HASKELL

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DEWATERING PLAN

[redacted]

US Army Corps of Engineers®

U.S. AIR FORCE

[redacted]

Tyndall Air Force Base,
Panama City, Florida

Appendices:

Project Description:

[redacted]

** Please note that this project is paired with another project to build an FMF building in a neighboring area. Another dewatering plan was previously submitted under separate cover to discuss dewatering associated with the FMF building. That dewatering plan was subsequently approved. This dewatering plan is solely to discuss dewatering in the vicinity of the OSS building.

The only dewatering required at the OSS Facility is related to the Installation of Storm Drain Structures surrounding the proposed building. Refer to Appendix A: Site Plan for the layout of the stormwater excavations.

Description of Contaminated Site:

[redacted]The general contaminant categories in IRP site OW217 include petroleum and chlorinated solvents. Please see Appendix B for the historical plume locations in the shallow zone and the plume locations during a 2022 sampling event, Appendix C for the plume locations observed during the 2023 groundwater sampling event, and Appendix D for tables summarizing the VOCs and chlorinated solvent concentrations detected in the groundwater during the 2023 sampling event. Please note that the general location of the chlorinated solvents and the VOCs have not changed drastically. As per Tyndall AFB guidance, any groundwater extracted from OW217 may be released back into the known plume areas, with the FDEP's approval.

Additionally, the excavations for stormwater piping proposed in the vicinity of the OSS building will be located within AFFF Area 1 or the associated 500-foot buffer zone. Historical groundwater sampling and sampling completed in 2023 better defined the area around AFFF Area 1 that included PFAS concentrations above 70 ppm. The concentrations of PFAS in the groundwater are illustrated in Appendix E and summarized in the tables in Appendix D.

The groundwater on the site flows generally towards the northeast. The groundwater elevations range from 14 to 21 feet above sea level. A figure showing the groundwater elevations and flow direction is included as Appendix F.

Where are Contaminants Present on Site:

Appendix B: IRP Sites and Plume Maps - Shallow
Appendix C: Groundwater VOCs and Chlorinated Solvents in Groundwater
Appendix D: Contaminants in Groundwater Tables
Appendix E: PFAS in Groundwater and Proposed Excavation Areas

Contaminants Present on Site:

Exceedances of various FDEP and TAFB standards in groundwater were observed during the most recent groundwater sampling work in January of 2023 and are summarized in Tables 8 through 11, which are included in Appendix D. The highest concentrations were all observed in the groundwater collected in the vicinity of proposed excavations.

- The maximum concentration of Total Recoverable Petroleum Hydrocarbons (including SVOCs and VOCs) was 95 µg/L in SB/TMW-5.

- The maximum total chlorinated solvent concentration observed during that sampling event was 817.1 µg/L in SB/TMW-5.
- The maximum total PFAS concentration observed in SB/TWM-3 and is calculated by adding PFBS (3.3 µg/L), PFOA (74 µg/L), and PFOS (37 µg/L). This results in a total PFAS concentration of 114.3 µg/L.

Dewatering System Configuration

Equipment To Be Used:

1. Well Point System
2. 6" Double-Diaphragm Pump.

Refer to Appendix G Equipment Details

Pump Locations and Well Points:

Dewatering will be required for an estimated 80% of the stormwater trench excavations. The layout for those excavations is shown on the figure in Appendix E and detailed in the drawings in Appendix H. Solid yellow lines indicate trenches that will require dewatering. Dashed lines indicate trenches that will not extend beneath the natural water table. In areas that will require dewatering, groundwater extraction points will be installed along the trench, as needed. Groundwater extraction points are generally located along stormwater trench lines at a spacing of six points for every 20 linear feet of trench. The points are screened to a depth of up to 18 feet below the existing ground surface. Water pumped from the points will be treated with granulated carbon and discharged into three 20,000-gallon frac tanks for storage. The pump will be moved, as needed, between the extraction points in use and the frac tanks.

Duration of System in Place:

Dewatering and installation of storm pipes and structures will be completed in two separate events:

Event #1 - South Side of the OSS Building: Seven catch basins and up to 700 feet of stormwater pipe will be installed up to four feet below the natural water table. Dewatering will commence approximately one to three days prior to excavation. However, groundwater extraction at any given time will be limited to those points that will maximize the groundwater drawdown in the vicinity of imminent excavation. It is estimated that dewatering will continue for no more than 7 days.

Event #2 - North Side of the OSS Building: Two catch basins and approximately 110 feet of stormwater pipe will be installed between one and nine feet below the natural water table. Dewatering will commence approximately three days prior to the beginning of excavation in order to depress the groundwater elevation. The stormwater installation should be completed within an additional 5 days, so the dewatering system will operate continuously for up to 8 days.

Volume of Water Expected to be pumped:

During other work on the base, contractors have observed that the subsurface is non-homogenous. In some areas, the subsurface is thick muck with very low transmissivity. In other areas – particularly those in which pieces of historical subsurface structures remain – there are gravel and sand that allow for a much faster movement of groundwater.

Based on previous pumping rates at the FMR building, it is estimated that the daily pumping rates during Event #1 on the south side of the OSS building will range from 1,000 to 2,000 gallons per day. Assuming a conservative estimate of 2,000 gallons per day, the total water expected to be removed over 7 days would be approximately 14,000 gallons.

The maximum flow rate during Event #2 on the north side of the OSS building is estimated at 5,000 gallons per day. With that in mind, the total water expected to be removed over eight days would be approximately 40,000 gallons.

The pumped groundwater will be treated and stored in one to two 23,000-gallon frac tanks that will be tied together in series. At the end of each dewatering event, the water in the tanks will be recirculated for 48 hours through a loop that will include the pump, all the clean water tanks in series, and the groundwater treatment. At the end of that time, a groundwater sample will be collected from one of the tanks and sent to a Department of Defense accredited laboratory for analysis of PFAS on an expedited turn-around time. If the PFAS concentrations are less than 70 ng/L, the water in the frac tanks will be allowed to reinfiltrate into the ground.

Location of Re-Infiltration:

During both dewatering events, re-infiltration will take place in the infiltration basin, as shown on the Site Plan in Appendix E. Please note that this location is both inside of OW217 and within the buffer of the AFFF Area.

Management of Reinfiltrating Water:

- The boundaries of the re-infiltration area will be bermed up 3 feet above grade to contain the pumped water.
- Water pumped out of the ground (after treatment and confirmatory analytical) will be fed into the bermed infiltration pond where it will be reabsorbed into the soil at the rate of infiltration.

Re-infiltration:

Groundwater was encountered in the test borings at depths ranging between about 3 feet to 6 feet BEG at the time of our subsurface exploration, which occurred during a period of relatively normal seasonal rainfall. Those depths correspond roughly to the groundwater elevations observed in Appendix D.

According to the "Text to Accompany the Geologic Map of Florida" by Scott, 2001, the site is generally underlain by undifferentiated sediments deposited during the Quaternary period. These sediments typically consist of siliciclastic (sand), organics, and freshwater carbonates. These soils are highly permeable and form the Sand and Gravel Aquifer of the surficial aquifer system. As such, the infiltration rate is up to 20 inches of water per hour.

The area of permeable surface within the infiltration pond is approximately 15,000 square feet. It is likely that a volume of between 20,000 and 80,000 gallons will be accumulated in the frac tanks during each of the dewatering events. At a conservative estimated infiltration rate of 2 inches per hour, the daily infiltration into that pond would be approximately 60,000 gallons per day. Therefore, it is estimated that the frac tanks will require 1-2 days to empty after each dewatering event.

Treatment:

According to the Tyndall AFB guidance document (*Installation Restoration Program and Aqueous Film Forming Foam Guidelines for Tyndall MILCON-Rebuild 8 November 2021*), groundwater extracted within 500 feet of groundwater impacted by AFFF must be filtered.

The extracted groundwater will be initially placed in a raw water frac tank. From there, it will be pumped through a bag filter and into treatment vessel filled with 2000 pounds of granulated activated carbon (GAC). Water leaving the GAC filter will go into a frac tank with a 12 Mil reinforced polyethylene liner. If, during an event, a second tank is necessary to hold the treated water, the second tank will be connected in series with the first tank. The equipment specifications are included in Appendix G. A diagram showing the layout of the treatment equipment is included in Appendix I.

When dewatering is discontinued, the system will be reconfigured without the bag filters, and water from the clean water tank(s) will be routed through the GAC to circulate for 48 hours. If there are two tanks, the water will be looped through both. A diagram of this setup is also included in Appendix I. A sample will be collected at the end of the 48-

hour period from one of the tanks. If the PFAS concentrations are less than 70 ng/L, the water will be allowed to reinfiltrate.

Modelling software was used to identify the number of pounds of carbon that will be spent each day of usage. This modelling was based on the idea that every gallon of water removed will have the highest concentrations of chlorinated solvents and PFAS ever observed anywhere on the site. It also assumed that there would be enough natural Carbon Oxygen Demand to affect the amount of carbon spent. That modelling calculated that the rate of carbon usage would be 64.54 pounds of GAC per day. Further, because the amount of carbon that would be expended from adsorption of TRPH was not calculated in the modelling software, that was calculated separately using a 1:10 ratio of TRPH mass adsorbed:mass GAC expended.

According to the extremely conservative calculations above, the cumulative amount of GAC expended during both dewatering events is approximately 485 pounds. As such, the 2,000 pounds of GAC in the filtration system is more than 4 times what is necessary. Calculations of GAC to be expended are included in Appendix J.

Appendix A

Site Plan

[redacted]

Legend

- OW217 IRP Boundary
- Zone 2 Construction Limits
- Fence
- Site Entrance Gates
- Proposed Buildings
- AFFF Area 1
- Proposed Stromwater Excavation - FMF Site
- Proposed Stromwater Excavation - OSS Site
- Proposed Stromwater Excavation - OSS Site selection
- Approximate Location of Infiltration Basin

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SITE PLAN

UNITED STATES AIR FORCE

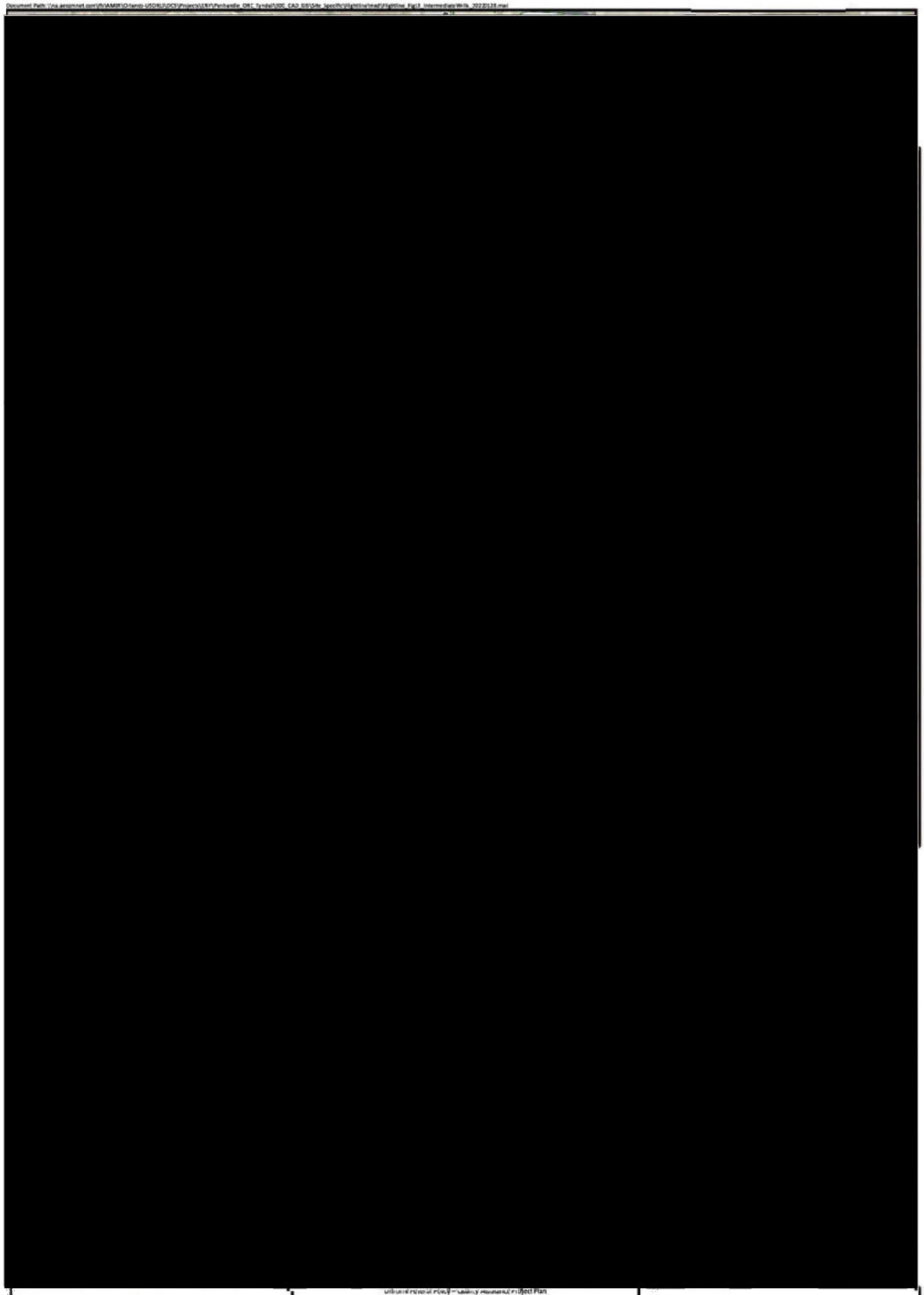
[redacted]

TYNDALL AFB — BAY COUNTY, FL

PROJ. NO: 21-04221	DATE: 5/6/2024	SCALE: 1 IN = 125 FT	DWG NO. -	FIGURE: 1

Appendix B

Historic IRP Sites and Plume Map - Shallow



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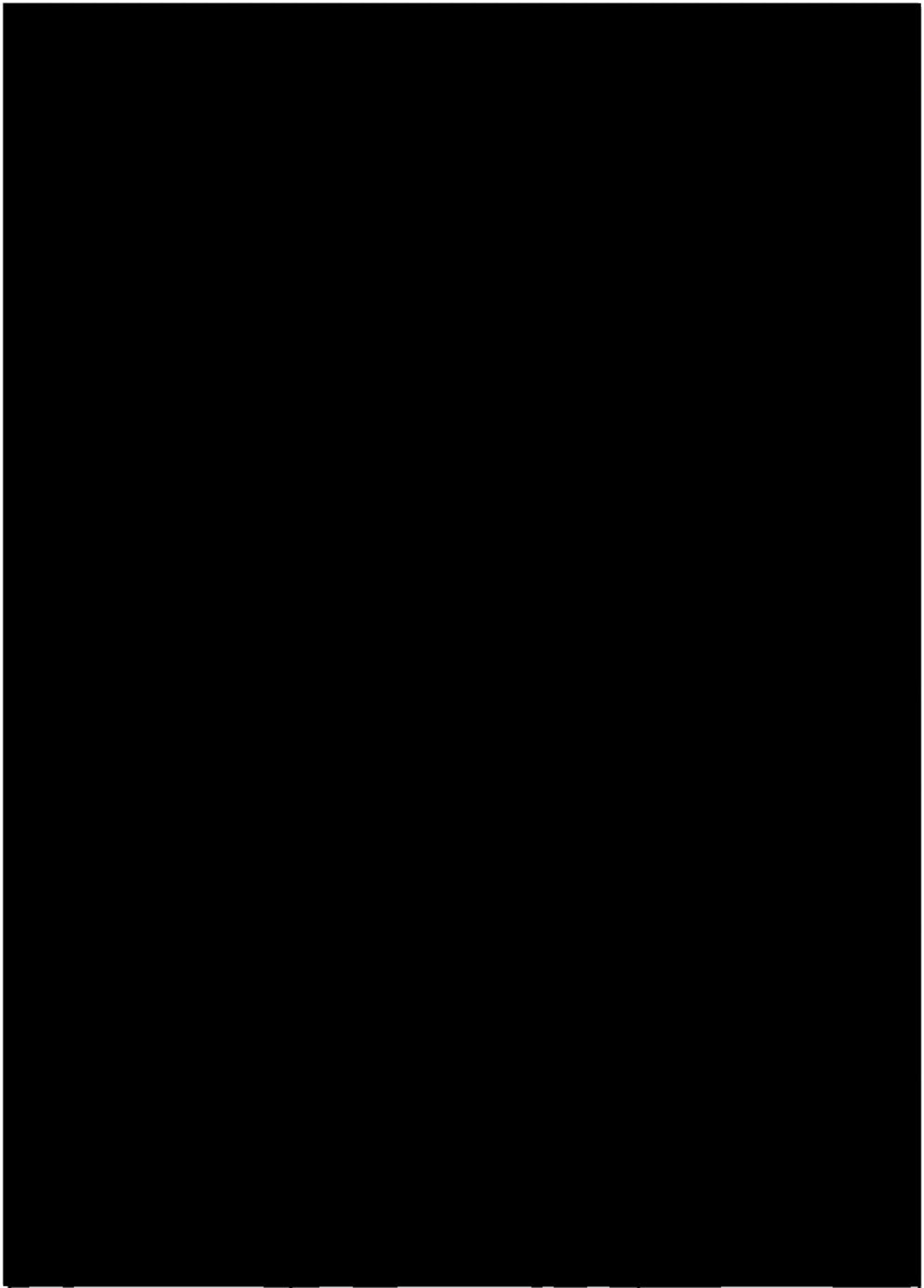
AECOM

Supplemental Remedial Investigation Work Plan
Flightline Sites
Site SS015, POL Area B, FDEP OCULUS ID: DoD_2_1904
Site SS026, Vehicle Maintenance Area, FDEP OCULUS ID:DoD_2_1913
Site OW217, Building 264/280, FDEP OCULUS ID: DoD_2_1950
Site TU205, Building 233, FDEP OCULUS ID: DoD_2_1575
Tyndall Air Force Base, Florida, EPA ID: FL3570024124

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
60308459	As Shown	3/8/2022	TVH

Intermediate Zone Monitoring Well

Figure 13



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Remedial Investigation
Site OW217: Flightline Site - Building 264/280
Tyndall Air Force Base, Florida

PROJECT NO:	SCALE:	DATE:	DRAWN BY:
BHZPJAX. 0021.03.09	As Shown	2/1/2023	MRM

COPC Exceedances in Shallow Zone Groundwater

Figure 10

Appendix C

VOCs and Chlorinated Solvent Exceedances in Groundwater – March 2023

[redacted]

Legend

- JMT Sampling Conducted from March 21 to March 22, 2023
- Chlorinated Solvents Impacted Area
- Chlorinated Solvents (Estimated)
- Benzene Impacted Area
- AFFF Area 1
- Proposed Buildings
- OW217 IRP Boundary
- Zone 2 Construction Limits
- Fence

NOTE:

See Tables section for summary of all concentrations.

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VOCs AND CHLORINATED SOLVENTS EXCEEDANCES IN GROUNDWATER - MARCH 2023

UNITED STATES AIR FORCE

[redacted]

TYNDALL AFB — BAY COUNTY, FL

PROJ. NO: 21-04221	DATE: 03/22/2024	SCALE: 1 IN = 125 FT	DWG NO. -	FIGURE: 3

Appendix D

2023 Groundwater Test Results - Tabulated

TABLE 9: GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY - PAHs and TRPHs

Facility ID#: N/A **Facility Name:** Tyndall AFB

Sample		TRPHs	Naph-thalene	1-Methyl-naph-thalene	2-Methyl-naph-thalene	Acen-aph-thene	Acen-aph-thylene	Anthra-cene	Benzo (g,h,i) pery-lene	Fluoran-thene	Fluor-ene	Phenan-threne	Pyrene	Benzo (a) pyrene	Benzo (a) anthra-cene	Benzo (b) fluoran-thene	Benzo (k) fluoran-thene	Chry-sene	Dibenz (a,h) anthra-cene	Indeno (1,2,3-cd) pyrene
Location	Date	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
SB/TMW-1	3/22/2023 09:00	NS	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.064	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-2	3/21/2023 16:50	NS	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.044	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-3	3/21/2023 15:05	NS	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-4	3/21/2023 13:05	NS	0.10 U	0.053	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.053	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-5	3/22/2023 10:25	95	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-6	3/22/2023 12:05	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
SB/TMW-7	3/22/2023 19:15	NS	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.058	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-8	3/22/2023 16:45	NS	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-9	3/22/2023 18:05	NS	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
SB/TMW-10	3/22/2023 14:55	48	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
GCTLs (ug/L)		5,000	14	28	28	20	210	2,100	210	280	280	210	210	0.2**	0.05[a]	0.05[a]	0.5	4.8	0.005[a]	0.05[a]
NADCs (ug/L)		50,000	140	280	280	200	2,100	21,000	2,100	2,800	2,800	2,100	2,100	20	5	5	50	480	0.5	5

Notes:
NA = Not Available.
NS = Not Sampled.
GCTLs = Groundwater Cleanup Target Levels specified in Table I of Chapter 62-777, F.A.C.
NADCs = Natural Attenuation Default Source Concentrations specified in Table V of Chapter 62-777, F.A.C.
** = As provided in Chapter 62-550, F.A.C.
[a] = See the October 12, 2004 "Guidance for the Selection of Analytical Methods and for the Evaluation of Practical Quantitation Limits" to determine how to evaluatie data when the CTL is lower than the PQL.

If an analyte is not detected, report the method detection limit [i.e., 0.01 U or ND(0.01); BDL or <0.01 are not acceptable].
Freshwater Surface Water (FSW), Marine Surface Water (MSW) and Groundwater of Low Yield/Poor Quality (LY/PQ) CTLs should be added to the base of the table as applicable.

TABLE 10: GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY - Miscellaneous Detected Analytes

Facility ID#: N/A **Facility Name:** Tyndall AFB

Sample		Acetone	Chloro-Benzene	Chloro-form	2-Chloro-toluene	Cyclo-hexane	1,2-Dichloro-benzene	1,4-Dichloro-benzene	1,1-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	Methyl-cyclo-hexane	Trichloro-ethene	Vinyl chloride
Location	Date	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
SB/TMW-1	3/22/2023 09:00	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
SB/TMW-2	3/21/2023 16:50	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
SB/TMW-3	3/21/2023 15:05	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
SB/TMW-4	3/21/2023 13:05	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
SB/TMW-5	3/22/2023 10:25	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.99	1.2	8.4	0.57	0.80 U	1.2	**3.1**
SB/TMW-6	3/22/2023 12:05	10	3.2	0.80 U	3.0	1.2	4.7	0.80	8.4	0.80 U	**750**	25	1.1	**3.7**	**6.0**
SB/TMW-7	3/22/2023 19:15	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	26	12	0.80 U	**220**	**1.7**
SB/TMW-8	3/22/2023 16:45	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
SB/TMW-9	3/22/2023 18:05	10 U	0.80 U	0.54	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
SB/TMW-10	3/22/2023 14:55	10 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
GCTLs (ug/L)		6300	100	70	140	NA	600	75	70	7	70	100	NA	3	1
NADCs (ug/L)		63000	1000	700	1,400	NA	6,000	750	700	70	700	1000	NA	300	100

Notes:

NA = Not Available.

NS = Not Sampled.

GCTLs = Groundwater Cleanup Target Levels specified in Table I of Chapter 62-777, F.A.C.

NADCs = Natural Attenuation Default Source Concentrations specified in Table V of Chapter 62-777, F.A.C.

