.

G. HAZARD IDENTIFICATION & CONTROL MECHANISMS

The KPH Environmental Corp., Safety & Occupational Health Officer and Competent Person have evaluated the project site for potential hazards and safety problems, as described in this plan. During the course of the project, these individuals, along with all KPH employees on site, will make constant hazard evaluations as the work progresses. Any new hazards or problems that arise will be immediately corrected by the KPH personnel, if possible. Otherwise, the new hazard or problem will be reported to the Safety & Occupational Health Officer or Competent Person for correction. Appropriate PPE will be issued to employees, if required.

H. PROTECTION OF OCCUPANTS & VISITORS

Only authorized Contractors and Nova Group, Inc., personnel shall be allowed in the designated work zone. The work zone will shift location throughout this project as equipment and personnel move from one sample location to another. All entrants must have appropriate personal protective equipment for that area. Important haul and fire safety routes shall not be obstructed or used where they will encroach on entrance and exit routes used by base personnel, or to present an unsafe or unhealthy condition to the public or occupants. Equipment, materials, and wastes will be stored in a manner that does not present a hazard to the public or surrounding building occupants.

I. INTERFACING & CONTROL OF SUBCONTRACTORS

All subcontractors shall abide by all OSHA regulations and safety rules of KPH Environmental Corp. KPH Environmental Corp., will notify all other contractors when actions or activities undertaken by them could affect health or safety of employees of other companies. Subcontractors must inform KPH Environmental Corp., of all injuries to their workers. Any unsafe conditions that come to their attention must be reported to KPH Environmental Corp.

J. OCCUPATIONAL NOISE EXPOSURE

KPH Environmental Corp., will make hearing protectors available to all employees, regardless of noise exposure. Hearing protectors shall be replaced as necessary. Employees are responsible for notifying the Safety & Occupational Health Officer or competent person when replacement is needed. Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors, such as ear plugs or earmuffs. KPH Environmental Corp., shall ensure proper initial fitting and supervise the correct use of all hearing protectors. The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. KPH Environmental Corp., shall provide more effective hearing protectors where necessary.

K. HAZARD COMMUNICATION

Hazard communication requires all pertinent information of possible hazardous chemicals and potentially dangerous materials which an employee may come into contact with during the project is transmitted to every employee. 29 CFR 1910.1200 requires certain information to be in every Hazard Communication program, including:

- Container labeling and other forms of warning
- Safety Data Sheets (SDS)
- Employee training in regard to generally applicable precautions for safe handling and use of potentially dangerous chemicals and materials
- A list of hazardous chemicals
- Methods used to inform employees of the hazards of non-routine tasks

Hazard communication applies to all employees exposed to hazardous chemicals or materials on a regular basis. Hazardous chemicals are not expected to be used on this project, but all SDS Sheets will be provided as needed.

The following procedures are to be followed to ensure success of Hazard Communication.

- Potentially hazardous chemicals must have a manufacturer's label and a Safety Data Sheet (SDS). The label must include the following:

  a) Identity of the hazardous chemical(s)
  b) Appropriate hazard warnings, and
  c) Name and address of the chemical manufacturer, importer, or other responsible party.

  The SDS will include the following information:

  a) Name of the product, the chemical and common name(s) of all ingredients
  b) The harmful ingredients which may contribute to a physical or health hazard.
  c) Physical and chemical characteristics of the hazards (such as vapor pressure and flash point).
  d) The potential for fire, explosion and reactivity, and response information.
  e) Incompatible substances
     Physical signs and symptoms of exposure and any medical condition recognized as being aggravated by exposure to the chemical.
  f) The primary route(s) of entry.
  g) The OSHA permissible exposure limit value, and any other exposure limit used or recommended by the chemical manufacturer.
  h) Whether the hazardous chemical is listed in the "National Toxicology Program" or the "Annual Report on Carcinogens".
  i) Applicable precautions for safe handling, cleanup and control of the product.
  j) Emergency first-aid procedures.

k) Name, address and telephone number of the manufacturer.

- No "open purchase" by an employee of a potentially hazardous chemical to be used on a job site without authority of the supervisor or Corporate Safety Officer.

- All potentially hazardous chemicals and materials will be removed from the work area when not in use to prevent injury (inhalation, ingestion, skin contact, etc.).

- Work areas will be well ventilated, and respirators with appropriate filters and protective clothing will be worn by employees while using a hazardous product, where necessary.

- The Project Manager and/or the Site Supervisor will ensure that an SDS is available for the site if any potential hazardous chemicals or materials are on the job site, including unmarked pipes which may contain hazardous chemicals.

- The Project Manager and/or Site Supervisor will ensure that all SDSs are kept in a easily accessible location on the job site, and that all employees can immediately obtain the information required in case of an emergency.

Mitchell Airport Hydrant Fuel Replacement Project

Soil Handling Safety Plan

The contaminated soil handling plan for Mitchell Airport Hydrant Fuel Project has two levels of risk. If the total estimated amount of 21,000 cubic yards is removed offsite, the risk to workers is drastically reduced, as most of the activity of handling the soil is completed by excavators and trucks to haul it offsite. The risk can also be engineered out excavation activities thru an Activity Hazard Analysis as follows:

- The equipment used must have enclosed cabs, have a filtered HVAC air recirculation, the excavator removes soil and be positioned upwind from excavation area.
- All contaminated soils will be stored on impervious surfaces(asphalt, plastic liner) until soil removal and excavations are complete using Wisconsin DNR Regulation 502.
- Identify locations where there may be elevated PFOAs and communicate this with co-workers and subcontractors
- Select and use the proper PPE
- Respirators may be required if significant amounts of PFOA-containing soil is aerosolized in a dust form during excavation, drilling or related activities
- Wear gloves and either disposable coveralls or work clothes that are only worn at the site to prevent PFOA-contaminated materials from getting on personal clothing that may be transferred into vehicles or your home
- Follow proper hygiene practices
- Do not eat, drink, vape or use tobacco-containing products when handling or working around contaminated soils
- Wash your hands with soap and water and dry them with paper towels before eating, drinking, smoking, vaping or using tobacco-containing products
- Remove disposable or work clothing and shower before leaving the work site
- Clean boots, tools and equipment before removing them from the work site
- A truck washing station will be installed to contain the contamination when vehicles are leaving the contaminated area.

The higher risk activity is trying to re-use the contaminated soils for backfill and installation of pipe and equipment placed in trench and forming areas, as workers will have direct exposure to the contaminated soils. Proper PPE must be worn:

- Or a 45-60 mil liner can be installed in trench areas to create a barrier to the soil when installation of trench and excavation components are ongoing.
- All onsite storage of contaminated soils will be placed on a liner or impervious surface and covered
- A decontamination trailer must be available for changing contaminated clothing and showers with fresh water.