^ = These chemicals may be present in petroleum fuels but are not currently included in Table A of Chapter 62-770, F.A.C. (list of Petroleum Products' Contaminants of Concern), and therefore it is not required by rule that samples be analyzed for these chemicals. Summary columns have been provided for the circumstances in which these chemicals and others reported by the laboratory are detected, to comply with subparagraph 62-770.600(8)(a)25., F.A.C.

Bold Red = Exceedance of Groundwater Cleanup Target Levels (specified in Table I of Chapter 62-777, F.A.C.)

Highlight = Exceedance of Natural Attenuation Default Source Concentrations (specified in Table V of Chapter 62-777, F.A.C.)

If an analyte is not detected, report the method detection limit [i.e., 0.01 U or ND(0.01); BDL or <0.01 are not acceptable].
Freshwater Surface Water (FSW), Marine Surface Water (MSW) and Groundwater of Low Yield/Poor Quality (LY/PQ) CTLs should be added to the base of the table as applicable.

TABLE 11: GROUNDWATER MONITORING WELL ANALYTICAL SUMMARY - PFAS

Facility ID#: N/A **Facility Name:** Tyndall AFB

Sample		Perfluoro-1-butanesulfonic acid (PFBS)	Perfluoro-n-octanoic acid (PFOA)	Perfluorooctane-sulfonic acid (PFOS)
Location	Date	(ng/L)	(ng/L)	(ng/L)
SB/TMW-1	3/22/2023 09:00	50 U	55	**880**
SB/TMW-2	3/21/2023 16:50	**440**	**6100**	**42000**
SB/TMW-3	3/21/2023 15:05	**3300**	**74000**	**37000**
SB/TMW-4	3/21/2023 13:05	**81**	**79**	**420**
SB/TMW-5	3/22/2023 10:25	34	54	**140**
SB/TMW-6	3/22/2023 12:05	NS	NS	NS
SB/TMW-7	3/22/2023 19:15	NS	NS	NS
SB/TMW-8	3/22/2023 16:45	NS	NS	NS
SB/TMW-9	3/22/2023 18:05	NS	NS	NS
SB/TMW-10	3/22/2023 14:55	50 U	50 U	34
Tyndall AFFF Guidelines (ng/L)		70	70	70

Notes:

NA = Not Available.

NS = Not Sampled.

Bold Red = Exceedance of Tyndall Aqueous Film Forming Foam Guidelines.

If an analyte is not detected, report the method detection limit [i.e., 0.01 U or ND(0.01); BDL or <0.01 are not acceptable].

Freshwater Surface Water (FSW), Marine Surface Water (MSW) and Groundwater of Low Yield/Poor Quality (LY/PQ) CTLs should be added to the base of the table as applicable.

Appendix E

PFAS Concentrations in Groundwater

[redacted]

Legend

- Data from Pilot Test Conducted on 9/29/2023
- JMT Sampling Conducted from March 21 to March 22
- PFAS 70 ng/L Concentration Contour
- Proposed Buildings
- Fence
- Proposed Stormwater Excavation - Requires Dewatering
- Proposed Stromwater Excavation - Does Not Require Dewatering
- 500 Ft Buffer Zone to AFFF Area 1
- OW217 IRP Boundary
- Approximate Location of Infiltration Basin

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PFAS IN GROUNDWATER AND PROPOSED EXCAVATION AREAS

UNITED STATES AIR FORCE

[redacted]

TYNDALL AFB BAY COUNTY, FL

PROJ. NO:	DATE:	SCALE:	DWG NO.	FIGURE:
21-04221	02/29/2024	1 IN = 150 FT	-	2

Appendix F

Groundwater Elevations and Flow Direction

APPENDIX D: GROUNDWATER ELEVATION AND FLOW DIRECTION MAP

LEGEND

- Shallow Zone Monitoring Well
- Groundwater Flow Direction
- Shallow Zone Potentiometric Contours (dashed where inferred)
- OW217 ERP Site Boundary
- SS026/SS020 ERP Site Boundary
- SS015 ERP Site Boundary
- TU205 ERP Site Boundary
- 12.03 Groundwater Elevation (feet above mean sea level)
- NM Not measured due to residual emulsified vegetable oil (EVO) in well

NOTES:
1. Water level data collected on December 16 and 17, 2015.
2. Water level elevations shown in red were not used in contouring.

Approximate Screen Depth
Shallow (S) - 5-15' BLS
Intermediate (I) - 30-35' BLS
Deep (D) - 50-65' BLS
Base (DQ) - 75-85' BLS

N

0 450 900
Feet

SOURCE:
Tyndall AFB, 2016

Coordinate System: NAD 1983 StatePlane Florida North FIPS 0903 Feet
Vertical Coordinate System: North American Vertical Datum 1988 Feet

WESTON SOLUTIONS

FIGURE A-1-8
DECEMBER 2015 FLIGHTLINE
POTENTIOMETRIC SURFACE MAP
SHALLOW ZONE
OF THE SURFICIAL AQUIFER
TYNDALL AFB, FLORIDA

DATE	PROJECT NO	SCALE
JANUARY 2016	20077.600.500	AS SHOWN

FILE: D:\Projects Files\Tyndall AFB\TDS\Revised\GIS\GIS\Figure\1-6 Dec 2015 Potentiometric Surface Shallow Zone\Fine Surficial Aquifer.mxd 10:04:27 AM 3/21/2016 beadnap

Appendix G

Dewatering and Filtration Equipment Specifications

APPENDIX H: EQUIPMENT DETAILS

Built for Battle® DD-6 SAFE

6" Double-Diaphragm Pump

Duty Points

Max Flow: 600 GPM/2,271.3 L
Max Head: 80 TDH/24.38 m
Max Suction Lift: 28'/18.53 m
Solid Handling: 3.5"/88.9 mm
Max CFM: 90 cfm

Market Segment

Construction
Municipal: Waste Water
Industrial
Petrochemical
Oil & Gas
Mining
Food Processing

A favorite among contractors and rental companies for its versatility. This hardworking pump moves air, water and solids. Plus, this high-volume pump is simple and easy to use, like all of the pumps in our Built for Battle line.

Components of this product are protected by one or more patents. The protected components and the associated patent(s) are identified at: www,msp-pumps.com

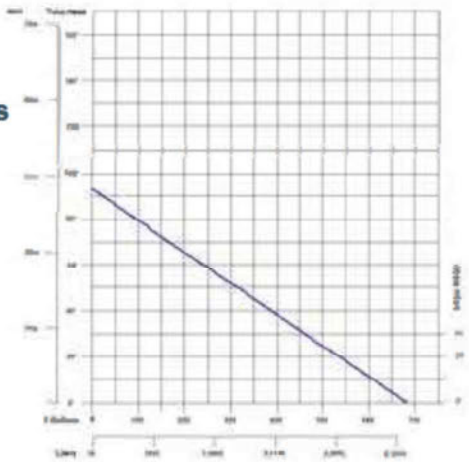
Standard Features

- Sound Attenuated Fully Enclosed
- Camlock or Bauer Hose Fittings
- Lockable Fuel Cap
- Fuel Gauge
- Heavy Duty Lifting Bale
- 5,000 lbs. Front Jackstand
- Powder-Coated Frame
- DOT Trailer Lights
- High Volume Pump
- Highway Fenders
- Heavy Duty Battery and Cables
- Easy Access Cleanouts

Options

- Skid Mounted
- AUTO Start Control Panel
- GPS Telematics
- Pushrod Protection Cover
- Electric-Driven Pump Packages Available

Flow Chart



Myers-Seth Pumps
goodpeople@msp-pumps.com

HERE FOR YOU
904.389.6114

MSP UNCOMPLICATED

Built for Battle® DD-6 SAFE

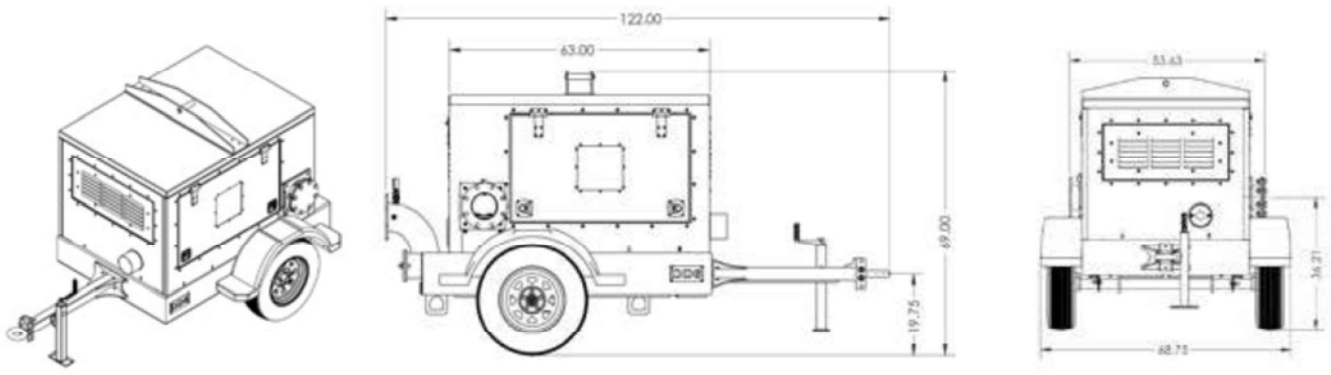
Specifications

Engine	
Make/Model	HATZ 1090/EZ
Horsepower	10.3 hp @2,000 rpm
dBA Sound	68dB
Safety Shutdowns	Low Oil Pressure
Engine Displacement	40.70 cu (0.667 L)
Engine Type	One Cylinder, Air-Cooled, Diesel
Daily Fuel Consumption	6 – 8 gal/day
Max Continuous Run Time	216 hrs (9 days)
Standard Equipment	Instrument Control Panel w/Hour Meter

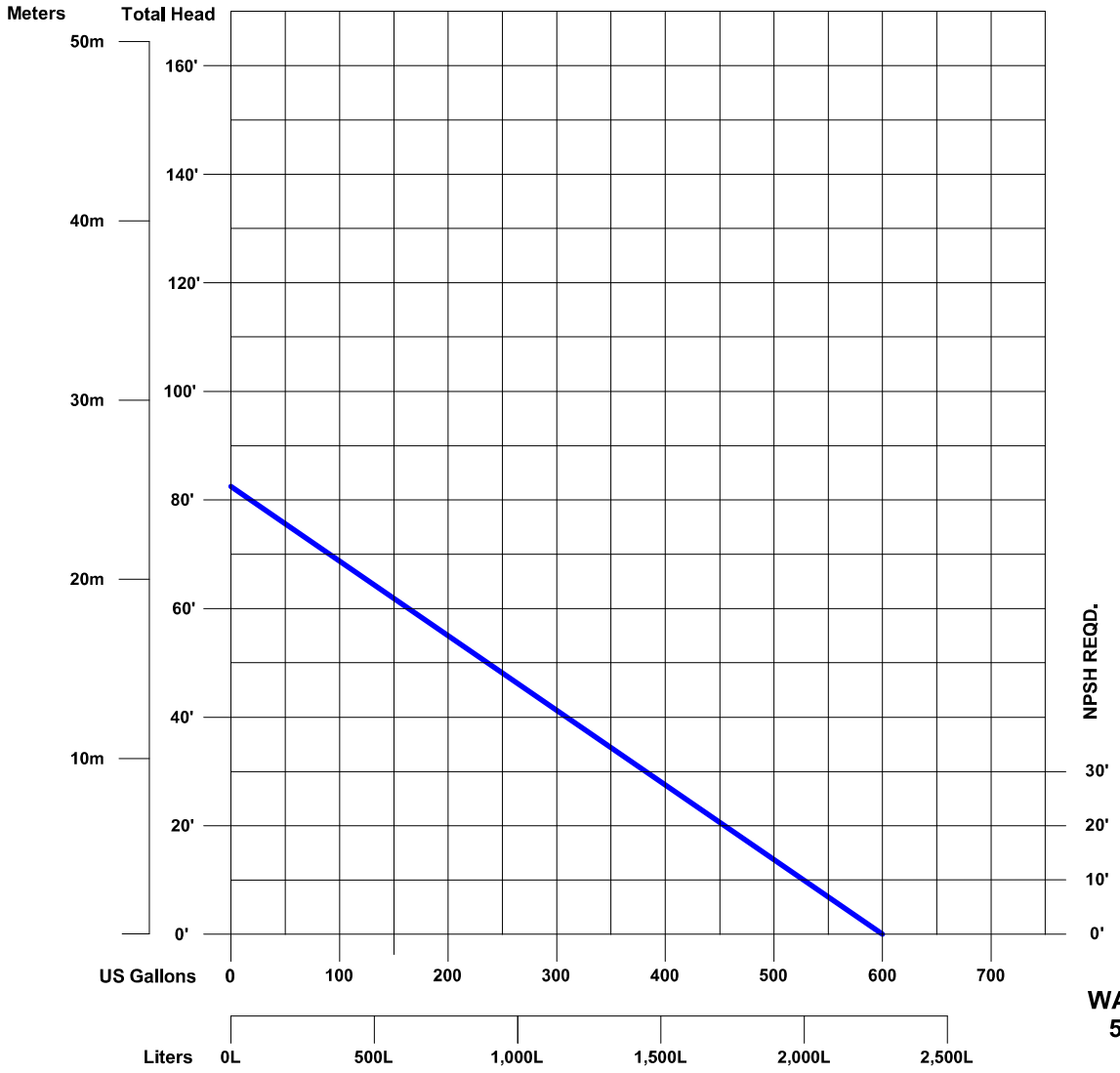
Frame	
Frame Construction	10" Square Steel Tubing
Fuel Capacity	71 gal (246.05 L)
Lifting Bale	Heavy Duty Single Point
Tie Downs	(4) Heavy Duty Tie Down Points
Height	64" (162.56 cm)
Width	74" (187.96 cm)
Length	112" (284.48 cm)
Weight	2980 lbs (1352 kg)
Wheels & Tires	15" P205/75R15 Radial
Axle Type	3,500 lbs Torflex

Pump			
Pump Housing	A-36 Steel	Max Operating Temperature	160˚F/71.11˚C
Pump Capacity Suction	Blue – 600 GPM @ 5' of suction (2271.25 L)	Flapper Valves	3/8" Weighted, Full-Flow, Reinforced Rubber
Max Pressure	60 psi	Max Suction Lift	Blue – 28' (8.5 m)
Max Working Pressure	50 psi or 115 TDH/35.0 m	Air Handling	Blue – 90 max CFM
Max Operating Speed	Blue Diaphragm Engine – 1800 rpm, Gearbox – 60 rpm	Suction & Discharge Valve Seats	Stainless Steel, 3/8" Plate
		Solid Handling	Blue – 3.5"/89 mm

WARNING: Do not exceed 50 psi during pumping operations with blue diaphragms.



Myers-Seth Pumps | goodpeople@msp-pumps.com | 4611 Dignan Street | Jacksonville, Florida 32254



WARNING: DO NOT EXCEED 50 PSI DURING PUMPING OPERATIONS WITH BLUE DIAPHRAGMS

D. Myers	MYERS-SETH PUMP, INC.
March 25, 2019	Model: DD-6/Blue Mod's 6" Double Diaphragm Pump/Blue
Rev. 5	
3.0" Scale	PN# DD-6-BLUE-DIAP

Specification for 12 Mil Reinforced Poly

PROPERTY	TEST METHOD	SPECS
Thickness, Nominal		12 Mils.
Weight, Average	ASTM D-751	56 lbs./msf
Elongation at Break	ASTM D-7004	67 %
Grab Tensile (Average of Directions)	ASTM D-7004	98 lbs.
Tongue Tear Resistance (Average of Directions).	ASTM D-5884	63 lbs.
Mullen Burst	ASTM D-751	154 psi
CBR Puncture Strength	ASTM D-6241	235 lbs.
WVTR	ASTM E-96 (Method B)	0.009
Perm Rating	ASTM E-96 (Method B)	0.02 perms

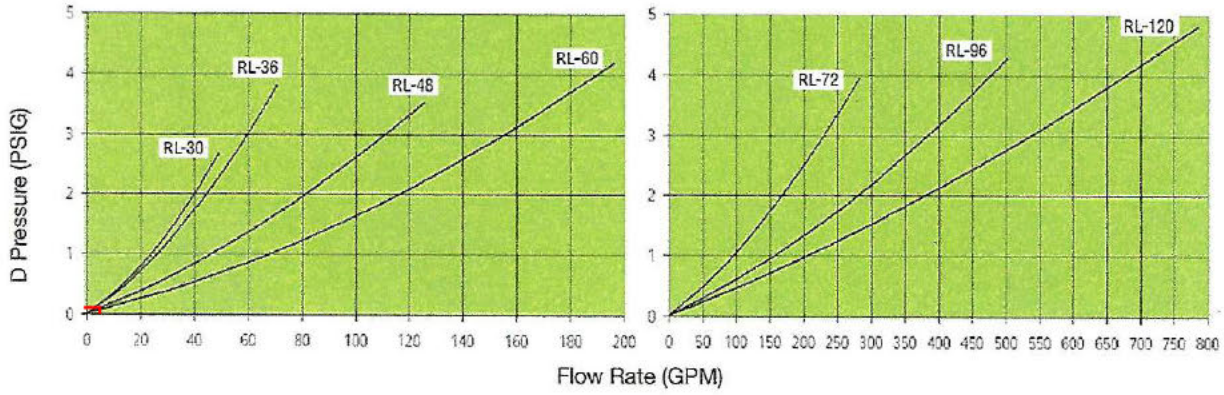
RL Series Standard Specifications

Model Number	RL-30	RL-36	RL-48	RL-60	RL-72	RL-96	RL-120
Overall Height	5'11"	7'2"	8'6"	8'11"	9'11"	10'9"	15'10"
Diameter	30"	36"	48"	60"	72"	96"	120"
Process Connection	2" FNPT	2" FNTP	3" FNTP	3" FNTP	4" FNTP	6" FLNG	8" FLNG
Typical GAC Fill (28#/ft³)	500 lbs	1,000 lbs	2,000 lbs	3,000 lbs	5,000 lbs	10,000 lbs	20,000 lbs
Bed Depth/Volume	3.4 ft/16.7 ft³	5 ft/33 ft³	5.5 ft/68.7 ft³	5.5 ft/107 ft³	6 ft/168 ft³	7 ft/ 350 ft³	7 ft / 350 ft³
Cross Sectional Bed Area	4.9 ft²	7 ft²	12.5 ft²	19.5 ft²	28 ft²	50 ft²	78 ft²
Available Bed Volume	20 ft³	35 ft³	75 ft³	117 ft³	196 ft³	400 ft³	780 ft³
Internal Piping Materials	SCH 40 PVC	SCH 40 PVC	SCH 40 PVC	SCH 40 PVC	SCH 40 PVC	SCH 40 PVC	SCH 40 PVC
Shipping Weight (Empty)	600 lbs	800 lbs	1500 lbs	3,525 lbs	7,490 lbs	13,800 lbs	27,250 lbs
Operational Weight	1,700 lbs	3,300 lbs	6,800 lbs	10,700 lbs	17,900 lbs	31,200 lbs	68,400 lbs
Internal Coating	Polyamide Epoxy Resin	Polyamide Epoxy Resin	Polyamide Epoxy Resin	Polyamide Epoxy Resin	Polyamide Epoxy Resin	Polyamide Epoxy Resin	Polyamide Epoxy Resin
External Coating	Epoxy Mastic	Epoxy Mastic	Epoxy Mastic	Epoxy Mastic	Epoxy Mastic	Epoxy Mastic	Epoxy Mastic
Maximum Pressure	75 PSIG	75 PSIG	75 PSIG	75 PSIG	75 PSIG	75 PSIG	75 PSIG
Maximum Temperature	140°F	140°F	140°F	140°F	140°F	140°F	140°F
Maximum Vacuum	28" Hg	28" Hg	28" Hg	28" Hg	28" Hg	28" Hg	28" Hg

Gallons Per Minute (GPM) at Empty Bed Contact Times (EBCT) based on a Typical GAC Fill

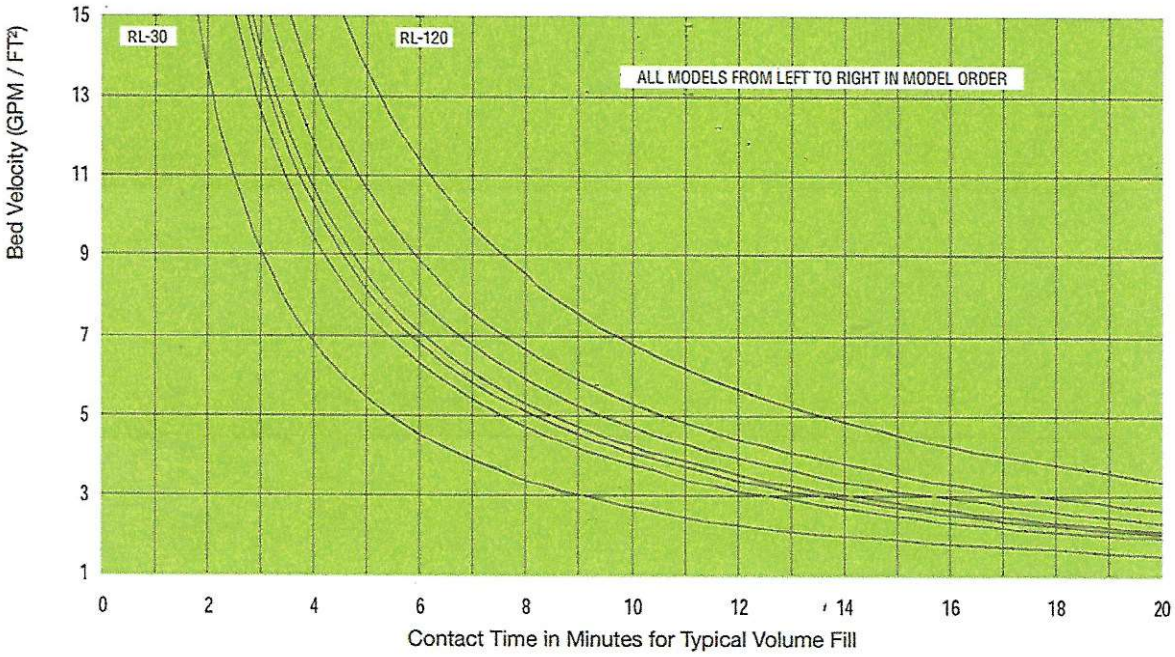
Model Number	RL-30	RL-36	RL-48	RL-60	RL-72	RL-96	RL-120
GPM at 5 minutes EBCT	26.72	53.43	106.86	160.30	267.16	534.32	1068.65
GPM at 10 minutes EBCT	13.36	26.72	53.43	80.15	133.58	267.16	534.32
GPM at 15 minutes EBCT	8.91	17.81	35.62	53.43	89.05	178.11	356.22
GPM at 20 minutes EBCT	6.68	13.36	26.72	40.07	66.79	133.58	267.16
GPM at 25 minutes EBCT	5.34	10.69	21.37	32.06	53.43	106.86	213.73

Pressure Drop Graphs for RL Series Vessels



Relationship of Bed Velocity to Contact Time

(Divide desired flow rate in GPM by "Cross Sectional Bed Area" for Bed Velocity)



Riley Equipment Company
6911 Gant Road
Houston, Texas 77066
www.recofiltration.com
(281) 583-5295 Fax: (281) 583-5299

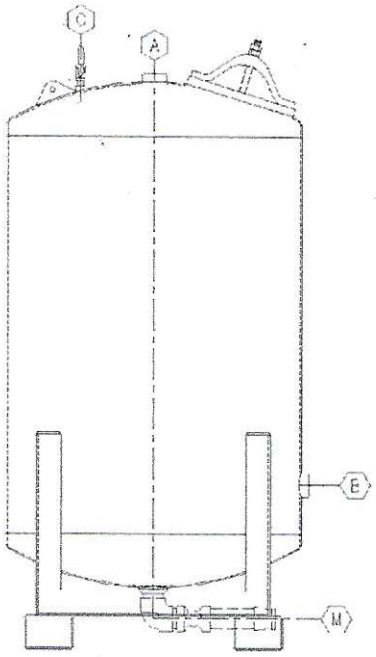
RL Series

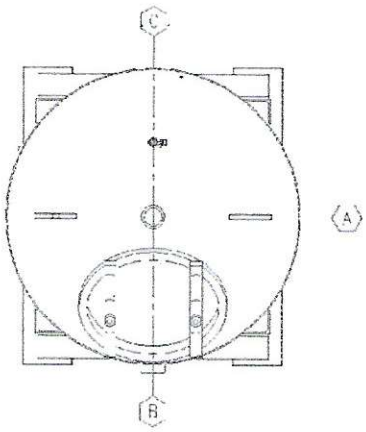
There are a wide variety of options for RL Series Filters, contact our Sales Team to assist you.

APPLICATION: For liquid filtration. RL Series Filters are designed to treat liquid in a wide variety of adsorption applications. Their modular design enables them to easily fit most installation areas.

Standard features include:

- Steel construction
- Epoxy internal coating
- Efficient internal collector array
- Forklift skid
- Lifting eyes





A - Process Inlet
B - Process Outlet
C - Vent
M - Carbon Discharge (Not standard on all models)
Manway standard size 12"x16" Elliptical

Data Sheet

FILTRASORB® 400

Granular Activated Carbon

Applications

FILTRASORB 400 activated carbon can be used in a variety of liquid phase applications for the removal of dissolved organic compounds. FILTRASORB 400 has been successfully applied for over 40 years in applications such as drinking and process water purification, wastewater treatment, and food, pharmaceutical, and industrial purification.

Description

FILTRASORB 400 is a granular activated carbon for the removal of dissolved organic compounds from water and wastewater as well as industrial and food processing streams. These contaminants include taste and odor compounds, organic color, total organic carbon (TOC), industrial organic compounds such as TCE and PCE, and PFAS.

This activated carbon is made from select grades of bituminous coal through a process known as reagglomeration to produce a high activity, durable, granular product capable of withstanding the abrasion associated with repeated backwashing, hydraulic transport, and reactivation for reuse. The raw coal is mined and subsequently manufactured into GAC in the United States to ensure the highest quality and consistency in the finished product. Activation is carefully controlled to produce a significant volume of both low and high energy pores for effective adsorption of a broad range of high and low molecular weight organic contaminants.

FILTRASORB 400 is formulated to comply with all the applicable provisions of the AWWA Standard for Granular Activated Carbon (B604) and Food Chemicals Codex. This product may also be certified to the requirements of NSF/ANSI 61 for use in municipal water treatment facilities. Only products bearing the NSF Mark are certified to the NSF/ANSI 61 - Drinking Water System Components - Health Effects standard. Certified Products will bear the NSF Mark on packaging or documentation shipped with the product.

Features / Benefits

- Produced in the United States from a pulverized blend of high quality, domestically mined bituminous coals resulting in a consistent, high quality product.
- Carbon granules are uniformly activated through the whole granule, not just the outside, resulting in excellent adsorption properties and constant adsorption kinetics.
- The reagglomerated structure ensures proper wetting while also eliminating floating material.
- High mechanical strength relative to other raw materials, thereby reducing the generation of fines during backwashing and hydraulic transport.
- Carbon bed segregation is retained after repeated backwashing, ensuring the adsorption profile remains unchanged and therefore maximizing the bed life.
- Reagglomerated with a high abrasion resistance, which provides excellent reactivation performance.
- High density carbon resulting in a greater adsorption capacity per unit volume.

Specifications[1]	FILTRASORB 400
Iodine Number, mg/g	1000 (min)
Moisture by Weight	2% (max)
Effective Size	0.55–0.75 mm
Uniformity Coefficient	1.9 (max)
Abrasion Number	75 (min)
Screen Size by Weight, US Sieve Series	
On 12 mesh	5% (max)
Through 40 mesh	4% (max)

[1]Calgon Carbon test method

Typical Properties*	FILTRASORB 400
Apparent Density (tamped)	0.54 g/cc
Water Extractables	<1%
Non-Wettable	<1%

*For general information only, not to be used as purchase specifications.

Safety Message

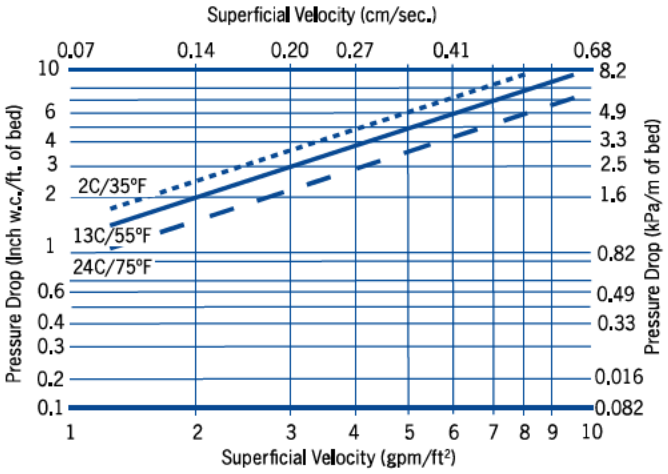
Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

1.800.4CARBON calgoncarbon.com

DS-FILTRA40019-EIN-E1

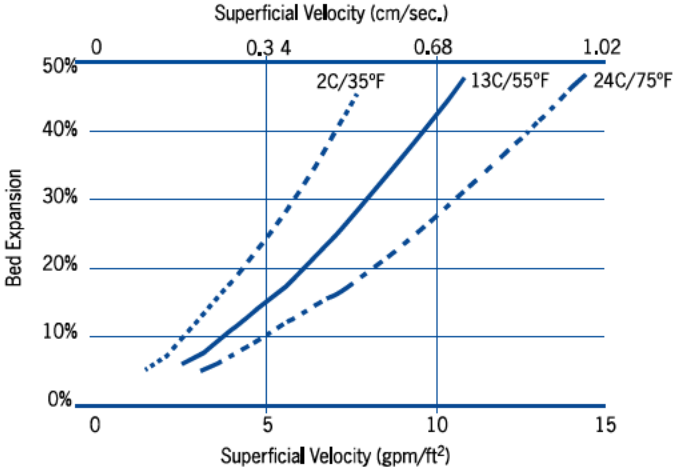
Typical Pressure Drop

Based on a backwashed and segregated bed



Typical Bed Expansion During Backwash

Based on a backwashed and segregated bed



Conditioning and Backwashing

Backwashing and conditioning fresh GAC before placing into operation is critical to GAC performance. The reasons for backwashing before placing fresh media online are to: (1) size segregate the media so subsequent backwashing will return the media to the same relative position in the bed, (2) remove any remaining air from the bed, and (3) remove media fines which can lead to excessive pressure drop and flow restriction. In addition, proper backwashing is a crucial step to collecting the most representative and meaningful post-start up data on compounds of interest, such as metals listed in the NSF/ANSI 61 standard.

Below are the recommended steps for proper conditioning and backwashing of GAC based on Filtrasorb 400 GAC being backwashed at 55°F:

1. Fully submerge GAC bed in clean, contaminant free water for at least 16 hours (overnight)
2. Open backwash inlet and begin up-flow at 3 gpm/ft² for 2 minutes
3. Increase flow to 5 gpm/ft² and maintain for 2 minutes
4. Increase flow to 7 gpm/ft² and maintain for 2 minutes
5. Increase flow to 8.5 gpm/ft² and maintain for 30 minutes*
6. Decrease flow to 7 gpm/ft² and maintain for 2 minutes
7. Decrease flow to 5 gpm/ft² and maintain for 2 minutes
8. Decrease flow to 3 gpm/ft² and maintain for 2 minutes
9. Close backwash inlet and stop flow

*Duration representative of initial backwash conditions. Required duration during operational backwashes can be shorter but will vary by utility, solids load, and GAC throughput. Contact Calgon Carbon for more information"

Design Considerations

FILTRASORB 400 activated carbon is typically applied in down-flow packed-bed operations using either pressure or gravity systems. Design considerations for a treatment system is based on the user's operating conditions, the treatment objectives desired, and the chemical nature of the compound(s) being adsorbed.

Safety Message

Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

1.800.4CARBON calgoncarbon.com

DS-FILTRA40019-EIN-E1

Appendix H

Stormwater Excavation Layout

A7
LINE A1 STA.13+50.81=
LINE A3 STA.10+00.00 INSTALL CATCH BASIN 4'X3'

A8
LINE A1 STA.14+51.49=
LINE A4 STA.10+00.00 INSTALL CATCH BASIN 4'X3'

30" RCP

13+00

FM

L5

36" RCP

12+00

L4

24" RCP

24" RCP

24" RCP

TOP OF FLAT GRATE = 21.64'
NORTH INVERT = 15.94'
SOUTHWEST INVERT = 16.04'

TOP OF FLAT GRATE = 18.49'
24" RCP NORTH INVERT = 14.94'
SOUTH INVERT = 13.71'

SS

SS

SS

SS

SS

SS

FM

A4
INE A1 STA.11+60.76
REBUILD CATCH BASIN
'X4'

A5
LINE A1 STA.12+65.75=
LINE A2 STA.10+00.00
INSTALL CATCH BASIN 4'X4'

[redacted]

A5
LINE A1 STA.12+65.75=
LINE A2 STA.10+00.00
INSTALL CATCH BASIN 4'X4'
TOP ELEV.=24.74
FL IN NW 30"=14.57
FL IN NE 24"=14.57
FL OUT=14.47

A7
LINE A1 STA.13+50.81=
LINE A3 STA.10+00.00 INSTALL CATCH
BASIN 4'X3'
TOP ELEV.=23.80
FL IN NW 12"=14.93
FL IN NE 24"=14.93
FL OUT=14.83

A8
LINE A1 STA.14+51.46=
LINE A4 STA.10+00.00 INSTALL CATCH
BASIN 4'X3'
TOP ELEV.=22.65
FL IN NE 12"=15.33
FL IN NW 24"=15.33
FL OUT=15.23

A9
LINE A1 STA.15+20.78 INSTALL CATCH
BASIN 4'X3'
TOP ELEV.=23.00
FL IN =15.64
FL OUT =15.54

A10
LINE A1 STA.16+47.72 INSTALL CATCH
BASIN 4'X3'
TOP ELEV.=23.00
FL IN =16.12
FL OUT =16.02

40
35
30
25

EXIST. GROUND
PROPOSED GRADE
BE

[redacted]

NOTE: CONTRACTOR
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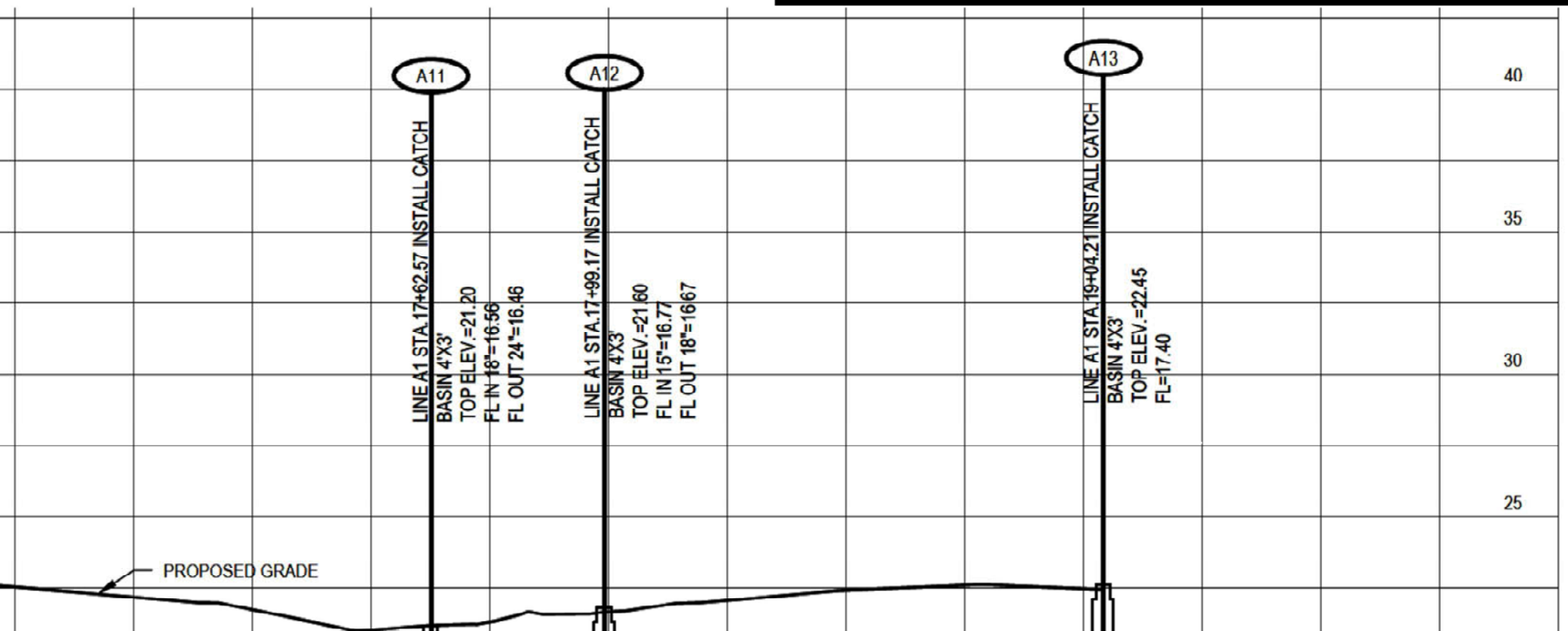

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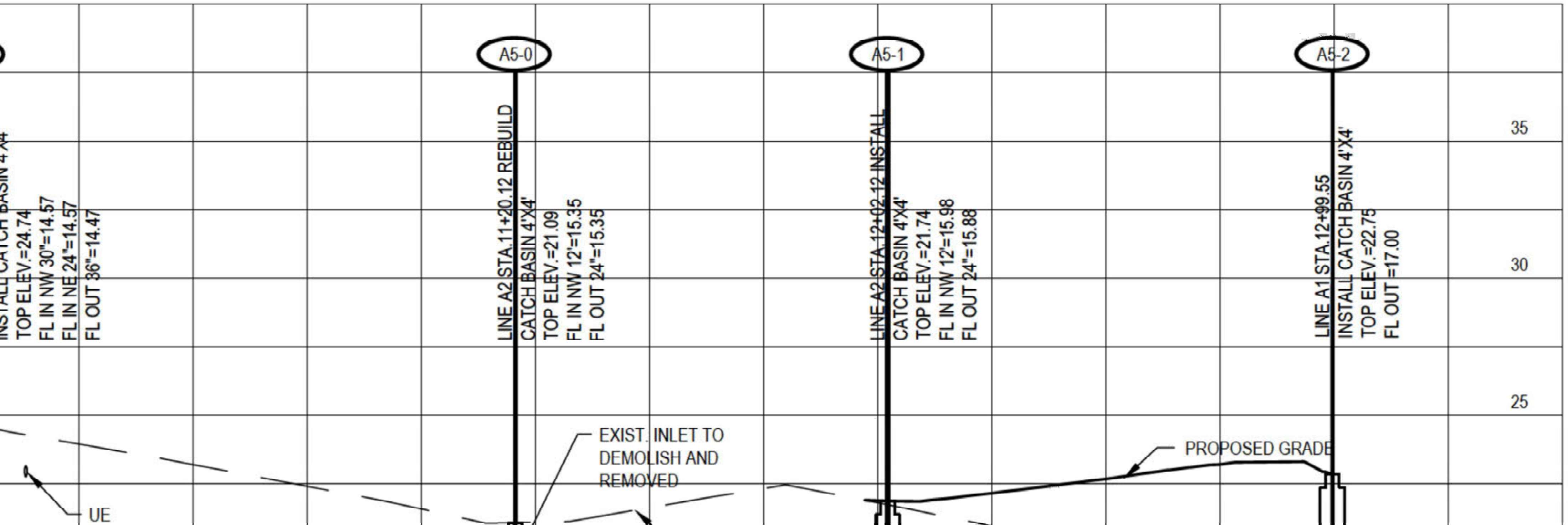

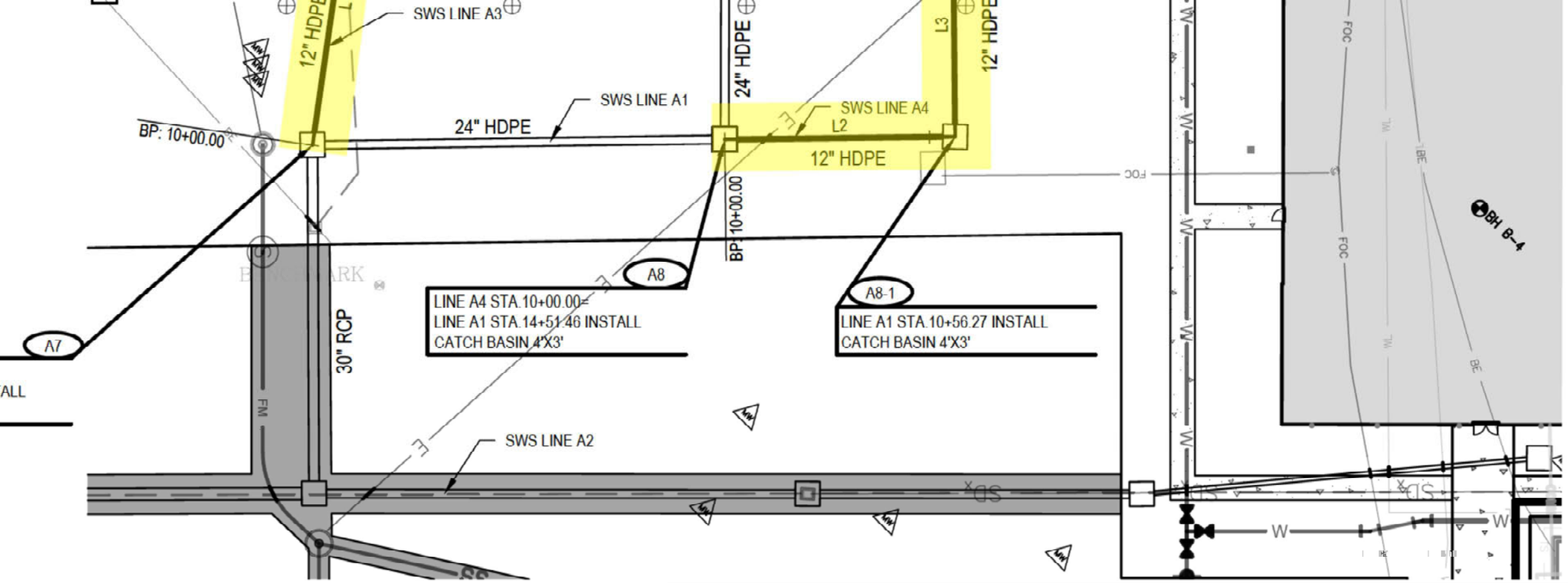

[redacted]

NOTE: CONTR
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METHODS. CO
SHEETS CU50

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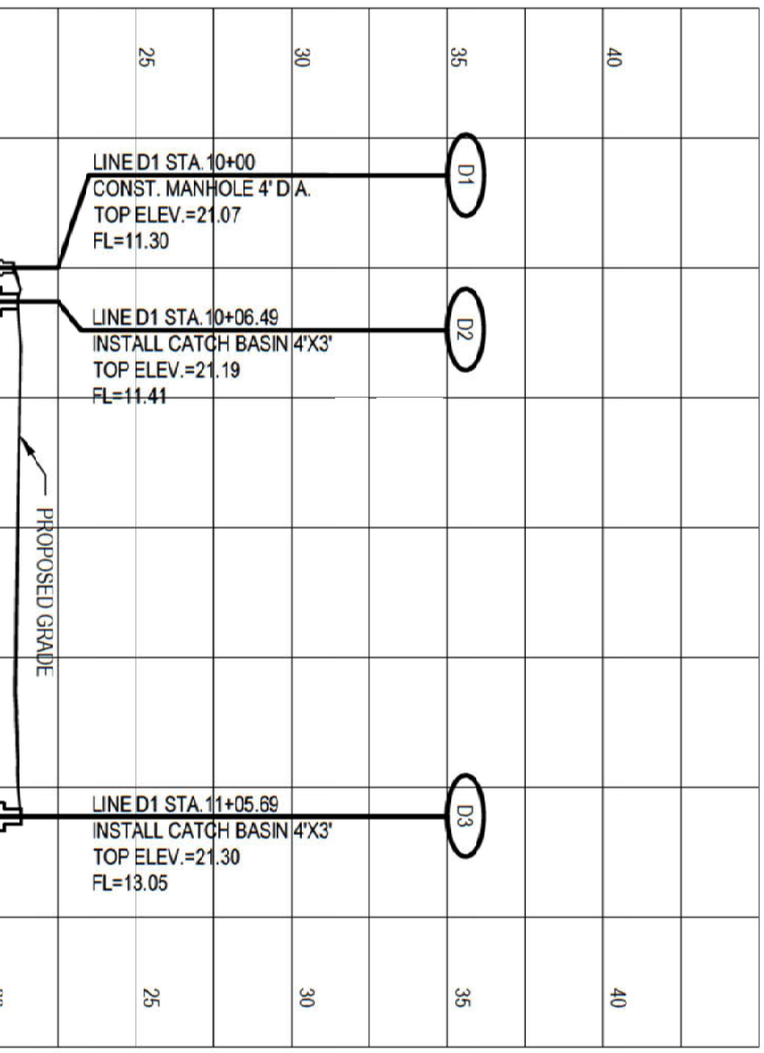
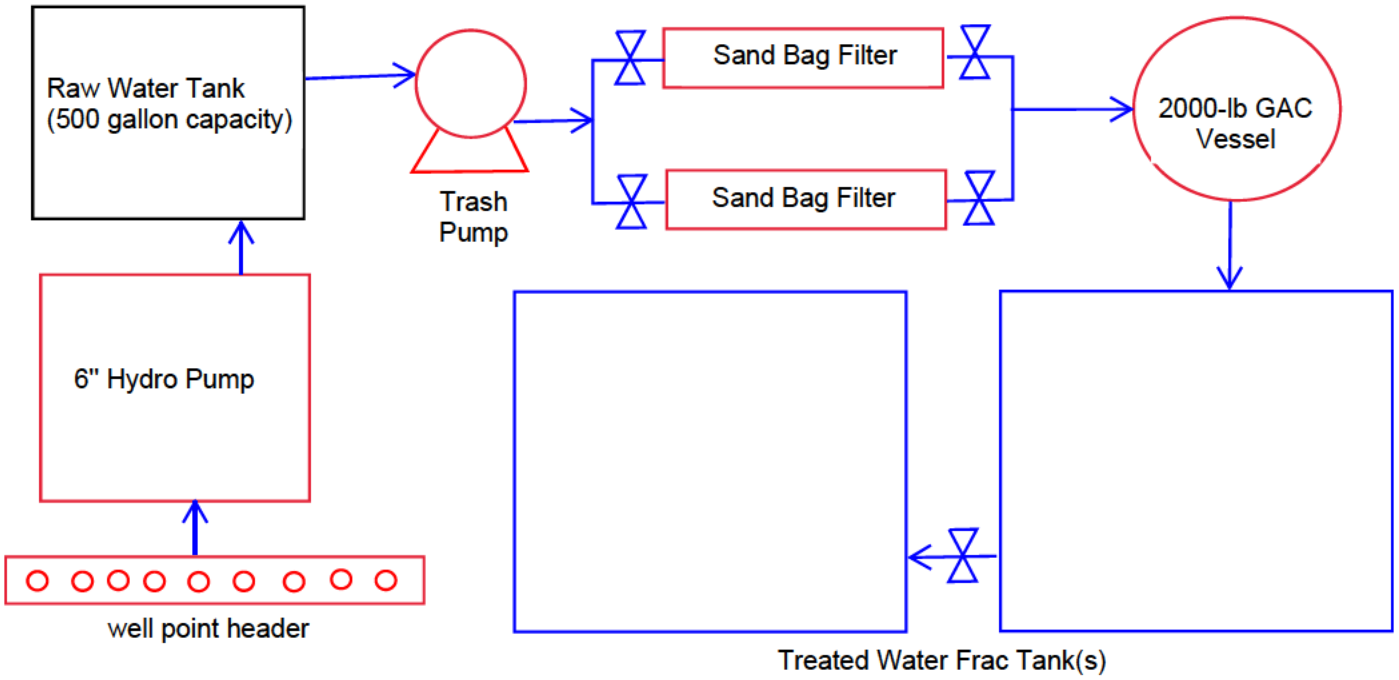
Line #	St
L1	S E N

U	
Line #	St
L2	E N

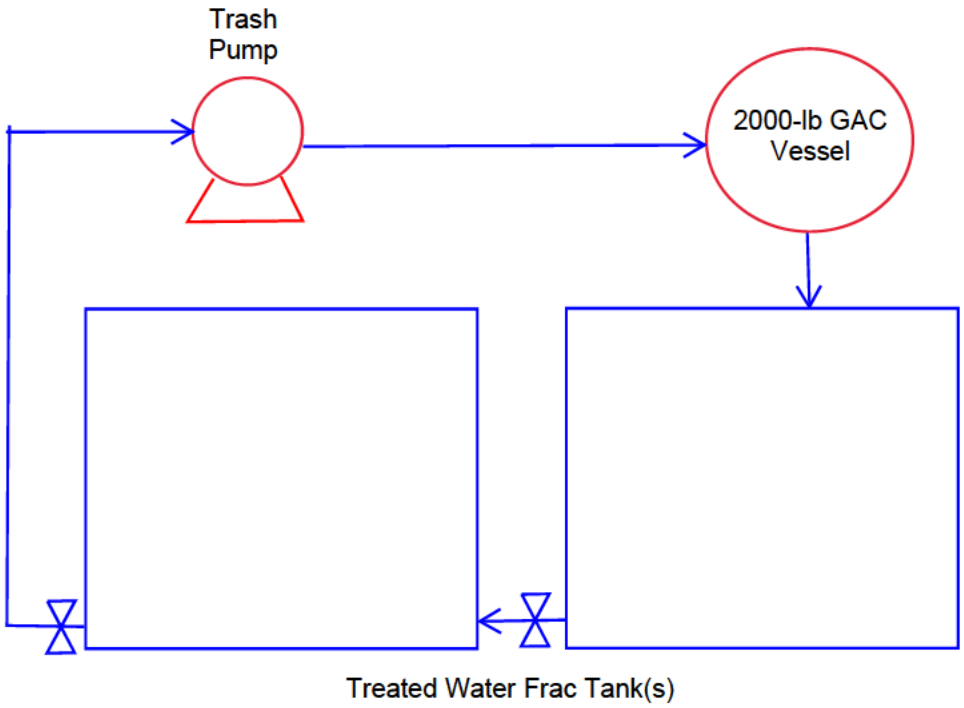

25
30
35
40
LINE D1 STA. 10+00
CONST. MANHOLE 4' D.A.
TOP ELEV.=21.07
FL=11.30
D1
LINE D1 STA. 10+06.49
INSTALL CATCH BASIN 4'X3'
TOP ELEV.=21.19
FL=11.41
D2
PROPOSED GRADE
LINE D1 STA. 11+05.69
INSTALL CATCH BASIN 4'X3'
TOP ELEV.=21.30
FL=13.05
D3
25
30
35
40

Appendix I

Dewatering PID



EQUIPMENT SETUP DURING DEWATERING



EQUIPMENT SETUP DURING RECIRCULATION

Appendix J

Filtration Calculations

Prepared By

[redacted]

Prepared For
5 GPM
Rental Pump Parts

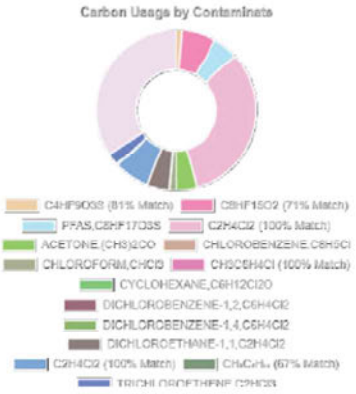
[redacted]

Powered By:

PREDICT ENVIRONMENTAL SOFTWARE
A.I., Digital Lab, & Computer Modeling

Project Conditions	
Type of Modeling	Liquid Phase Activated Carbon Modeling
Flow Rate (GPM)	5
Temperature	N/A
Relative Humidity	N/A
Type of Media	Virgin Carbon
Vessel Diameter	N/A
Media Bed Depth	N/A
Media Mesh Size	N/A

Contaminates	Concentrations
*C4HF9O3S (81% Match)	3.3 PPB
*C8HF15O2 (71% Match)	74 PPB
PFAS,C8HF17O3S	42 PPB
*C2H4Cl2 (100% Match)	750 PPB
ACETONE,(CH3)2CO	10 PPB
CHLOROBENZENE,C6H5Cl	3.2 PPB
CHLOROFORM,CHCl3	.80 PPB
*CH3C6H4Cl (100% Match)	3 PPB
CYCLOHEXANE,C6H12Cl2O	1.2 PPB
DICHLOROBENZENE-1,2,C6H4Cl2	4.7 PPB
DICHLOROBENZENE-1,4,C6H4Cl2	.8 PPB
DICHLOROETHANE-1,1,C2H4Cl2	8.4 PPB
*C2H4Cl2 (100% Match)	25.8 PPB
*$CH_3C_6H_{11}$ (67% Match)	1.1 PPB
TRICHLOROETHENE,C2HCl3	220 PPB
VINYL CHLORIDE,C2H3Cl	6 PPB



Summary of Modeling:

Lbs of Carbon Saturated per 24 Hours: 46.07
Lbs of Carbon Saturated per 24 Hours With TOC Background: 64.54

* This chemical was modeled using the artificial intelligence of Predict, with estimated percent accuracy indicated in parentheses. The accuracy, completeness, correctness, and validity of this information is provided on an as-is basis.

Event #1

TPH concentration:	95	ug/L
	7.93E-07	lbs/gal
Flow Rate	2000	gallons/day
	1.4	gpm
TRPH Loading Rate	0.00159	lbs/day
Spent Carbon from TRPH	0.01585	lbs/day
Spent Carbon from PFAS and solvents @ 5 gpm	64.54	lbs/day
Number of days	7	
GAC spent from TRPH	0.111	lbs
GAC spent from PFAS and solvents	125.5	lbs

Event #2

TPH concentration:	95	ug/L
	7.93E-07	lbs/gal
Flow Rate	5000	gallons/day
	3.5	gpm
TRPH Loading Rate	0.00396	lbs/day
Spent Carbon from TRPH	0.03964	lbs/day
Spent Carbon from PFAS and solvents @ 5 gpm	64.54	lbs/day
Number of days	8	
GAC spent from TRPH	0.317	lbs
GAC spent from PFAS and solvents	358.6	lbs

Total GAC spent from PFAS, solvents, and TRPH 484.5 pounds

SWORN STATEMENT

For use of this form, see AR 190-45; the proponent agency is PMG.

PRIVACY ACT STATEMENT

AUTHORITY: Title 10, USC Section 301; Title 5, USC Section 2951; E.O. 9397 Social Security Number (SSN).

PRINCIPAL PURPOSE: To document potential criminal activity involving the U.S. Army, and to allow Army officials to maintain discipline, law and order through investigation of complaints and incidents.

ROUTINE USES: Information provided may be further disclosed to federal, state, local, and foreign government law enforcement agencies, prosecutors, courts, child protective services, victims, witnesses, the Department of Veterans Affairs, and the Office of Personnel Management. Information provided may be used for determinations regarding judicial or non-judicial punishment, other administrative disciplinary actions, security clearances, recruitment, retention, placement, and other personnel actions.

DISCLOSURE: Disclosure of your SSN and other information is voluntary.

1. LOCATION	2. DATE *(YYYYMMDD)*	3. TIME	4. FILE NUMBER
Tyndall AFB USACE AO	5/29/2024	0930-1345	

5. LAST NAME, FIRST NAME, MIDDLE NAME	6. SSN	7. GRADE/STATUS
[redacted]		[redacted]

8. ORGANIZATION OR ADDRESS
USACE - MOBILE DISTRICT

9. I, [redacted], WANT TO MAKE THE [redacted]

10. EXHIBIT	11. INITIALS OF PERSON MAKING STATEMENT	Page 1 of 3
DA1	[redacted]	

ADDITIONAL PAGES MUST CONTAIN THE HEADING "STATEMENT OF_____ TAKEN AT _____ DATED _____

THE BOTTOM OF EACH ADDITIONAL PAGE MUST BEAR THE INITIALS OF THE PERSON MAKING THE STATEMENT, AND PAGE NUMBER MUST BE INDICATED.

USE THIS PAGE IF NEEDED. IF THIS PAGE IS NOT NEEDED, PLEASE PROCEED TO FINAL PAGE OF THIS FORM.

STATEMENT OF [redacted] TAKEN AT Tyndall AFB AO DATED 5/29/2024

9. STATEMENT *(Continued)*

[redacted]

INITIALS OF PERSON MAKING STATEMENT [redacted]

STATEMENT O [redacted] TAKEN AT TYNDALL AFB FL DATED 5/29/2024

AFFIDAVIT

I, [redacted], HAVE READ OR HAVE HAD READ TO ME THIS STATEMENT WHICH BEGINS ON PAGE 1, AND ENDS ON PAGE 3 . I FULLY UNDERSTAND THE CONTENTS OF THE ENTIRE STATEMENT MADE BY ME. THE STATEMENT IS TRUE. I HAVE INITIALED ALL CORRECTIONS AND HAVE INITIALED THE BOTTOM OF EACH PAGE CONTAINING THE STATEMENT. I HAVE MADE THIS STATEMENT FREELY WITHOUT HOPE OF BENEFIT OR REWARD, WITHOUT THREAT OF PUNISHMENT, AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT.

[redacted]

(Signature of Person Making Statement)

WITNESSES:

Subscribed and sworn to before me, a person authorized by law to administer oaths, this 29 day of MAY, 2024 at TYNDALL AFB FL.

ORGANIZATION OR ADDRESS

(Signature of Person Administering Oath)

[redacted]

(Typed Name of Person Administering Oath)

ORGANIZATION OR ADDRESS

5 USC 303

(Authority To Administer Oaths)

SWORN STATEMENT

For use of this form, see AR 190-45; the proponent agency is PMG.

PRIVACY ACT STATEMENT

AUTHORITY:	Title 10, USC Section 301; Title 5, USC Section 2951; E.O. 9397 Social Security Number (SSN).
PRINCIPAL PURPOSE:	To document potential criminal activity involving the U.S. Army, and to allow Army officials to maintain discipline, law and order through investigation of complaints and incidents.
ROUTINE USES:	Information provided may be further disclosed to federal, state, local, and foreign government law enforcement agencies, prosecutors, courts, child protective services, victims, witnesses, the Department of Veterans Affairs, and the Office of Personnel Management. Information provided may be used for determinations regarding judicial or non-judicial punishment, other administrative disciplinary actions, security clearances, recruitment, retention, placement, and other personnel actions.
DISCLOSURE:	Disclosure of your SSN and other information is voluntary.

1. LOCATION	2. DATE *(YYYYMMDD)*	3. TIME	4. FILE NUMBER
Virtual	20240620	1015	

5. LAST NAME, FIRST NAME, MIDDLE NAME	6. SSN	7. GRADE/STATUS
[redacted]		[redacted]

8. ORGANIZATION OR ADDRESS
USAF [redacted]

9. I, [redacted], WANT TO MAKE THE FOLLOWING STATEMENT UNDER OATH:

[redacted]

See next page.

10. EXHIBIT	11. INITIALS OF PERSON MAKING STATEMENT	
	[redacted]	Page 1 of 3

ADDITIONAL PAGES MUST CONTAIN THE HEADING "STATEMENT OF_____ TAKEN AT _____ DATED _____

THE BOTTOM OF EACH ADDITIONAL PAGE MUST BEAR THE INITIALS OF THE PERSON MAKING THE STATEMENT, AND PAGE NUMBER MUST BE INDICATED.

USE THIS PAGE IF NEEDED. IF THIS PAGE IS NOT NEEDED, PLEASE PROCEED TO FINAL PAGE OF THIS FORM.

STATEMENT OF [redacted] TAKEN AT Virtual DATED 20240620

9. STATEMENT *(Continued)*

[redacted]

INITIALS OF PERSON MAKING STATEMENT [redacted]

STATEMENT OF [redacted] TAKEN AT Virtual DATED 20240620

AFFIDAVIT

I, [redacted], HAVE READ OR HAVE HAD READ TO ME THIS STATEMENT WHICH BEGINS ON PAGE 1, AND ENDS ON PAGE 3 . I FULLY UNDERSTAND THE CONTENTS OF THE ENTIRE STATEMENT MADE BY ME. THE STATEMENT IS TRUE. I HAVE INITIALED ALL CORRECTIONS AND HAVE INITIALED THE BOTTOM OF EACH PAGE CONTAINING THE STATEMENT. I HAVE MADE THIS STATEMENT FREELY WITHOUT HOPE OF BENEFIT OR REWARD, WITHOUT THREAT OF PUNISHMENT, AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT.

[redacted]

(Signature of Person Making Statement)

WITNESSES:

ORGANIZATION OR ADDRESS

ORGANIZATION OR ADDRESS

Subscribed and sworn to before me, a person authorized by law to administer oaths, this 20 day of June , 2024 at Virtual .

[redacted]

(Signature of Person Administering Oath)

[redacted]

(Typed Name of Person Administering Oath)

5 USC 303

(Authority To Administer Oaths)

MEMORANDUM FOR RECORD

SUBJECT: Tyndall AFB MILCON Rebuild and Installation Restoration Program (IRP) Sites

1. Tyndall AFB (TAFB) is undergoing a rebuild due to destruction from Hurricane Michael in October 2018. Currently, 120 new facilities are projected to be built over the next five years. The cost of this TAFB MILCON Rebuild effort is estimated at $2.96 billion. National Defense is the reason to complete this rebuild. Current estimates show the Rebuild effort will be completed by August 2026.

2. TAFB MILCON Rebuild work will be conducted in 12 Zones (Tab 2). These Zones are located all over the base including north and south of Hwy 98. Relevant Installation Restoration Program site documents will be provided to contractors as a record to identify depth to water and the possible contaminants that may be encountered in specific work locations. Each contractor is required to submit a Rebuild Work Plan to be approved by the U.S Army Corps of Engineers (USACE) and the Air Force (AF) before work can begin.

3. Based on the boundaries of the Zones, 29 IRP and per- and polyfluoroalkyl substances (PFAS) sites will be affected to some degree by the MILCON Rebuild activities (Tab 3). Rebuild activities will cause the cutting of soil and dewatering of groundwater to complete certain construction tasks. The estimated total excess of soil from cutting activities is 1.1 million cubic yards (cy). The estimated total recovered water from dewatering activities is estimated to be 167 million gallons.

4. IRP and PFAS Sites in Zones 1, 2, 4, and 6 will be impacted from MILCON Rebuild activities. The Contractor may encounter contaminated soil and/or groundwater during construction activities. Contractors will be provided with Contaminants of Concern (COCs) documented to date at IRP Sites and soil and groundwater sampling results for PFAS conducted at Tyndall AFB, including in areas along the flight line.

5. The TAFB MILCON Rebuild Soil Management Memorandum for Record (Tab 4) directs the management of excavated soil to be held on base, except if it is determined to be a hazardous waste and/or exceeds the agreed upon AF PFOS/PFOA soil screening criteria of 1.3 mg/kg. Based on this MFR, most, if not all, of the excess soil will be held on the base until sometime in the future when the AF can determine its ultimate/final off-base disposal location and/or on-base fill location. Soil that is to remain on the base will be directed to its designated soil borrow storage area (Tab 5) and placed in appropriate piles.

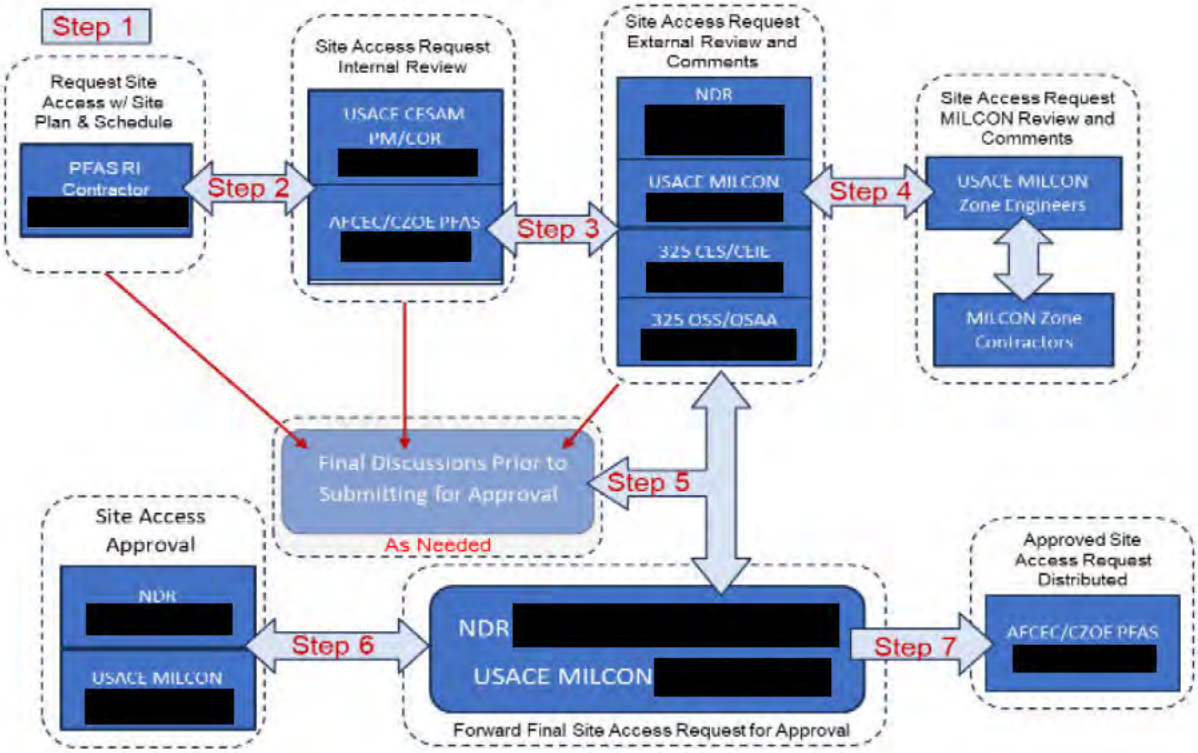
6. Contractor will provide a Completion Report within 14 calendar days of completing work at the site. The final report will be provided to the Tyndall AFB IRP staff for distribution to the applicable regulatory agencies. As part of the Completion Report, environmental samples may be collected and analyzed from in-situ locations and from stored media. Additional samples from soil coming from CERCLA/IRP sites that is now stored in a Soil Storage Site must be collected and analyzed if it is to be removed from these Sites for fill material or for off-base disposal.

7. Flightline sites, and other construction Zone sites, will need confirmatory sampling completed following the completion of MILCON Rebuild activities. Conducting confirmatory sampling at sites heavily affected by the MILCON Rebuild activities will be instrumental, and the site's conceptual site model (CSM) will be re-established to determine the best course of action following the end of the Rebuild activities (Tab 6).

[redacted]
Chief, Eglin Installation Support Section
Air Force Civil Engineer Center

Per- and Polyfluoroalkyl (PFAS) Remedial Investigation (RI)

PFAS Site Access Request Coordination - Within MILCON zones



Step 1 – Tetra Tech, PFAS RI contractor, to develop request to include:

- Site and sample point locations
- Equipment and personal needed
- Tasks to be completed
- Proposed date(s) & duration of access

Step 2 – Tetra Tech to submit Access Request Plan to USACE CESAM PM/COR and AFCEC/CZOE for review/comment

- Tetra Tech to provide response to comments and submit revised request

Step 3 – AFCEC/CZOE to submit Access Request Plan to NDR, USACE MILCON, 325 CES/CEIE, and 325 OSS/OSAA for review/comment

- Comments sent back to AFCEC/CZOE, as needed
- Tetra Tech to provide response to comments, as needed
- AFCEC/CZOE to submit revised request to NDR, USACE MILCON, 325 CES/CEIE, and 325 OSS/OSAA for concurrence

Step 4 – NDR to submit Access Request Plan to USACE MILCON Zone Engineer and Contractor for review/comment

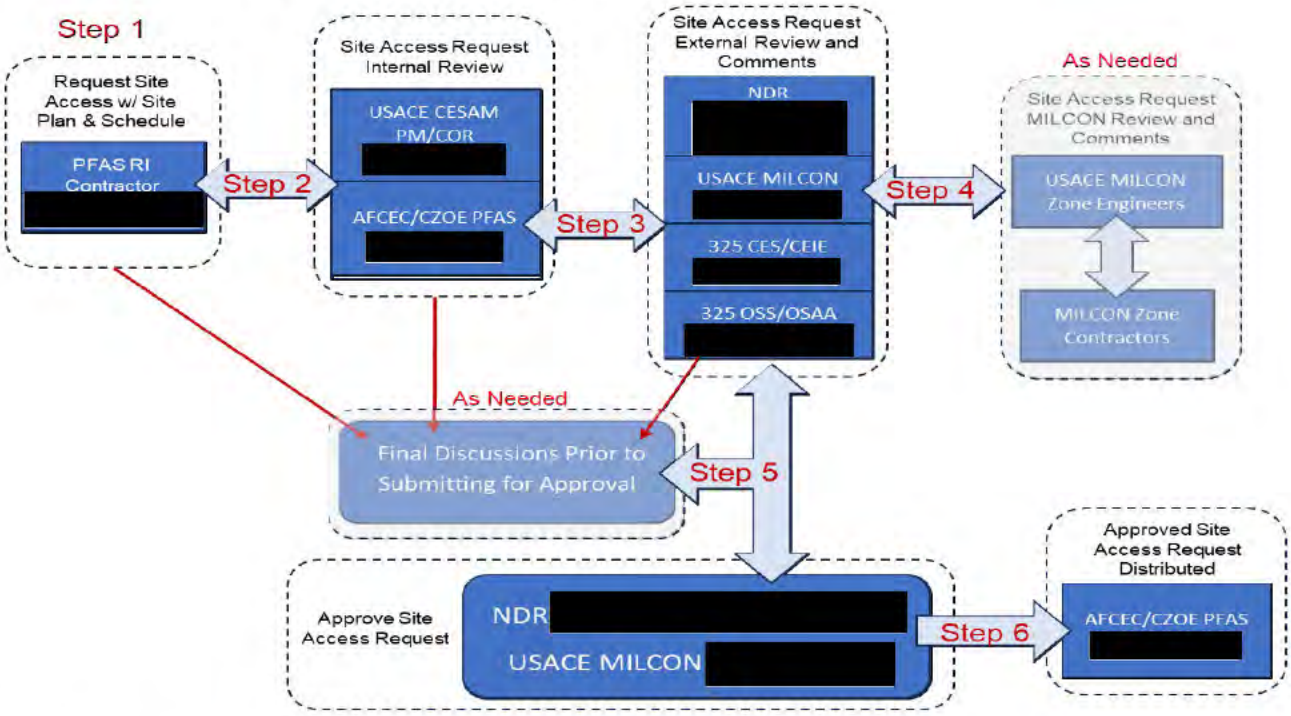
- Comments sent back to AFCEC/CZOE via NDR, as needed
- Tetra Tech to provide response to comments, as needed
- AFCEC/CZOE to submit revised request back to NDR for concurrence

Step 5 (As Needed) – Meeting (virtual or face-face) to discuss Final Site Access Request before summitting for approval; if not, proceed to Step 6

Step 6 – NDR [redacted] and USACE MILCON [redacted] to submit Site Access Request to NDR [redacted] and USACE MILCON [redacted] for approval

Step 7 - NDR [redacted] e-mail approval to NDR [redacted] and USACE MILCON [redacted] who will in-turn email approval to AFCEC/CZOE [redacted]

PFAS Site Access Request Coordination - Outside MILCON zones



Step 1 – Tetra Tech, PFAS RI contractor to develop request to include:

- Site and sample point locations
- Equipment and personal needed
- Tasks to be completed
- Proposed date(s) & Duration of access

Step 2 – Tetra Tech to submit Access Request Plan to USACE CESAM PM/COR and AFCEC/CZOE for review/comment

- Tetra Tech to provide response to comments/submit revised request

Step 3 – AFCEC/CZOE to submit Access Request Plan to NDR, USACE MILCON, 325 CES/CEIE, and 325 OSS/OSAA for review/comment

- Comments sent back to AFCEC/CZOE, as needed
- Tetra Tech to provide response to comments, as needed
- AFCEC/CZOE to submit revised request back to NDR, USACE MILCON, 325 CES/CEIE, and 325 OSS/OSAA for concurrence

Step 4 (As Needed) – NDR to coordinate with USACE MILCON Zone Engineer and Contractor to determine if there is any conflicts with allowing PFAS RI work

Step 5 (As Needed) – Meeting (virtual or face-face) to discuss Final Site Access Request before summitting for approval; if not, proceed to Step 6

Step 6 – NDR [redacted] and USACE MILCON [redacted] approves request

- NDR [redacted] and USACE MILCON [redacted] will email approval to AFCEC/CZOE [redacted]

All Submissions, Review Comments, and Approvals will be by E-mail correspondence unless a face-to-face meeting is requested. All communications/activities will go through NDR.

From: [redacted] (USA)
To: [redacted] (USA)
Subject: FW: SS042P (AFFF Area 5) - Zone 1 Proposed Boring Locations
Date: Thursday, June 6, 2024 3:55:39 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
AFFF5_Proposed_Sample_Locs_03112024.pdf
20240416_Zone 1_Site Layout_Proposed Boring Areas Marked.pdf

I'll send you some emails from Tetra Tech, they are the AFFF Sampling KTR, let me know if these emails satisfy the last bullet

[redacted]
USACE Environmental Specialist
Tyndall Air Force Base
[redacted]

From: [redacted]
Sent: Monday, April 22, 2024 4:39 PM
To: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZO [redacted]; [redacted] USARMY (USA) [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted]
Subject: [Non-DoD Source] SS042P (AFFF Area 5) - Zone 1 Proposed Boring Locations

[redacted]

Based on the observations from the site walks last week and review of the proposed sampling locations, I do not anticipate any significant changes to the originally proposed sampling locations.

As discussed, site walks will be conducted with the Zone 1 subcontractors in advance of any sampling activities to select sampling locations based on site conditions at that time.

Thanks,

[redacted] | Operations Manager | Sr. Project Manager
[redacted]

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107 Saint Francis Street, Suite 2370, Mobile, Alabama 36602
www.tetratech.com | NASDAQ:TTEK

From: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Sent: Wednesday, April 17, 2024 9:52 AM
To: [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZO [redacted]; [redacted] (USA) [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/CZRE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech - Zone 1 Site Layout Figure with Proposed Boring Areas Marked

[redacted].

[redacted] has provided the Site Layout Map of Zone 1. The red circles on the Map indicate the areas that we discussed yesterday that are available to us for DPT boring locations.

Please provide me and Joe a short narrative and figure outlining your request for access to complete DPT soil and groundwater sampling in Zone 1 based on this Map and yesterday's access discussion. Please include the dates you expect to submit the AF103s/Dig Permits and when to begin/complete this work (timeline for MILCON Zone 1 activities).

Respectfully,

//Signed//

[redacted]
Alternate Eglin ISS Restoration Program Manager
Eglin Installation Support Section Air Force Engineer Center
Tyndall AFB
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 9:00 AM
To: [redacted]
Cc: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech

Map of Zone 1 to use for your sampling figures and your dig permit request, thanks

[redacted]
USACE Environmental Specialist
Tyndall Air Force Base
[redacted]
[redacted]

From: [redacted]
Sent: Wednesday, April 17, 2024 7:46 AM
To: [redacted] USARMY (USA) [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]
Subject: [Non-DoD Source] RE: [EXT] Yesterday's meeting with TetraTech

[redacted]

Attached is the map of Zone 1. The red circles indicate the areas that we discussed yesterday for testing. Please let me know if you have any questions.

Thanks,

[redacted]
Project Superintendent
Tyndall AFB Zone 1 F-35 Flightline Facilities
220 Minnesota Avenue
Tyndall Air Force Base, FL 32403
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 6:55 AM
To: [redacted]; [redacted]
Subject: [EXT] Yesterday's meeting with TetraTech

[External Email]
I want to thank you guys for meeting with the AFFF sampling folks yesterday. USACE also appreciates your cooperation in allowing TetraTech to enter into your sites to perform the sampling. Both Contractors could have easily said no, and USACE would have supported that, but your cooperation does foster some goodwill with the AF. Anyway, that said, you both offered up some drawings that show the building footprints in your respective Zones. If you could provide these asap, it would be greatly appreciated. They will use these drawings to show AFCEC NDR what the plan is, and get final approval to get moving, they will also use these drawings to get dig permits, thanks again

[redacted]
USACE Environmental Specialist
Tyndall Air Force Base
[redacted]
[redacted]

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To: [redacted] (USA)
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I'll send you some emails from Tetra Tech, they are the AFFF Sampling KTR, let me know if these emails satisfy the last bullet

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USACE Environmental Specialist
Tyndall Air Force Base
[redacted]

From: [redacted]
Sent: Monday, April 22, 2024 4:39 PM
To: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZO [redacted]; [redacted] USARMY (USA) [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted]
Subject: [Non-DoD Source] SS042P (AFFF Area 5) - Zone 1 Proposed Boring Locations

[redacted]

Based on the observations from the site walks last week and review of the proposed sampling locations, I do not anticipate any significant changes to the originally proposed sampling locations.

As discussed, site walks will be conducted with the Zone 1 subcontractors in advance of any sampling activities to select sampling locations based on site conditions at that time.

Thanks,

[redacted] | Operations Manager | Sr. Project Manager
[redacted]

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107 Saint Francis Street, Suite 2370, Mobile, Alabama 36602
www.tetratech.com | NASDAQ:TTEK

From: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Sent: Wednesday, April 17, 2024 9:52 AM
To: [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZO [redacted]; [redacted] (USA) [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/CZRE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech - Zone 1 Site Layout Figure with Proposed Boring Areas Marked

[redacted].

[redacted] has provided the Site Layout Map of Zone 1. The red circles on the Map indicate the areas that we discussed yesterday that are available to us for DPT boring locations.

Please provide me and Joe a short narrative and figure outlining your request for access to complete DPT soil and groundwater sampling in Zone 1 based on this Map and yesterday's access discussion. Please include the dates you expect to submit the AF103s/Dig Permits and when to begin/complete this work (timeline for MILCON Zone 1 activities).

Respectfully,

//Signed//

[redacted]
Alternate Eglin ISS Restoration Program Manager
Eglin Installation Support Section Air Force Engineer Center
Tyndall AFB
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 9:00 AM
To: [redacted]
Cc: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech

Map of Zone 1 to use for your sampling figures and your dig permit request, thanks

[redacted]
USACE Environmental Specialist
Tyndall Air Force Base
[redacted]
[redacted]

From: [redacted]
Sent: Wednesday, April 17, 2024 7:46 AM
To: [redacted] USARMY (USA) [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]
Subject: [Non-DoD Source] RE: [EXT] Yesterday's meeting with TetraTech

[redacted]

Attached is the map of Zone 1. The red circles indicate the areas that we discussed yesterday for testing. Please let me know if you have any questions.

Thanks,

[redacted]
Project Superintendent
Tyndall AFB Zone 1 F-35 Flightline Facilities
220 Minnesota Avenue
Tyndall Air Force Base, FL 32403
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 6:55 AM
To: [redacted]; [redacted]
Subject: [EXT] Yesterday's meeting with TetraTech

[External Email]
I want to thank you guys for meeting with the AFFF sampling folks yesterday. USACE also appreciates your cooperation in allowing TetraTech to enter into your sites to perform the sampling. Both Contractors could have easily said no, and USACE would have supported that, but your cooperation does foster some goodwill with the AF. Anyway, that said, you both offered up some drawings that show the building footprints in your respective Zones. If you could provide these asap, it would be greatly appreciated. They will use these drawings to show AFCEC NDR what the plan is, and get final approval to get moving, they will also use these drawings to get dig permits, thanks again

[redacted]
USACE Environmental Specialist
Tyndall Air Force Base
[redacted]
[redacted]

[redacted]

Proposed Sample ID

[redacted]

Legend

- Proposed Sample Locations
- MILCON PFAS RI Site Boundary
- Tyndall Air Force Base Boundary
- MILCON Zone Boundary
- Zone 4

Notes:

- Proposed sample locations will be cleared to 4 feet below ground surface with a stainless-steel hand auger immediately before DPT soil boring advancement.

- Coordinate System: NAD 1983 (2011) StatePlane Florida North FIPS 0903 (US Feet)

- **All proposed sampling locations can be moved based on site conditions.**

[redacted]

N

0 75 150 300 Feet

Proposed Sample Locations

[redacted]

Prepared By: TETRA TECH

Date: 3/15/2024

Phase I PFAS Remedial Investigation
Tyndall Air Force Base
Panama City, Florida

Aerial Source: National Oceanic and Atmosperheric Administration (NOAA)
Aerial Date: 2023

Document Path: E:\Hampton\Roads\GIS_CADD\GIS_Files\Tyndall\AFB\GIS\MXD\FIGURES\UFP-QAPP\Figure_8_AFFF19_Hwy98FA_Results_and_Proposed_Locs.mxd

From: [redacted]
To: [redacted]
Subject: FW: FT017P-Sub (AFFF Area 13) - Zone 4 Proposed Sampling Locations
Date: Thursday, June 6, 2024 3:55:55 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
AFFF13_Hwy98FTA_Proposed_Locs_03152024.pdf

From: [redacted]
Sent: Monday, April 22, 2024 4:44 PM
To: [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] AFMC AFCEC/CZO [redacted]; [redacted] USARMY (USA) [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted]
Subject: [Non-DoD Source] FT017P-Sub (AFFF Area 13) - Zone 4 Proposed Sampling Locations

[redacted],

Based on the observations from the site walks last week and review of the proposed sampling locations, the construction activities currently ongoing at this site will not change any of our originally proposed sampling locations. The infiltration galleries are located in between proposed sampling transects.

As discussed, site walks will be conducted with the Zone 4 subcontractors in advance of any sampling activities to select sampling locations based on site conditions at that time.

Thanks,

[redacted] | Operations Manager | Sr. Project Manager
[redacted]

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107 Saint Francis Street, Suite 2370, Mobile, Alabama 36602
www.tetratech.com | NASDAQ:TTEK

From: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Sent: Wednesday, April 17, 2024 9:52 AM

To: [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZO [redacted]; [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/CZRE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech - Zone 1 Site Layout Figure with Proposed Boring Areas Marked

[redacted].

[redacted] has provided the Site Layout Map of Zone 1. The red circles on the Map indicate the areas that we discussed yesterday that are available to us for DPT boring locations.

Please provide [redacted] a short narrative and figure outlining your request for access to complete DPT soil and groundwater sampling in Zone 1 based on this Map and yesterday's access discussion. Please include the dates you expect to submit the AF103s/Dig Permits and when to begin/complete this work (timeline for MILCON Zone 1 activities).

Respectfully,

//Signed//

[redacted]
Alternate Eglin ISS Restoration Program Manager
Eglin Installation Support Section Air Force Engineer Center
Tyndall AFB
[redacted]
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 9:00 AM
To: [redacted]
Cc: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech

Map of Zone 1 to use for your sampling figures and your dig permit request, thanks

[redacted]

USACE Environmental Specialist
Tyndall Air Force Base
[redacted]

From: [redacted]
Sent: Wednesday, April 17, 2024 7:46 AM
To: [redacted] USARMY (USA) [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]
Subject: [Non-DoD Source] RE: [EXT] Yesterday's meeting with TetraTech

[redacted]

Attached is the map of Zone 1. The red circles indicate the areas that we discussed yesterday for testing. Please let me know if you have any questions.

Thanks,

[redacted]
Project Superintendent
Tyndall AFB Zone 1 F-35 Flightline Facilities
220 Minnesota Avenue
Tyndall Air Force Base, FL 32403
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 6:55 AM
To: [redacted]
Subject: [EXT] Yesterday's meeting with TetraTech

[External Email]
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appreciates your cooperation in allowing TetraTech to enter into your sites to perform the sampling. Both Contractors could have easily said no, and USACE would have supported that, but your cooperation does foster some goodwill with the AF. Anyway, that said, you both offered up some drawings that show the building footprints in your respective Zones. If you could provide these asap, it would be greatly appreciated. They will use these drawings to show AFCEC NDR what the plan is, and get final approval to get moving, they will also use these drawings to get dig permits, thanks again

[redacted]
USACE Environmental Specialist
Tyndall Air Force Base
[redacted]
[redacted]

[redacted]

Legend

- Proposed Sample Location
- Proposed Building
- MILCON PFAS RI Site Boundary
- Tyndall Air Force Base Boundary

MILCON Zone Boundary

- Zone 2
- Zone 4

Notes:

- Proposed sample locations will be cleared to 4 feet below ground surface with a stainless-steel hand auger immediately before DPT soil boring advancement.

- Coordinate System: NAD 1983 (2011) StatePlane Florida North FIPS 0903 (US Feet)

- **All proposed sampling locations can be moved based on site conditions.**

[redacted]

N

Feet

0 62.5 125 250

Proposed Sample ID	Northing	Easting
[redacted]		

Proposed Sample Locations

[redacted]

Prepared By: TETRA TECH

Date: 4/23/2024

Phase I PFAS Remedial Investigation
Tyndall Air Force Base
Panama City, Florida

Aerial Source: National Agriculture Imagery Program (NAIP) Aerial Date: 2023

Document Path: W:\GIS_CAD\GIS_Files\Tyndall\AFB\GIS\APRX\UFP-QAPP\Proposed_Sample_Locations_03052024 - TC.aprx

0 75 150 300 Feet

N

Legend

- Data from Pilot Test Conducted on 9/29/2023
- JMT Sampling Conducted from March 21 to March 22
- PFAS 70 ng/L Concentration Contour
- Proposed Buildings
- Fence
- Proposed Stormwater Excavation - Requires Dewatering
- Proposed Stromwater Excavation - Does Not Require Dewatering
- 500 Ft Buffer Zone to AFFF Area 1
- OW217 IRP Boundary
- Dewatering Locations
- Approximate Location of Infiltration Basin

19 British American Blvd. W, Latham NY 12110
F: 513-782-0882| F: 518-782-0973| JMT.com

PFAS IN GROUNDWATER AND PROPOSED EXCAVATION AREAS

UNITED STATES AIR FORCE

ZONE 2 OSS RADAR FACILITY AND FIRE & MATERIAL HANDLING EQUIPMENT VEHICLE MAINTENENCE FACILITY

TYNDALL AFB BAY COUNTY, FL

PROJ. NO: 21-04221	DATE: 02/29/2024	SCALE: 1 IN = 150 FT	DWG NO. -	FIGURE: 2

From: [redacted] (USA)
To: [redacted] (USA)
Subject: FW: SS041P (AFFF Area 1) - Zone 2 Proposed Sampling Locations
Date: Thursday, June 6, 2024 3:56:21 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png
AFFF1_Proposed_Sample_Locs_04232024.pdf
20240417_Zone 2_Site Layout_Figure 2_OSS-1.pdf

All these requests for sampling in Zones 1, 2 and 4 were accommodated and completed

---

From: [redacted]
Sent: Tuesday, April 23, 2024 10:38 AM
To: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZO [redacted]; [redacted] USARMY (USA) [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted]
Subject: [Non-DoD Source] SS041P (AFFF Area 1) - Zone 2 Proposed Sampling Locations

[redacted]

Based on the observations from the site walks last week and review of the provided site plan, we added the footprint of the new fire station and adjusted our proposed sampling locations accordingly.

As discussed, site walks will be conducted with the Zone 2 subcontractors in advance of any sampling activities to select sampling locations based on site conditions at that time.

Thanks,

[redacted] | Operations Manager | Sr. Project Manager
[redacted]

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107 Saint Francis Street, Suite 2370, Mobile, Alabama 36602
www.tetratech.com | NASDAQ:TTEK

From: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Sent: Wednesday, April 17, 2024 9:52 AM

To: [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]; [redacted] USARMY CESAM (USA) [redacted]; [redacted] USAF AFMC AFCEC/CZOE [redacted] USAF AFMC AFCEC/CZOE [redacted]; [redacted] USAF AFMC AFCEC/CZO [redacted]; [redacted] (USA) [redacted]; [redacted] AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/PMO [redacted]; [redacted] USAF AFMC AFCEC/CZRE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech - Zone 1 Site Layout Figure with Proposed Boring Areas Marked

[redacted]

[redacted] has provided the Site Layout Map of Zone 1. The red circles on the Map indicate the areas that we discussed yesterday that are available to us for DPT boring locations.

Please provide me and [redacted] a short narrative and figure outlining your request for access to complete DPT soil and groundwater sampling in Zone 1 based on this Map and yesterday's access discussion. Please include the dates you expect to submit the AF103s/Dig Permits and when to begin/complete this work (timeline for MILCON Zone 1 activities).

Respectfully,

//Signed//

[redacted]
Alternate Eglin ISS Restoration Program Manager
Eglin Installation Support Section Air Force Engineer Center
Tyndall AFB
[redacted]
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 9:00 AM
To: [redacted]
Cc: [redacted] USAF AFMC AFCEC/CZOE [redacted]
Subject: FW: [EXT] Yesterday's meeting with TetraTech

Map of Zone 1 to use for your sampling figures and your dig permit request, thanks

[redacted]

USACE Environmental Specialist
Tyndall Air Force Base
[redacted]

From: [redacted]
Sent: Wednesday, April 17, 2024 7:46 AM
To: [redacted] USARMY (USA) [redacted]
Cc: [redacted] USARMY CESAM (USA) [redacted]
Subject: [Non-DoD Source] RE: [EXT] Yesterday's meeting with TetraTech

[redacted]

Attached is the map of Zone 1. The red circles indicate the areas that we discussed yesterday for testing. Please let me know if you have any questions.

Thanks,

[redacted]
Project Superintendent
Tyndall AFB Zone 1 F-35 Flightline Facilities
220 Minnesota Avenue
Tyndall Air Force Base, FL 32403
[redacted]

From: [redacted] USARMY (USA) [redacted]
Sent: Wednesday, April 17, 2024 6:55 AM
To: [redacted]
Subject: [EXT] Yesterday's meeting with TetraTech

[External Email]
I want to thank you guys for meeting with the AFFF sampling folks yesterday. USACE also

appreciates your cooperation in allowing TetraTech to enter into your sites to perform the sampling. Both Contractors could have easily said no, and USACE would have supported that, but your cooperation does foster some goodwill with the AF. Anyway, that said, you both offered up some drawings that show the building footprints in your respective Zones. If you could provide these asap, it would be greatly appreciated. They will use these drawings to show AFCEC NDR what the plan is, and get final approval to get moving, they will also use these drawings to get dig permits, thanks again

[redacted]
USACE Environmental Specialist
Tyndall Air Force Base
[redacted]
[redacted]

AFFF Soil and Groundwater Sampling

Tyndall Air Force Base, Florida

February 2021

1 Introduction

Soil and groundwater samples were collected at Tyndall Air Force Base (AFB), Florida for the United States Corps of Engineers (USACE), Mobile District by Arcadis U.S., Inc. (Arcadis) under Indefinite Delivery Contract W91278-20-D-0022, for architect and engineering services, Delivery Order (DO) Number W9127820F0348. This sampling completion report provides detailed information on the execution of the field program for soil and groundwater sampling at multiple sites located at Tyndall AFB, Florida that may have been impacted by constituents of aqueous film-forming foam (AFFF). These constituents are collectively referred to as per- and polyfluoroalkyl substances (PFAS).

AFFF was developed in the mid-1960s in response to a need for firefighting foams better suited to extinguish Class B, fuel-based fires. AFFF formulations consist of water, an organic solvent, up to 5 percent (%) hydrocarbon surfactants, and 1 to 3% PFAS (Interstate Technology Regulatory Council 2020). AFFF concentrate is designed to be diluted with water to become a 1, 3, or 6% foam. AFFF releases at Department of Defense (DoD) facilities may have occurred during firefighter training, emergency response actions, equipment testing, or accidental releases. Perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS) are three PFAS compounds that are recognized by the United States Environmental Protection Agency (USEPA) as chemicals of emerging concern. In 2016, the USEPA established a lifetime health advisory of 70 nanograms per liter (ng/L) in drinking water for PFOS or PFOA and for the sum of PFOS and PFOA when both are present (USEPA 2016). In November 2018, the USEPA also issued draft subchronic and chronic oral toxicity values for PFBS for public comment. The new toxicity values for PFBS are intended to update the current PFBS toxicity values that were finalized in July 2014 (USEPA 2014). USEPA's finalization of the updated toxicity assessments for PFBS is pending.

On 15 October 2019, the Office of the Secretary of Defense (OSD) provided guidance on the investigation of PFOS, PFOA, and PFBS at DoD locations under the Defense Environmental Restoration Program (OSD 2019). The DoD guidance provides risk screening levels (RSLs) for PFOS, PFOA, and PFBS in groundwater (tap water) or soil, calculated using the USEPA's Regional Screening Level calculator for residential and industrial/commercial worker receptor scenarios.

The sampling event at Tyndall AFB was conducted in accordance with the addendum to the Arcadis *Generic Uniform Federal Policy - Quality Assurance Project Plan for the Fiscal Year 13 Performance-Based Remediation* (Generic UFP-QAPP, Jan 2016, Revision 1), prepared for Soil and Groundwater Sampling for Multiple AFFF Sites (QAPP Addendum; Arcadis 2020).

1.1 Purpose

The results of this sampling project will be used by others to estimate the need for, and cost of, treatment and/or disposal of soil and groundwater waste generated during construction in the areas where soil and groundwater samples were collected. The results will also be used by others to design waste management procedures to be implemented during construction in order to be compliant with State and Federal waste management regulations. The results are not intended for submittal to state or federal regulatory agencies, nor are the documents generated under this delivery order intended for use in a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) investigation.

1.2 Site Description

Tyndall AFB is located approximately 12 miles east of Panama City, Florida. Tyndall AFB encompasses approximately 29,000 acres along a narrow peninsula between Panama City, Florida and Mexico Beach, Florida. Tyndall AFB was originally designated as a gunnery school in 1941 and was re-designated as an Air Force Base in 1947. This sampling project focused on areas at Tyndall AFB that were potentially impacted by PFAS, which are constituents of AFFF. This includes nine AFFF sites identified during a previous Site Inspection (Aerostar SES, 2018) as well as areas where future construction is planned. A site location map showing the locations of the areas that were sampled on Tyndall AFB is provided as **Figure 1**.

1.3 Sources and Target Constituents

Sources of PFAS at Tyndall AFB include locations that either used AFFF in historical operations (i.e., fire training areas and Fire Station #1) or locations where AFFF was dispersed in response to an aircraft crash or fuel spill. The AFFF (PFAS) constituents of primary interest for this sampling event are PFOS, PFOA, and PFBS.

2 Site Investigation Summary

2.1 Existing Monitoring Well Evaluation

An evaluation of existing monitoring wells at the nine AFFF sites specified in the DO was conducted prior to preparation of a QAPP Addendum to determine which monitoring wells were available and suitable for groundwater sample collection. The results of the monitoring well evaluation were used to establish the number and locations of existing monitoring wells to be proposed for sampling in the QAPP Addendum. The monitoring well evaluation was provided in **Appendix A** of the QAPP Addendum.

2.2 QAPP Addendum Preparation and Sample Location Selection

To streamline review and approval of the QAPP Addendum, on 28 September 2020, figures showing proposed soil and groundwater sample locations for the nine AFFF sites as specified in the DO were submitted for review by the USAF and USACE. A total of 104 soil sample locations, 43 groundwater samples from existing wells, and 23 groundwater samples from temporary wells were proposed.

On 5 October 2020, while sample locations and numbers were being reviewed by the USAF, an abbreviated Version (V)1 QAPP Addendum, without sample locations and numbers, was submitted to USACE for initial review.

After discussion with the Tyndall AFB Program Management Office (PMO) and Environmental Restoration Program (ERP) personnel, on 6 October 2020, soil and groundwater sample locations were re-distributed from the original nine AFFF sites to include areas near the flightline intended for future construction. The total number of samples to be collected remained approximately the same as originally planned (86 soil sample locations, 46 groundwater samples from existing wells, and 17 groundwater samples from temporary wells). Relocation of the sample locations was approved by USAF and USACE on 9 October 2020.

On 13 October 2020, the abbreviated V1 QAPP was provided to Tyndall AFB PMO, Waste Management, and ERP personnel for review. Comments were received on 26 October 2020.

On 4 November 2020, to avoid schedule delays caused by access restrictions, seven groundwater samples from proposed temporary wells located at AFFF sites within the flightline were relocated to three existing wells and four new temporary wells within the construction areas adjacent to the flightline.

On 17 November 2020, the V2 QAPP Addendum, incorporating responses to comments and all revised sample locations, was submitted for approval. Because Appendix D (Waste Management Plan) of the QAPP Addendum referenced the rescinded USAF guidance document AFGM2020-32-02, AFFF-Related Wasted Management Guidance (AFGM2020-32-02), the Waste Management Plan was not included in the QAPP Addendum.

The proposed sample distribution as presented in the V2 QAPP Addendum is presented below in **Table 1**.

Table 1: Sample Locations by Site

SITE	Sample Existing Monitoring Wells (MWs)	Install Temporary MWs and Sample	Install Temporary MW/Borings and Sample	Soil Sample Locations
[redacted]	1	3	2	2
	0	0	0	2
	0	0	0	3
	0	0	0	1
	0	0	1	1
	0	0	0	1
	2	0	0	4
	1	0	0	4
	2	0	0	4
	2	0	3	11
	10	0	2	13
	17	0	0	11
	5	0	2	5
	6	0	4	10
Totals	***46***	***3***	***14***	***72***

2.3 Mobilization and Proposed Sample Location Evaluation

Prior to mobilization, Arcadis obtained an approved work clearance permit (Dig Permit) from the Base Civil Engineer office using Work Clearance Request, Air Force Form 103. After mobilization, field team personnel assessed the proposed sampling locations for accessibility by personnel and equipment and to define / mark proposed soil boring and temporary well locations. Based on this initial reconnaissance, sample locations were shifted for safety or accessibility.

2.4 Utility Location

Between 9 and 13 November 2020, Geoview, Inc., a private utility locator, assessed the marked proposed boring and temporary well locations, and indicated areas where utilities were potentially located. If utilities were identified within 5 feet of a proposed boring/well location, the location was relocated approximately 10 to 15 feet away to an area the private utility locator deemed clear of utilities.

2.5 Sample Collection

Sample collection was conducted in accordance with the approved QAPP Addendum with minor deviations as further described below.

2.5.1 Soil Sampling

Except as noted in **Section 2.5.3**, between 16 November and 19 December 2020, discrete soil samples were collected from the locations shown on QAPP Addendum Figures 14-1 through 14-14. A table summarizing coordinates and descriptions for soil sample and temporary well locations is provided in **Appendix A**. Although underground utilities in the vicinity of sample locations were marked, surface and subsurface soil samples were collected to 6 feet below ground surface (bgs) or groundwater, using stainless-steel hand augers according to the methodology presented in the QAPP Addendum to ensure no unmarked utilities were disturbed. Groundwater was encountered from 2 feet to 6 feet bgs at all but one sampling location (SB025). In general, up to four soil samples were collected from the ground surface to groundwater per location: one surface sample collected from ground surface to 6 inches bgs, and subsurface samples collected above groundwater from 6 inches to 2 feet bgs, 2 to 4 feet bgs, and 4 to 6 feet bgs. At one Direct Push Technology (DPT) boring location (SB025), a fifth sample was collected from 6 to 7 feet bgs.

Soil samples were shipped to the Pace South Carolina (Pace SC) laboratory (formerly Shealy Environmental Services) for PFAS analysis. **Figures 2 through 15** indicate sample locations and analytical data for PFOS, PFOA, and PFBS. Soil sample results are summarized in **Table 2** and discussed in **Section 3.2.1.** Laboratory analytical results are provided in **Appendix B**. Data validation checklists are included in **Appendix C**.

2.5.2 Monitoring Well Installation and Groundwater Sampling

Except as noted in **Section 2.5.3**, groundwater samples were collected from existing monitoring wells and temporary monitoring wells installed at the locations shown on QAPP Addendum Figures 14-1 through 14-14. Prior to installation of temporary wells, well permits were obtained from the Northwest Florida Water Management District.

Temporary wells were installed using a DPT rig. Polyvinyl chloride (PVC) well screens were constructed with 10 feet of 1.0-inch inside diameter 0.010-inch slotted screen (10 slot), installed from approximately 5 to 15 feet bgs (depths varied based on varying depths to groundwater). Well installation and development was conducted in accordance with USACE Standard Operating Procedure (SOP) *EM 1110-1-4000 Monitoring Well Design, Installation, And Documentation at Hazardous Toxic, and Radioactive Waste Sites* (Nov 1998) and Arcadis SOP *TGI - PFAS-Specific Drilling and Monitoring Well Installation, Rev. 1,* 26 March 2019. After sampling was completed, temporary wells were abandoned on 2 and 3 December 2020 by a Florida-licensed water well contractor in accordance with Florida Department of Environmental Protection (FDEP) Standard Operating Procedure PCS-006 titled “Design, Installation, and Placement of Monitoring Wells” (May 2005a).

Groundwater samples were collected from the existing site monitoring wells and from the newly installed temporary wells in accordance with methodology specified in the QAPP Addendum. Wells were purged with a low-flow peristaltic pump, with purging conducted by low stress (flow) protocols. Field parameters (temperature, pH, conductivity, dissolved oxygen, turbidity, and oxidation-reduction potential) were measured during groundwater sampling to ensure a stable sample was collected. Purging was considered complete after water quality parameters specified under the low-flow protocols were demonstrated to be stabilized. Sampling

conditions were noted in the sampling logs. Groundwater samples were collected using the same flow rate at which the well was purged.

Groundwater samples were shipped to the Pace SC laboratory for PFAS analysis. **Figures 2 through 15** indicate sample locations and analytical data for PFOS, PFOA, and PFBS. Groundwater sample results are summarized in **Table 3** and discussed in **Section 3.2.2.** Laboratory analytical results are provided in **Appendix B**. Data validation checklists are included in **Appendix C**.

2.5.3 Deviations from Plan

In general soil and groundwater samples were collected as specified in the QAPP Addendum. The total number of samples identified in the QAPP Addendum were collected. Minor deviations were the following:

- Due to its location near the Nozzle Spray Test Area, the groundwater sample collected from 17MW0010 was relocated from Utility Corridor – South to the Nozzle Spray Test Area.
- In Utility Corridor – South, monitoring well 17MW0035 was identified in the field as a deep well. A sample was collected from shallow well 17MW0020 in place of a sample from 17MW0035.

Table 4: Final Sample Locations by Site

SITE	Sample Existing Monitoring Wells (MWs)		Install Temporary MWs and Sample		Install Temporary MW/Borings and Sample		Soil Sample	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
[redacted]	1	1	3	3	2	2	2	2
	0	1	0	0	0	0	2	2
	0	0	0	0	0	0	3	3
	0	0	0	0	0	0	1	1
	0	0	0	0	1	1	1	1
	0	0	0	0	0	0	1	1
	2	2	0	0	0	0	4	4
	1	1	0	0	0	0	4	4
	2	2	0	0	0	0	4	4
	2	2	0	0	3	3	11	11
	10	10	0	0	2	2	13	13
	17	17	0	0	0	0	11	11
	5	5	0	0	2	2	5	5
	6	5	0	0	4	4	10	10
TOTAL	46	46	3	3	14	14	72	72

2.6 Sample Analysis

All samples collected were sent to Pace SC for PFAS analysis (see **Table 5** below for a list of PFAS compounds analyzed). All samples were analyzed per Modified USEPA Method 537 and according to Department of Defense (DoD) Quality Systems Manual (QSM) 5.3 Table B-15. Samples were analyzed for the full analyte list as listed in the USEPA Method 533: METHOD 533: Determination of Per- And Poly-fluoroalkyl Substances In Drinking Water By Isotope Dilution Anion Exchange Solid Phase Extraction And Liquid Chromatography/Tandem Mass Spectrometry.

Table 5: PFAS Compounds to be Analyzed

PFAS Compounds to be Analyzed
Perfluorobutanoic acid (PFBA)
Perfluoropentanoic acid (PFPA)
Perfluorohexanoic acid (PFHxA)
Perfluoroheptanoic acid (PFHpA)
Perfluorooctanoic acid (PFOA)
Perfluorononanoic acid (PFNA)
Perfluorodecanoic acid (PFDA)
Perfluoroundecanoic acid (PFUnA)
Perfluorododecanoic acid (PFDoA)
Perfluorotridecanoic acid (PFTrDA)
Perfluorotetradecanoic acid (PFTA)
Perfluorobutanesulfonic acid (PFBS)
Perfluorohexanesulfonic acid (PFHxS)
Perfluorooctane sulfonate (PFOS)
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
6:2 Fluorotelomer sulfonate
8:2 Fluorotelomer sulfonate

2.7 Decontamination

Non-disposable soil sampling equipment and downhole equipment that came in contact with soil or groundwater were decontaminated prior to use and in between wells and/or sample locations in accordance with the USEPA Decontamination SOP, PF-SESDPROC-205-R2, Field Equipment Cleaning and Decontamination, June 2020, and Arcadis SOP Groundwater and Soil Sampling Equipment Decontamination, Rev. 0, 23 February 2017.

All equipment was scrubbed with a plastic brush or steam cleaned using non-phosphate soap and rinsed thoroughly in PFAS-free water to clean away any debris or material on exposed surfaces and then triple-rinsed in distilled water (Grade 3 or better) or deionized water (or Millipore water).

2.8 Investigation-Derived Waste Management

Investigation-derived waste (IDW), including drill cuttings, monitoring well development water, monitoring well purge water, and decontamination rinsate, was managed in accordance with the PFAS-specific IDW management guidelines provided in the Waste Management Plan included in the Draft QAPP Addendum as Appendix D. All drill cuttings, development/purge water, and decontamination fluids were collected and stored in 55-gallon drums and were properly labeled and stored until sampled, tested, and treated/disposed. Decontamination waste generated from the known AFFF sites was not comingled with any other waste. In total, four aqueous drums and two soil drums were generated while conducting this sampling event. Each drum was marked with a label and with a paint marker with the locations from which the contents were composed. As requested by the Tyndall AFB Waste Management Office, the IDW drums are stored at Building 6011 until final USAF guidance on disposal of PFAS-impacted IDW is determined.

Used personal protective equipment was bagged and disposed off-site.

3 Analytical Data

Soil and groundwater samples were collected as discrete samples and analyzed for PFAS analytes in accordance with DoD Consolidated QSM for Environmental Laboratories, Version 5.3, Table B-15, May 2019. All laboratory analytical data were reviewed, and a Stage 1 data validation conducted in accordance with *Department of Defense Module 3 Data Validation Guidelines: Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by Quality Systems Manual for Environmental Laboratories (QSM) Table B-15 May 2020*. Laboratory analytical results, including results from the full PFAS analytical suite, are provided in **Appendix B**. Data validation Stage 1 checklists for the laboratory reports are provided in **Appendix C**.

3.1 Screening Criteria

After validation, the analytical data were screened against RSLs listed in OSD Memorandum dated 15 Oct 2019, *SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program* (OSD Memo). While the FDEP has issued provisional cleanup target levels (CTLs) for PFOS, PFOA, and PFBS, the screening values are either the same or higher than the OSD Memo values; therefore, sampling results were only screened against the OSD Memo RSLs:

- Groundwater PFOS and PFOA
    - Detected at more than or equal to the RSL calculated for tapwater using a hazard quotient (HQ) of 0.1 of 40 nanograms per liter (ng/L)
    - Detected at more than or equal to the RSL calculated for tapwater using an HQ of 1.0 of 400 ng/L
- Groundwater PFBS:
    - Detected at more than or equal to the RSL calculated for tapwater using an HQ of 0.1 of 40,000 ng/L
    - Detected at more than or equal to the RSL calculated for tapwater using an HQ of 1.0 of 400,000 ng/L
- Soil PFOS and PFOA:
    - Detected at more than or equal to the RSL calculated for an industrial / commercial scenario using an HQ of 0.1 of 1.6 milligrams per kilogram (mg/kg)
    - Detected at more than or equal to the RSL calculated for a residential scenario using an HQ of 0.1 of 0.13 mg/kg
- Soil PFBS:
    - Detected at more than or equal to the RSL calculated for an industrial / commercial scenario using an HQ of 0.1 of 16,000 mg/kg
    - Detected at more than or equal to the RSL calculated for a residential scenario using an HQ of 0.1 of 130 mg/kg

The OSD Memo indicates that in the presence of only one PFAS, the screening level based on an HQ = 1.0 is used; in the presence of multiple PFAS, the more conservative screening level based on an HQ = 0.1 is used. As shown in **Table 3**, groundwater sample results were screened against both the HQ=0.1 RSL and the HQ=1.0

RSL. In **Table 2**, soil sample results were only screened against the more conservative HQ=0.1 RSLs for industrial and residential scenarios.

3.2 Screening Results

As noted previously, soil and groundwater samples were analyzed for the full PFAS suite but were only screened for three PFAS (PFOA, PFOS, and PFBS) in accordance with the OSD Memo.

3.2.1 Soil

While PFAS were detected in soil at multiple locations, the soil samples with a PFAS concentration detected above the residential and/or industrial scenario direct contact screening levels were collected from the FT-016 and FT-023 Fire Training Areas and from Fire Station #1.

Screened soil analytical results are summarized in **Table 2**.

3.2.2 Groundwater

At least one of the PFAS analytes PFOS, PFOA, and PFBS was detected in the majority of groundwater samples collected (64 of 65 samples). Only a groundwater sample collected from temporary well TW005, located in the Zone1 – Hangars area had no detections of PFOS, PFOA, or PFBS. Of the 64 samples with a detection of at least one of the three PFAS analytes being screened, 37 exceeded at least one screening level.

As expected, the higher concentrations of the PFAS analytes in groundwater were detected at the FT-016 and FT-023 Fire Training Areas and at Fire Station #1.

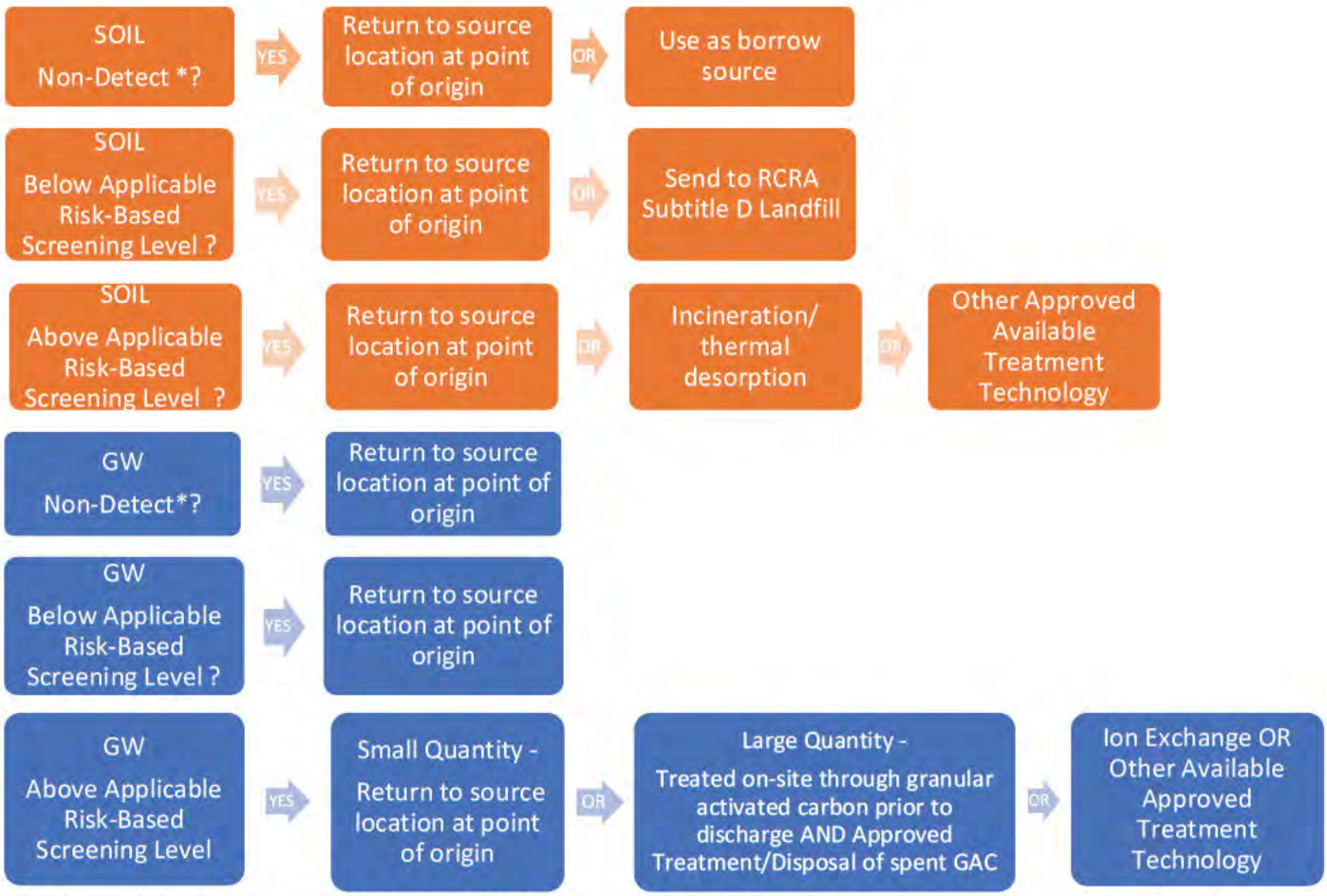
Screened groundwater analytical results are summarized in **Table 3.**

4 Disposal of PFAS-Impacted Media

Based on the analytical results generated during the PFAS soil and groundwater sampling and presented in **Tables 2 and 3,** soil and groundwater encountered during construction activities near the flightline at Tyndall AFB can reasonably be expected to be impacted by PFAS. Because most of the flightline construction areas are also identified as ERP sites and are being addressed under CERCLA, soil and groundwater encountered during construction should also be assumed to be impacted by constituents of concern other than PFAS. Therefore, guidance documents issued by the Tyndall AFB ERP office concerning handling and disposal of contaminated soil and groundwater, as well as the Air Force guidance document AFGM 2020-32-02, which addresses disposal of PFAS-impacted media, should be consulted during construction on Tyndall AFB.

In addition, the FDEP has issued provisional CTLs for PFAS (26 Oct 2020). The FDEP CTLs include criteria for groundwater, soil (residential, industrial, and leachability), surface water, and irrigation. These criteria should be considered in addition to the matrix below. It should be noted that the FDEP groundwater and soil residential and industrial direct contact criteria are equal to, or higher than, the screening criteria presented in the OSD Memo.

Based on the screening criteria presented in the OSD Memo and in AFGM 2020-32-02, the following is a graphic decision matrix for potential handling of PFAS impacted soil and groundwater:



* Analytical data may indicate media are non-detect for PFAS but the sample may have detections/exceedances of other constituents of concern

5 References

Aerostar SES, LLC. 2018. Final Site Inspection Report of Fire Fighting Foam Usage at Tyndall Air Force Base, Bay County, Florida. September.

Arcadis. 2016. Generic Uniform Federal Policy - Quality Assurance Project Plan for the Fiscal Year 13 Performance-Based Remediation, Tyndall Air Force Base, Florida.

Arcadis. 2019. TGI - PFAS-Specific Drilling and Monitoring Well Installation, Rev. 1, March.

Arcadis. 2020. Addendum, Generic Uniform Federal Policy for Quality Assurance Project Plan, Soil and Groundwater Sampling for Multiple AFFF Sites, Tyndall Air Force Base, Florida. November

DoD. 2019. Quality Systems Manual, Version 5.3, 2019. May.

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Tables

Table 2
Soil PFOS, PFOA, and PFBS Analytical Results
Tyndall AFB, Florida

Location	Sample/Parent ID	Sample Depth (feet bgs)	Sample Date	Analyte [1]	PFOS (mg/kg)		PFOA (mg/kg)		PFBS (mg/kg)	
				Residential HQ = 0.1	0.13		0.13		130	
				Industrial/Commercial HQ = 0.1	1.6		1.6		1,600	
				Sample Type	Result	Qual	Result	Qual	Result	Qual
SB001	SB001-0.5_20201117	0-0.5	11/17/2020	N	**0.00074**	J	< 0.00050	U	< 0.00050	U
SB001	SB001-2_20201117	0.5-2	11/17/2020	N	< 0.00060	U	< 0.00060	U	< 0.00060	U
SB002	SB002-0.5_20201117	0-0.5	11/17/2020	N	**0.00059**	J	< 0.00049	U	< 0.00049	U
SB002	SB002-2_20201117	0.5-2	11/17/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB003	SB003-0.5_20201117	0-0.5	11/17/2020	N	**0.00077**	J	< 0.00046	U	< 0.00046	U
SB003	SB003-2_20201117	0.5-2	11/17/2020	N	**0.00070**	J	< 0.00050	U	< 0.00050	U
SB004	SB004-0.5_20201117	0-0.5	11/17/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB004	SB004-2_20201117	0.5-2	11/17/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB005	SB005-0.5_20201117	0-0.5	11/17/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB005	SB005-2_20201117	0.5-2	11/17/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB006	SB006-0.5_20201117	0-0.5	11/17/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB006	SB006-2_20201117	0.5-2	11/17/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB007	SB007-0.5_20201117	0-0.5	11/17/2020	N	**0.00083**	J	< 0.00047	U	< 0.00047	U
SB007	SB007-2_20201117	0.5-2	11/17/2020	N	**0.00075**	J	< 0.00049	U	< 0.00049	U
SB008	SB008-0.5_20201117	0-0.5	11/17/2020	N	**0.0015**		< 0.00050	U	< 0.00050	U
SB008	SB008-2_20201117	0.5-2	11/17/2020	N	< 0.00049	U	< 0.00049	U	< 0.00049	U
SB009	SB009-0.5_20201117	0-0.5	11/17/2020	N	< 0.00046	U	< 0.00046	U	< 0.00046	U
SB009	SB009-2_20201117	0.5-2	11/17/2020	N	< 0.00046	U	< 0.00046	U	< 0.00046	U
SB010	SB010-0.5_20201117	0-0.5	11/17/2020	N	**0.0035**		< 0.00065	U	< 0.00065	U
SB010	SB010-2_20201117	0.5-2	11/17/2020	N	**0.0090**		< 0.00044	U	< 0.00044	U
SB010	SB010-4_20201117	2-4	11/17/2020	N	**0.058**		< 0.00055	U	< 0.00055	U
SB011	SB011-0.5_20201117	0-0.5	11/17/2020	N	**0.0042**		< 0.00044	U	< 0.00044	U
SB011	SB011-2_20201117	0.5-2	11/17/2020	N	**0.0019**		< 0.00055	U	< 0.00055	U
SB011	SB011-4_20201117	2-4	11/17/2020	N	**0.0035**		< 0.00049	U	< 0.00049	U
SB012	SB012-0.5_20201117	0-0.5	11/17/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB012	SB012-2_20201117	0.5-2	11/17/2020	N	**0.0010**		< 0.00048	U	< 0.00048	U
SB012	SB012-4_20201117	2-4	11/17/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB013	SB013-0.5_20201117	0-0.5	11/17/2020	N	**0.0010**		< 0.00049	U	< 0.00049	U
SB013	SB013-2_20201117	0.5-2	11/17/2020	N	**0.0021**		< 0.00048	U	< 0.00048	U
SB013	SB013-4_20201117	2-4	11/17/2020	N	**0.0014**		< 0.00055	U	< 0.00055	U
SB014	SB014-0.5_20201118	0-0.5	11/18/2020	N	**0.00044**	J	< 0.00043	U	< 0.00043	U
SB014	SB014-2_20201118	0.5-2	11/18/2020	N	**0.00071**	J	< 0.00050	U	< 0.00050	U
SB014A	SB014-2A_20201118	0.5-2	11/18/2020	FD	**0.00085**	J	< 0.00050	U	< 0.00050	U
SB014	SB014-4_20201118	2-4	11/18/2020	N	**0.00056**	J	< 0.00055	U	< 0.00055	U
SB014A	SB014-4A_20201118	2-4	11/18/2020	FD	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB014	SB014-6_20201118	4-6	11/18/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB015	SB015-0.5_20201118	0-0.5	11/18/2020	N	**0.0021**		< 0.00060	U	< 0.00060	U
SB015	SB015-2_20201118	0.5-2	11/18/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB016	SB016-0.5_20201118	0-0.5	11/18/2020	N	**0.0015**		< 0.00047	U	< 0.00047	U
SB016	SB016-2_20201118	0.5-2	11/18/2020	N	**0.0012**		< 0.00050	U	< 0.00050	U
SB016	SB016-4_20201118	2-4	11/18/2020	N	**0.0015**		< 0.00047	U	< 0.00047	U
SB016	SB016-6_20201118	4-6	11/18/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB017	SB017-0.5_20201118	0-0.5	11/18/2020	N	**0.00056**	J	< 0.00048	U	< 0.00048	U
SB017	SB017-2_20201118	0.5-2	11/18/2020	N	**0.0012**		< 0.00049	U	< 0.00049	U
SB017	SB017-4_20201118	2-4	11/18/2020	N	**0.00068**	J	< 0.00044	U	< 0.00044	U
SB017	SB017-6_20201118	4-6	11/18/2020	N	**0.00088**	J	< 0.00055	U	< 0.00055	U
SB018	SB018-0.5_20201118	0-0.5	11/18/2020	N	< 0.00043	U	< 0.00043	U	< 0.00043	U
SB018	SB018-2_20201118	0.5-2	11/18/2020	N	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB018	SB018-4_20201118	2-4	11/18/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB018	SB018-6_20201118	4-6	11/18/2020	N	< 0.00065	U	< 0.00065	U	< 0.00065	U
SB019	SB019-0.5_20201119	0-0.5	11/19/2020	N	**0.013**		< 0.00050	U	< 0.00050	U
SB019	SB019-2_20201119	0.5-2	11/19/2020	N	**0.069**		< 0.00044	U	< 0.00044	U
SB019	SB019-4_20201119	2-4	11/19/2020	N	**0.022**		< 0.00048	U	< 0.00048	U
SB019	SB019-6_20201119	4-6	11/19/2020	N	**0.033**		< 0.00065	U	< 0.00065	U
SB020	SB020-0.5_20201119	0.5	11/19/2020	N	**0.0059**		< 0.00043	U	< 0.00043	U
SB020A	SB020-0.5A_20201119	0-0.5	11/19/2020	FD	**0.0067**		< 0.00044	U	< 0.00044	U
SB020	SB020-2_20201119	0.5-2	11/19/2020	N	**0.0073**		< 0.00049	U	< 0.00049	U
SB020	SB020-4_20201119	2-4	11/19/2020	N	**0.016**		**0.00087**	J	< 0.00047	U
SB020	SB020-6_20201119	4-6	11/19/2020	N	**0.014**		< 0.00050	U	< 0.00050	U
SB021	SB021-0.5_20201120	0-0.5	11/20/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB021	SB021-2_20201120	0.5-2	11/20/2020	N	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB021	SB021-4_20201203	2-4	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB021A	SB021-4A_20201203	2-4	12/03/2020	FD	< 0.00060	U	< 0.00060	U	< 0.00060	U
SB022	SB022-0.5_20201120	0-0.5	11/20/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB022	SB022-2_20201120	0.5-2	11/20/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB022	SB022-4_20201203	2-4	12/03/2020	N	< 0.00047	U	< 0.00047	U	< 0.00047	U
SB023	SB023-0.5_20201201	0-0.5	12/01/2020	N	< 0.00043	U	< 0.00043	U	< 0.00043	U
SB023	SB023-2_20201201	0.5-2	12/01/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB023	SB023-4_20201201	2-4	12/01/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB023	SB023-6_20201201	4-6	12/01/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB024	SB024-0.5_20201201	0-0.5	12/01/2020	N	< 0.00046	U	< 0.00046	U	< 0.00046	U
SB024	SB024-2_20201201	0.5-2	12/01/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB024	SB024-3_20201201	2-3	12/01/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB025	SB025-0.5_20201202	0-0.5	12/02/2020	N	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB025	SB025-2_20201202	0.5-2	12/02/2020	N	< 0.00047	U	< 0.00047	U	< 0.00047	U
SB025	SB025-4_20201202	2-4	12/02/2020	N	< 0.00047	U	< 0.00047	U	< 0.00047	U
SB025	SB025-6_20201202	4-6	12/02/2020	N	< 0.00047	U	< 0.00047	U	< 0.00047	U
SB025	SB025-7_20201202	6-7	12/02/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB026	SB026-0.5_20201202	0-0.5	12/02/2020	N	**0.0033**		< 0.00055	U	< 0.00055	U
SB026	SB026-2_20201202	0.5-2	12/02/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB026A	SB026-2A_20201202	0.5-2	12/02/2020	FD	**0.00059**	J	< 0.00055	U	< 0.00055	U
SB027	SB027-0.5_20201202	0-0.5	12/02/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB027	SB027-2_20201202	0.5-2	12/02/2020	N	< 0.00049	U	< 0.00049	U	< 0.00049	U
SB027	SB027-4_20201202	2-4	12/02/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB027	SB027-5_20201202	4-5	12/02/2020	N	< 0.00060	U	< 0.00060	U	< 0.00060	U
SB028	SB028-0.5_20201202	0-0.5	12/02/2020	N	**0.00066**	J	< 0.00045	U	< 0.00045	U
SB028	SB028-2_20201202	0.5-2	12/02/2020	N	**0.00056**	J	< 0.00055	U	< 0.00055	U
SB028	SB028-4_20201202	2-4	12/02/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB029	SB029-0.5_20201202	0-0.5	12/02/2020	N	**0.00064**	J	< 0.00050	U	< 0.00050	U
SB029	SB029-2_20201202	0.5-2	12/02/2020	N	**0.0024**		< 0.00060	U	< 0.00060	U
SB030	SB030-0.5_20201202	0-0.5	12/02/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB030	SB030-2_20201202	0.5-2	12/02/2020	N	< 0.00060	U	< 0.00060	U	< 0.00060	U
SB031	SB031-0.5_20201203	0-0.5	12/03/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB031	SB031-2_20201203	0.5-2	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB032	SB032-0.5_20201203	0-0.5	12/03/2020	N	< 0.00046	U	< 0.00046	U	< 0.00046	U
SB032	SB032-2_20201203	0.5-2	12/03/2020	N	< 0.00049	U	< 0.00049	U	< 0.00049	U
SB033	SB033-0.5_20201203	0-0.5	12/03/2020	N	**0.22**		**0.0047**		< 0.00049	U

Table 2
Soil PFOS, PFOA, and PFBS Analytical Results
Tyndall AFB, Florida

Location	Sample/Parent ID	Sample Depth (feet bgs)	Sample Date	Analyte [1]	PFOS (mg/kg)		PFOA (mg/kg)		PFBS (mg/kg)	
				Residential HQ = 0.1	0.13		0.13		130	
				Industrial/Commercial HQ = 0.1	1.6		1.6		1,600	
				Sample Type	Result	Qual	Result	Qual	Result	Qual
SB033	SB033-2_20201203	0.5-2	12/03/2020	N	5.5		0.012		< 0.00055	U
SB034	SB034-0.5_20201203	0-0.5	12/03/2020	N	0.018		0.00051	J	< 0.00049	U
SB034	SB034-2_20201203	0.5-2	12/03/2020	N	5.2		0.0041		< 0.00047	U
SB035	SB035-0.5_20201203	0-0.5	12/03/2020	N	0.0088		0.00063	J	< 0.00055	U
SB035	SB035-2_20201203	0.5-2	12/03/2020	N	0.014		0.00087	J	< 0.00048	U
SB036	SB036-0.5_20201203	0-0.5	12/03/2020	N	0.0092		< 0.00045	U	< 0.00045	U
SB036	SB036-2_20201203	0.5-2	12/03/2020	N	0.56		0.0034		< 0.00050	U
SB037	SB037-0.5_20201203	0-0.5	12/03/2020	N	0.00078	J	< 0.00055	U	< 0.00055	U
SB037	SB037-2_20201203	0.5-2	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB038	SB038-0.5_20201203	0-0.5	12/03/2020	N	< 0.00042	U	< 0.00042	U	< 0.00042	U
SB038	SB038-2_20201203	0.5-2	12/03/2020	N	0.00063	J	< 0.00055	U	< 0.00055	U
SB039	SB039-0.5_20201203	0-0.5	12/03/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB039	SB039-2_20201203	0.5-2	12/03/2020	N	0.00052	J	< 0.00046	U	< 0.00046	U
SB040	SB040-0.5_20201203	0-0.5	12/03/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB040	SB040-2_20201203	0.5-2	12/03/2020	N	0.0012		< 0.00046	U	< 0.00046	U
SB040A	SB040-2A_20201203	0.5-2	12/03/2020	FD	0.00084	J	< 0.00045	U	< 0.00045	U
SB041	SB041-0.5_20201203	0-0.5	12/03/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB041	SB041-2_20201203	0.5-2	12/03/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB042	SB042-0.5_20201203	0-0.5	12/03/2020	N	0.00051	J	< 0.00049	U	< 0.00049	U
SB042	SB042-2_20201203	0.5-2	12/03/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB043	SB043-0.5_20201203	0-0.5	12/03/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB043	SB043-2_20201203	0.5-2	12/03/2020	N	< 0.00060	U	< 0.00060	U	< 0.00060	U
SB044	SB044-0.5_20201203	0-0.5	12/03/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB044	SB044-2_20201203	0.5-2	12/03/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB045	SB045-0.5_20201203	0-0.5	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB045	SB045-2_20201203	0.5-2	12/03/2020	N	0.00058	J	< 0.00044	U	< 0.00044	U
SB046	SB046-0.5_20201203	0-0.5	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB046	SB046-2_20201203	0.5-2	12/03/2020	N	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB047	SB047-0.5_20201203	0-0.5	12/03/2020	N	< 0.00047	U	< 0.00047	U	< 0.00047	U
SB047	SB047-2_20201203	0.5-2	12/03/2020	N	< 0.00049	U	< 0.00049	U	< 0.00049	U
SB048	SB048-0.5_20201203	0-0.5	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB048	SB048-2_20201203	0.5-2	12/03/2020	N	< 0.00060	U	< 0.00060	U	< 0.00060	U
SB049	SB049-0.5_20201203	0-0.5	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB049	SB049-2_20201203	0.5-2	12/03/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB050	SB050-0.5_20201204	0-0.5	12/04/2020	N	< 0.00044	U	< 0.00044	U	< 0.00044	U
SB050	SB050-2_20201204	0.5-2	12/04/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB050A	SB050-2A_20201204	0.5-2	12/04/2020	FD	< 0.00049	U	< 0.00049	U	< 0.00049	U
SB051	SB051-0.5_20201204	0-0.5	12/04/2020	N	0.00068	J	< 0.00050	U	< 0.00050	U
SB051	SB051-2_20201204	0.5-2	12/04/2020	N	< 0.00040	U	< 0.00040	U	< 0.00040	U
SB052	SB052-0.5_20201204	0-0.5	12/04/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB052	SB052-2_20201204	0.5-2	12/04/2020	N	0.00049	J	< 0.00049	U	< 0.00049	U
SB053	SB053-0.5_20201207	0-0.5	12/07/2020	N	0.00055	J	< 0.00055	U	< 0.00055	U
SB053	SB053-2_20201207	0.5-2	12/07/2020	N	0.00020	J	< 0.00043	U	< 0.00043	U
SB054	SB054-0.5_20201207	0-0.5	12/07/2020	N	0.0020		< 0.00049	U	< 0.00049	U
SB054	SB054-2_20201207	0.5-2	12/07/2020	N	0.0012		< 0.00046	U	< 0.00046	U
SB055	SB055-0.5_20201207	0-0.5	12/07/2020	N	< 0.00044	U	< 0.00044	U	< 0.00044	U
SB055	SB055-2_20201207	0.5-2	12/07/2020	N	< 0.00055	U	< 0.00055	U	< 0.00055	U
SB056	SB056-0.5_20201207	0-0.5	12/07/2020	N	0.00042	J	< 0.00050	U	< 0.00050	U
SB056	SB056-2_20201207	0.5-2	12/07/2020	N	0.00048	J	< 0.00050	U	< 0.00050	U
SB057	SB057-0.5_20201207	0-0.5	12/07/2020	N	0.00062	J	< 0.00045	U	< 0.00045	U
SB057	SB057-2_20201207	0.5-2	12/07/2020	N	0.00032	J	< 0.00050	U	< 0.00050	U
SB058	SB058-0.5_20201207	0-0.5	12/07/2020	N	0.0020		< 0.00046	U	< 0.00046	U
SB058	SB058-2_20201207	0.5-2	12/07/2020	N	0.00056	J	< 0.00060	U	< 0.00060	U
SB059	SB059-0.5_20201207	0-0.5	12/07/2020	N	0.0022		< 0.00050	U	< 0.00050	U
SB059	SB059-2_20201207	0.5-2	12/07/2020	N	0.0011		< 0.00045	U	< 0.00045	U
SB060	SB060-0.5_20201207	0-0.5	12/07/2020	N	< 0.00046	U	< 0.00046	U	< 0.00046	U
SB060	SB060-2_20201207	0.5-2	12/07/2020	N	< 0.00060	U	< 0.00060	U	< 0.00060	U
SB060A	SB060-2A_20201207	0.5-2	12/07/2020	FD	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB061	SB061-0.5_20201207	0-0.5	12/07/2020	N	0.00047	J	< 0.00050	U	< 0.00050	U
SB061	SB061-2_20201207	0.5-2	12/07/2020	N	0.0017		< 0.00050	U	< 0.00050	U
SB062	SB062-0.5_20201207	0-0.5	12/07/2020	N	0.00086	J	< 0.00047	U	< 0.00047	U
SB062	SB062-2_20201207	0.5-2	12/07/2020	N	0.00072	J	< 0.00050	U	< 0.00050	U
SB063	SB063-0.5_20201208	0-0.5	12/08/2020	N	0.01		< 0.00049	U	< 0.00049	U
SB063	SB063-2_20201208	0.5-2	12/08/2020	N	0.012		< 0.00046	U	< 0.00046	U
SB063	SB063-4_20201208	2-4	12/08/2020	N	0.028		0.00048	J	< 0.00048	U
SB064	SB064-0.5_20201208	0-0.5	12/08/2020	N	0.76		0.024		0.0015	J
SB064	SB064-2_20201208	0.5-2	12/08/2020	N	0.096		0.012		0.00030	J
SB064	SB064-4_20201208	2-4	12/08/2020	N	0.34		0.0033	J	< 0.0024	U
SB065	SB065-0.5_20201208	0-0.5	12/08/2020	N	< 0.00049	U	< 0.00049	U	< 0.00049	U
SB065	SB065-2_20201208	0.5-2	12/08/2020	N	0.00068	J	< 0.00045	U	< 0.00045	U
SB065	SB065-4_20201208	2-4	12/08/2020	N	0.00076	J	< 0.00045	U	< 0.00045	U
SB066	SB066-0.5_20201208	0-0.5	12/08/2020	N	0.0011		< 0.00055	U	< 0.00055	U
SB066	SB066-2_20201208	0.5-2	12/08/2020	N	0.0026		0.00082	J	< 0.00047	U
SB066	SB066-4_20201208	2-4	12/08/2020	N	0.0021		< 0.00050	U	< 0.00050	U
SB067	SB067-0.5_20201208	0-0.5	12/08/2020	N	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB067	SB067-2_20201208	0.5-2	12/08/2020	N	0.00061	J	< 0.00046	U	< 0.00046	U
SB067A	SB067-2A_20201208	0.5-2	12/08/2020	FD	0.00066	J	< 0.00046	U	< 0.00046	U
SB068	SB068-0.5_20201208	0-0.5	12/08/2020	N	0.0060		< 0.00050	U	< 0.00050	U
SB068	SB068-2_20201208	0.5-2	12/08/2020	N	0.015		< 0.00048	U	< 0.00048	U
SB069	SB069-0.5_20201208	0-0.5	12/08/2020	N	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB069	SB069-2_20201208	0.5-2	12/08/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB070	SB070-0.5_20201208	0-0.5	12/08/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB070	SB070-2.0_20201208	0.5-2	12/08/2020	N	< 0.00050	U	< 0.00050	U	< 0.00050	U
SB071	SB071-0.5_20201208	0-0.5	12/08/2020	N	< 0.00048	U	< 0.00048	U	< 0.00048	U
SB071	SB071-2_20201208	0.5-2	12/08/2020	N	0.00065	J	< 0.00050	U	< 0.00050	U
SB072	SB072-0.5_20201208	0-0.5	12/08/2020	N	0.00090	J	< 0.00050	U	< 0.00050	U
SB072	SB072-2_20201208	0.5-2	12/08/2020	N	0.0011		< 0.00046	U	< 0.00046	U
SB073	SB073-0.5_20201208	0-0.5	12/08/2020	N	0.0017		< 0.00050	U	< 0.00050	U
SB073	SB073-2_20201208	0.5-2	12/08/2020	N	0.00059	J	< 0.00050	U	< 0.00050	U
SB073A	SB073-2A_20201208	0.5-2	12/08/2020	FD	0.00080	J	< 0.00048	U	< 0.00048	U
SB074	SB074-0.5_20201208	0-0.5	12/08/2020	N	0.00067	J	< 0.00045	U	< 0.00045	U
SB074	SB074-2_20201208	0.5-2	12/08/2020	N	0.0012		< 0.00050	U	< 0.00050	U
SB075	SB075-0.5_20201208	0-0.5	12/08/2020	N	< 0.00045	U	< 0.00045	U	< 0.00045	U
SB075	SB075-2_20201208	0.5-2	12/08/2020	N	0.00067	J	< 0.00046	U	< 0.00046	U
SB076	SB076-0.5_20201208	0-0.5	12/08/2020	N	0.00051	J	< 0.00047	U	< 0.00047	U
SB076	SB076-2_20201208	0.5-2	12/08/2020	N	0.00053	J	< 0.00049	U	< 0.00049	U
SB077	SB077-0.5_20201208	0-0.5	12/08/2020	N	0.0024		< 0.00045	U	< 0.00045	U

Table 2
Soil PFOS, PFOA, and PFBS Analytical Results
Tyndall AFB, Florida

Location	Sample/Parent ID	Sample Depth (feet bgs)	Sample Date	Analyte [1]	PFOS (mg/kg)		PFOA (mg/kg)		PFBS (mg/kg)	
				Residential HQ = 0.1	0.13		0.13		130	
				Industrial/Commercial HQ = 0.1	1.6		1.6		1,600	
				Sample Type	Result	Qual	Result	Qual	Result	Qual
SB077	SB077-2_20201208	0.5-2	12/08/2020	N	**0.0019**		< 0.00044	U	< 0.00044	U
SB078	SB078-0.5_20201208	0-0.5	12/08/2020	N	**0.00056**	J	< 0.00045	U	< 0.00045	U
SB078	SB078-2_20201208	0.5-2	12/08/2020	N	< 0.00046	U	< 0.00046	U	< 0.00046	U
SB079	SB079-0.5_20201208	0-0.5	12/08/2020	N	**0.00067**	J	< 0.00050	U	< 0.00050	U
SB079	SB079-2_20201208	0.5-2	12/08/2020	N	**0.00052**	J	< 0.00047	U	< 0.00047	U
SB080	SB080-0.5_20201219	0-0.5	12/19/2020	N	**0.0054**		< 0.00055	U	< 0.00055	U
SB080	SB080-2_20201219	0.5-2	12/19/2020	N	**0.0025**		< 0.00050	U	< 0.00050	U
SB080	SB080-3.5_20201219	2-3.5	12/19/2020	N	**0.0015**		< 0.00055	U	< 0.00055	U
SB081	SB081-0.5_20201219	0-0.5	12/19/2020	N	**0.00072**	J	< 0.00048	U	< 0.00048	U
SB081	SB081-2_20201219	0.5-2	12/19/2020	N	**0.00063**	J	< 0.00050	U	< 0.00050	U
SB081	SB081-4_20201219	2-4	12/19/2020	N	**0.00058**	J	< 0.00049	U	< 0.00049	U
SB082	SB082-0.5_20201219	0-0.5	12/19/2020	N	**0.0033**		< 0.00050	U	< 0.00050	U
SB082A	SB082A-0.5_20201219	0-0.5	12/19/2020	FD	**0.0032**		< 0.00055	U	< 0.00055	U
SB082	SB082-2_20201219	0.5-2	12/19/2020	N	**0.0044**		< 0.00050	U	< 0.00050	U
SB082	SB082-3.5_20201219	2-3.5	12/19/2020	N	**0.0049**		< 0.00060	U	< 0.00060	U
SB083	SB083-0.5_20201219	0-0.5	12/19/2020	N	**0.00096**	J	< 0.00050	U	< 0.00050	U
SB083	SB083-2_20201219	0.5-2	12/19/2020	N	**0.00075**	J	< 0.00050	U	< 0.00050	U
SB083	SB083-3_20201219	2-3	12/19/2020	N	**0.00050**	J	< 0.00055	U	< 0.00055	U
SB084	SB084-0.5_20201219	0-0.5	12/19/2020	N	**0.00045**	J	< 0.00055	U	< 0.00055	U
SB084	SB084-2_20201219	0.5-2	12/19/2020	N	**0.00049**	J	< 0.00055	U	< 0.00055	U
SB084	SB084-4_20201219	2-4	12/19/2020	N	**0.00043**	J	< 0.00050	U	< 0.00050	U
SB084	SB084-5.5_20201219	4-5.5	12/19/2020	N	**0.00027**	J	< 0.00050	U	< 0.00050	U
SB085	SB085-0.5_20201219	0-0.5	12/19/2020	N	**0.012**		< 0.00060	U	< 0.00060	U
SB085	SB085-2_20201219	0.5-2	12/19/2020	N	**0.0099**		< 0.00060	U	< 0.00060	U
SB086	SB086-0.5_20201219	0-0.5	12/19/2020	N	**0.0072**		< 0.00065	U	< 0.00065	U
SB086	SB086-2_20201219	0.5-2	12/19/2020	N	**0.013**		< 0.00055	U	< 0.00055	U
SB086A	SB086A-2_20201219	0.5-2	12/19/2020	FD	**0.012**		< 0.00055	U	< 0.00055	U

Notes:

1. Soil samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite per Modified USEPA Method 537 for PFAS analytes in accordance with Department of Defense (DoD) Consolidated Quality Systems Manual for Environmental Laboratories (QSM), Version 5.3, Table B-15, May 2019 (included in Appendix B of this report). However, in accordance with DoD Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.

2. **Bolded** values indicate the result was detected greater than the limit of detection.
3. Data are compared to the 2019 DoD Memo risk screening levels for both the residential as well as the industrial/commercial scenarios with hazard quotient (HQ) = 0.1.
4. **Grey shaded values** indicate the result was detected greater than the residential scenario risk screening levels (DoD 2019).
5. ***Grey shaded and italicized values*** indicate the result was detected greater than the industrial/commercial scenario (i.e., and therefore greater than the residential scenario) risk screening levels (DoD 2019).

Acronyms/Abbreviations:

bgs = below ground surface
N = primary sample
FD = field duplicate sample
ID = identification
mg/kg = milligrams per kilogram (parts per million)
Qual = qualifier
U = The analyte was analyzed for but the result was not detected above the limit of quantitation.
J = The analyte was positively identified; however the associated numerical value is an estimated

Table 3
Groundwater PFOS, PFOA, and PFBS Analytical Results
Tyndall AFB, Florida

Location	Sample/ Parent ID	Sample Date	Analyte [1]	PFOS (ng/L)		PFOA (ng/L)		PFBS (ng/L)	
			Tapwater HQ = 0.1	40		40		40,000	
			Tapwater HQ = 1.0	400		400		400,000	
			Sample Type	Result	Qual	Result	Qual	Result	Qual
15MW0003	15MW0003 (12012020)	12/1/2020	N	21		11		4.4	
15MW0005	15MW0005 (12012020)	12/1/2020	N	*2000*		160		21	
15MW0017	15MW0017(11102020)	11/10/2020	N	*930*		110		8.2	
15MW0020	15MW0020(11102020)	11/10/2020	N	17		6.7		< 1.8	U
15MW0023	15MW0023(11102020)	11/10/2020	N	180		23		6.7	
15MW0024	15MW0024(11102020)	11/10/2020	N	17		5.7		3.7	
15MW0025	15MW0025(11102020)	11/10/2020	N	13		1.9	J	< 1.8	U
15MW0040	15MW0040(11102020)	11/10/2020	N	36		19		8.9	
16MW0009	16MW0009(11112020)	11/11/2020	N	*23000*		*3900*		560	
16MW0023	16MW0023(11112020)	11/11/2020	N	*11000*		*4000*		1300	
17MW0008	17MW0008(11112020)	11/11/2020	N	*1100*		27		< 9.0	U
17MW0010	17MW0010(11112020)	11/11/2020	N	110		6.7		3.3	J
17MW0020	17MW0020(11112020)	11/11/2020	N	8.2		2.3	J	< 1.8	U
17MW0024	17MW0024(11122020)	11/12/2020	N	140		3.7		< 1.8	U
17MW0031	17MW0031 (12072020)	12/7/2020	N	230		9.8		3.2	J
17MW0033	17MW0033 (12032020)	12/3/2020	N	34		4.5		< 2.0	U
17MW0033	17MW0033A (12032020)	12/3/2020	FD	38		5.3		< 2.2	U
17MW0034	17MW0034 (12072020)	12/7/2020	N	14		< 1.8	U	< 1.8	U
23MW0003	23MW0003(11112020)	11/11/2020	N	*160000*		*9000*		3700	
23MW0026	23MW0026(11112020)	11/11/2020	N	*290000*		*26000*		2000	J
25MW0004	25MW0004 (12012020)	12/1/2020	N	*17000*		*6800*		420	
32MW0027	32MW0027 (12092020)	12/9/2020	N	170		13		5.9	
32MW0030	32MW0030 (12032020)	12/3/2020	N	35		21		2.8	J
32MW0033	32MW0033 (12012020)	12/1/2020	N	17		4.3		2.5	J
32MW0036	32MW0036 (11172020)	11/17/2020	N	390		92		22	
32MW0040	32MW0040 (11182020)	11/18/2020	N	200		43		17	
32MW0043	32MW0043 (11192020)	11/19/2020	N	50		28		20	
32MW0049	32MW0049 (11172020)	11/17/2020	N	31		57		48	
32MW0063	32MW0063 (11172020)	11/17/2020	N	*740*		150		63	
32MW0068	32MW0068 (11172020)	11/17/2020	N	24		25		5.8	
32MW0069	32MW0069 (11172020)	11/17/2020	N	230		54		28	
36MW0002	36MW0002 (12012020)	12/1/2020	N	14		130		12	
36MW0005	36MW0005 (12012020)	12/1/2020	N	23		3.0	J	7.7	
37MW0016	37MW0016(11122020)	11/12/2020	N	36		7.9		3.4	J
37MW0030	37MW0030A(11122020)	11/12/2020	N	28		6.1		2.9	J
37MW0032	37MW0032A(11122020)	11/12/2020	N	22		4.0		3.9	
37MW0033	37MW0033B(11122020)	11/12/2020	N	44		5.0		9.8	
37MW0034	37MW0034B(11122020)	11/12/2020	N	48		8.2		4.5	
39MW0004	39MW0004 (11172020)	11/17/2020	N	17		34		10	
39MW0011	39MW0011 (11162020)	11/16/2020	N	*560*		76		10	
39MW0016	39MW0016 (11162020)	11/16/2020	N	29		7.3		97	
39MW0018	39MW0018(11132020)	11/13/2020	N	19		4.9		2.9	J
39MW0020	39MW0020(11132020)	11/13/2020	N	15		4.9		4.3	
39MW0024	39MW0024 (11172020)	11/17/2020	N	3.5	J	3.6	J	16	
39MW0026	39MW0026(11132020)	11/13/2020	N	58		8.6		6.0	
39MW0026	39MW0026A(11132020)	11/13/2020	FD	52		7.9		5.6	
39MW0030	39MW0030(11132020)	11/13/2020	N	34		8.6		16	
39MW0037	39MW0037 (11182020)	11/18/2020	N	23		8.5		3.2	J
TW001	TW001 (11182020)	11/18/2020	N	< 20	U	26	J	< 20	U
TW002	TW002 (11182020)	11/18/2020	N	< 20	U	21	J	< 20	U
TW003	TW003 (11182020)	11/18/2020	N	30	J	< 20	U	< 20	U
TW004	TW004 (11182020)	11/18/2020	N	94		23	J	< 20	U
TW005	TW005 (11192020)	11/19/2020	N	< 20	U	< 20	U	< 20	U
TW006	TW006 (11192020)	11/19/2020	N	*620*		130		< 20	U
TW006	TW006A (11192020)	11/19/2020	FD	*550*		120		< 20	U
TW007	TW007 (12022020)	12/2/2020	N	*7300*		*18000*		1600	
TW008	TW008 (12022020)	12/2/2020	N	*12000*		*3200*		130	J
TW009	TW009 (12022020)	12/2/2020	N	*11000*		*2300*		280	
TW010	TW010 (12022020)	12/2/2020	N	*12000*		*1500*		200	
TW011	TW011 (12022020)	12/2/2020	N	98		12		5.6	
TW012	TW012 (12022020)	12/2/2020	N	52		18		17	
TW013	TW013 (12022020)	12/2/2020	N	70		8.3		2.0	J
TW014	TW014 (12022020)	12/2/2020	N	22		6.3		9.9	
TW015	TW015 (12032020)	12/3/2020	N	18		7.5		7.3	
TW016	TW016 (12032020)	12/3/2020	N	*1200*		89		11	J
TW017	TW017 (12032020)	12/3/2020	N	*220*		14		3.0	J

Notes:

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite per Modified USEPA Method 537 for PFAS analytes in accordance with Department of Defense (DoD) Consolidated Quality Systems Manual for Environmental Laboratories (QSM), Version 5.3, Table B-15, May 2019 (included in Appendix B of this report) . However, in accordance with DoD Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.

2. **Bolded** values indicate the result was detected greater than the limit of detection.
3. Groundwater data are compared to the 2019 DoD Memo tapwater risk screening levels for both hazard quotient (HQ) = 0.1 and HQ = 1.0.
4. **Grey shaded values** indicate the result was detected greater than the risk screening levels for tap water for a HQ = 0.1 (DoD Memo 2019).
5. ***Grey shaded and italicized values*** indicate the result was detected greater than risk screening levels for tap water for a HQ = 1.0 (DoD Memo 2019).

Acronyms/Abbreviations:
FD = field duplicate sample
ID = identification
J = The analyte was positively identified; however the associated numerical value is an estimated concentration only.
N = primary sample
ng/L = nanograms per liter (parts per trillion)
PFBS = perfluorobutane sulfonic acid
PFOA = perfluorooctanoic acid
PFOS = perfluorooctane sulfonic acid
Qual = qualifier
U = The analyte was analyzed for but the result was not detected above the limit of quantitation.

Figures

Legend

- AFFF Inspection Areas
- Flightline Zones
- Installation Area

N

0 10,000 20,000 Feet

TYNDALL AIR FORCE BASE
FLORIDA

Site Location Map

ARCADIS

FIGURE
1

[redacted]

Legend

- DPT Soil Boring Location
- Temporary Well Location
- Temporary Well and Boring
- Existing Monitoring Well
- Historical Temporary Well and Boring
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 50 100 Feet

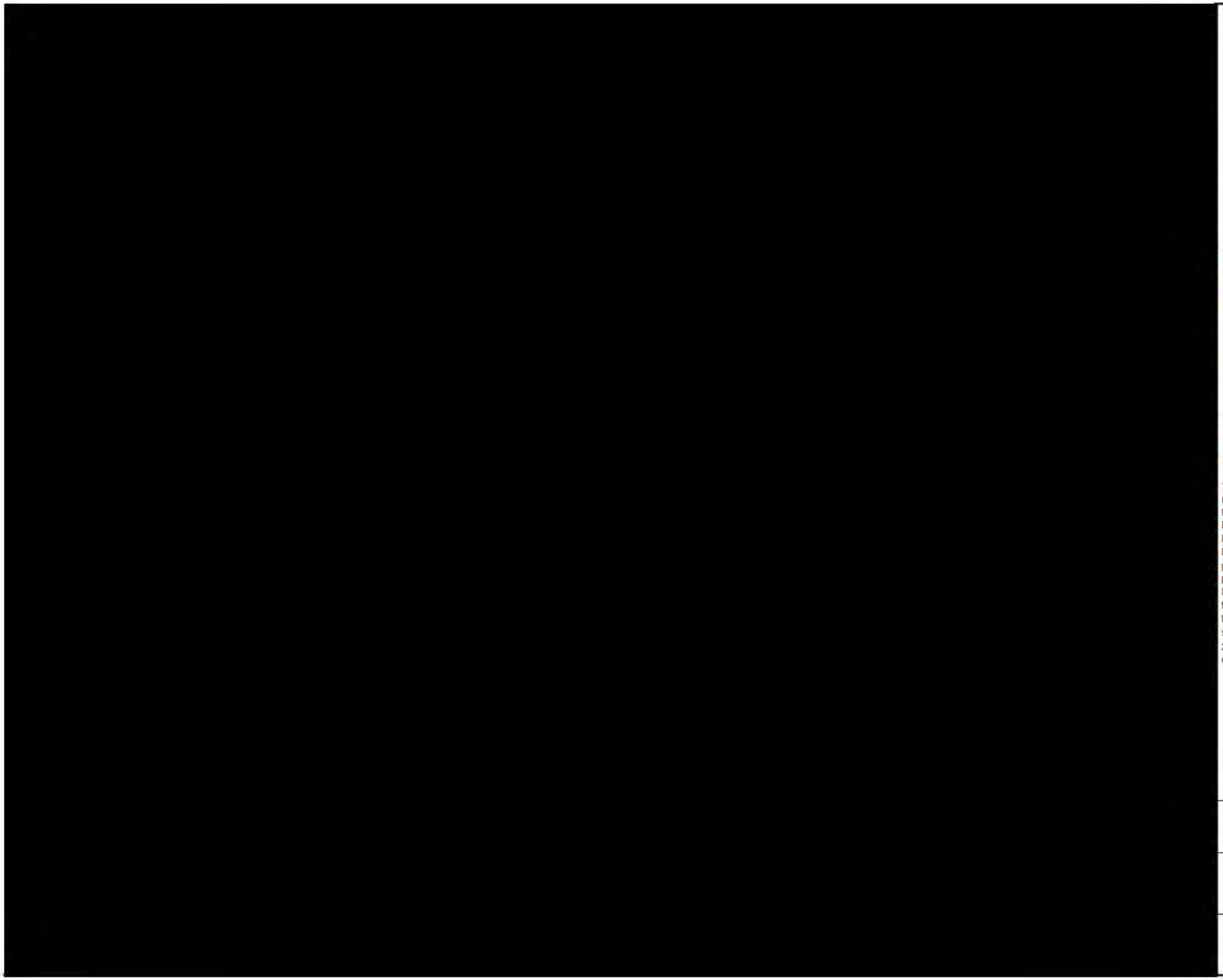
TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations

[redacted]

ARCADIS

FIGURE
2



[redacted]

Legend

- Hand Auger Soil Sample
- Existing Monitoring Well
- Historical Boring
- Historical Temporary Well and
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 150 300 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Results

[redacted]

ARCADIS

FIGURE
3

Legend

- Hand Auger Soil Sample Location
- Historical Temporary Well and Boring
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 100 200 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations

[redacted]

ARCADIS

FIGURE
4

Legend

- Hand Auger Soil Sample
- Historical Temporary Well and Boring
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 200 400 Feet

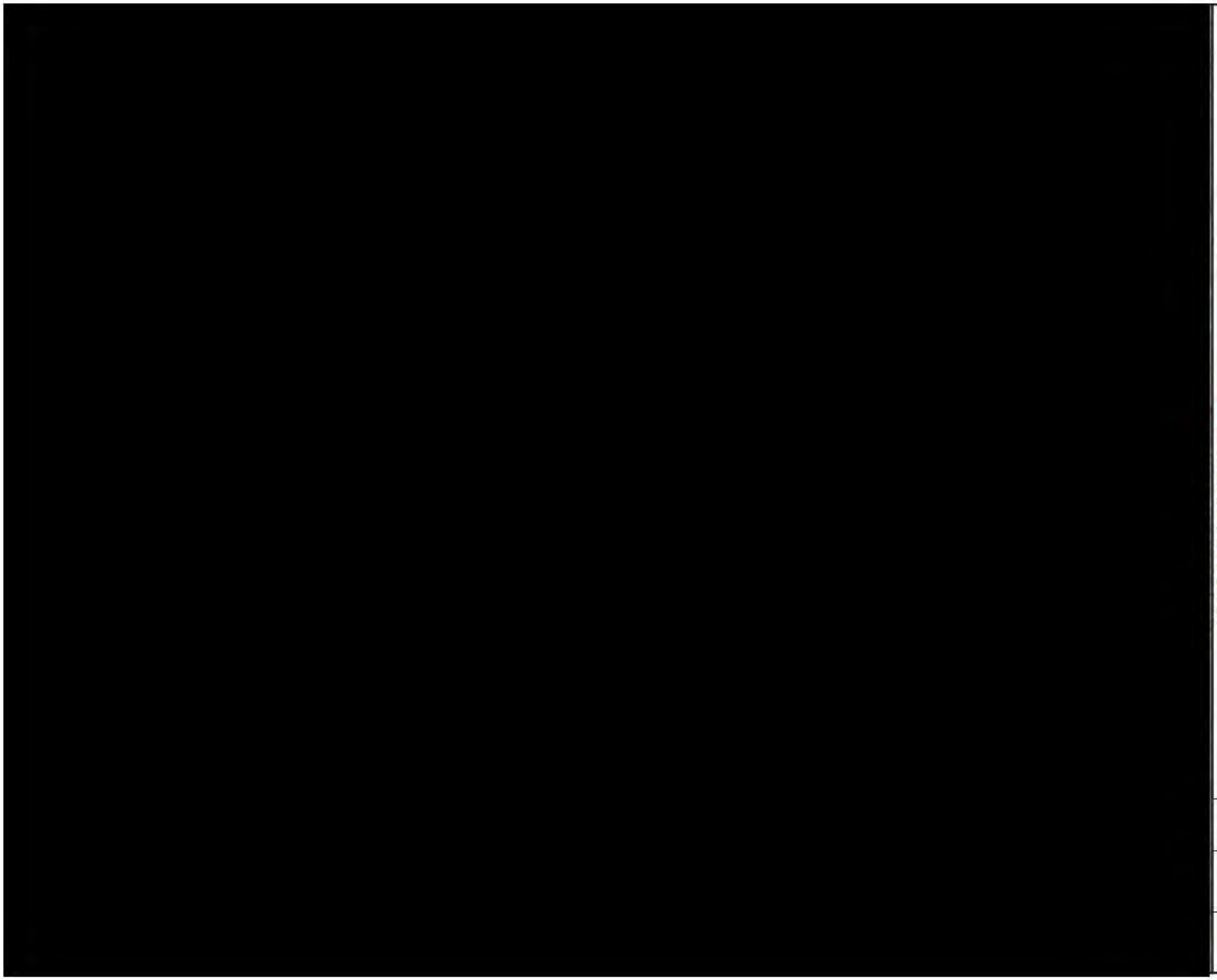
TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations

[redacted]

ARCADIS

FIGURE
5



[redacted]

Legend

- DPT Soil Boring Location
- Temporary Well and Boring
- Historical Temporary Well and Boring
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 75 150 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations

[redacted]

ARCADIS

FIGURE
6

[redacted]

Legend

- Hand Auger Soil Sample Location
- Historical Temporary Well and Boring
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 75 150 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations

[redacted]

ARCADIS

FIGURE
7

[redacted]

Legend

- Hand Auger Soil Sample
- Existing Monitoring Well
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 50 100 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations

[redacted]

ARCADIS

FIGURE
8

[redacted]

Legend

- Temporary Well and Boring
- DPT Soil Boring Location
- Existing Monitoring Well
- Historical Boring
- Inferred Groundwater Direction
- Former Fire Training Pit
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 150 300 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Location

[redacted]

ARCADIS

FIGURE
9

Legend

- Hand Auger Soil Sample
- Existing Monitoring Well
- Inferred Groundwater Direction
- AFFF Site

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 60 120 Feet

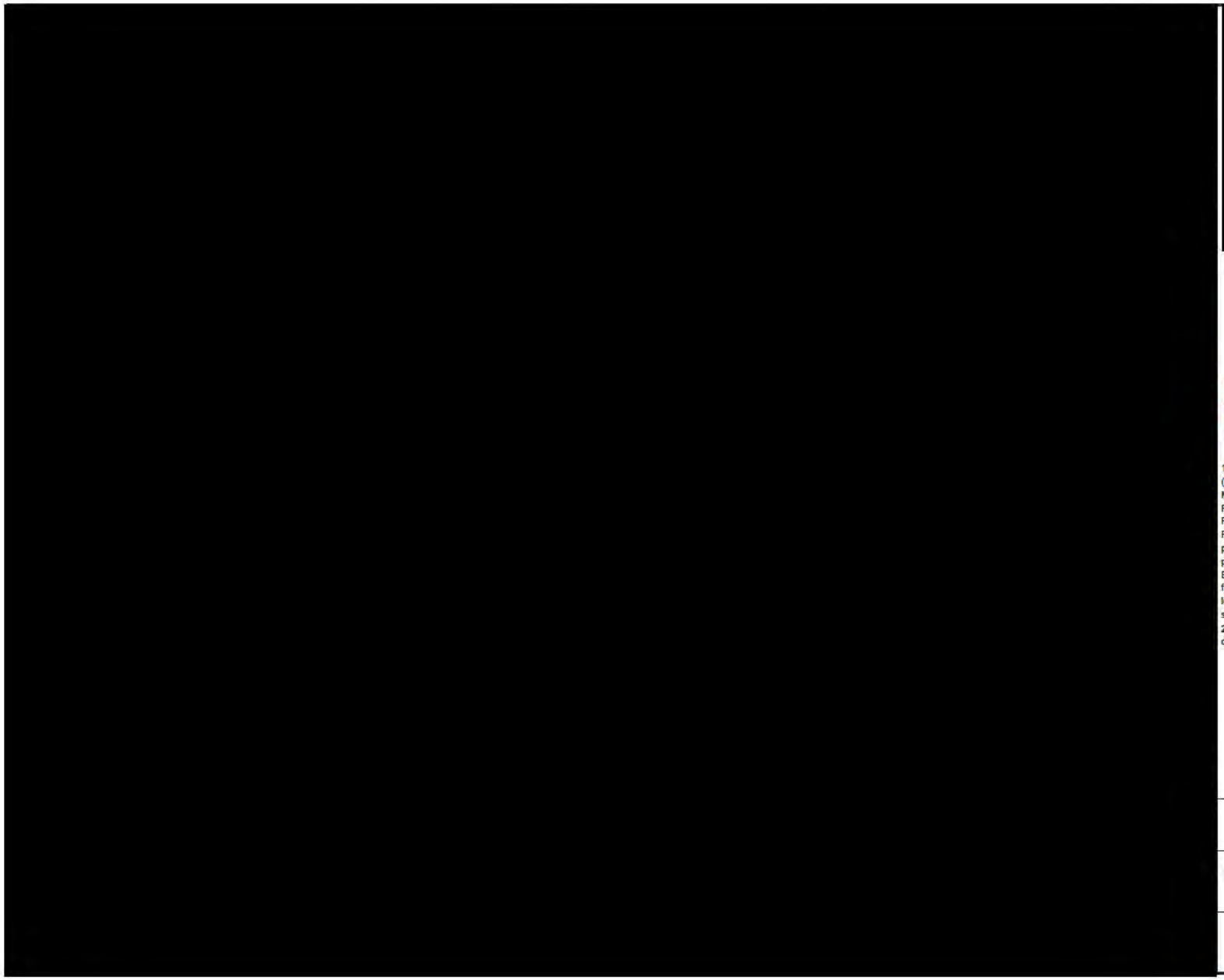
TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations

[redacted]

ARCADIS

FIGURE
10



Legend

- Hand Auger Soil Sample Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.

2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 150 300 Feet

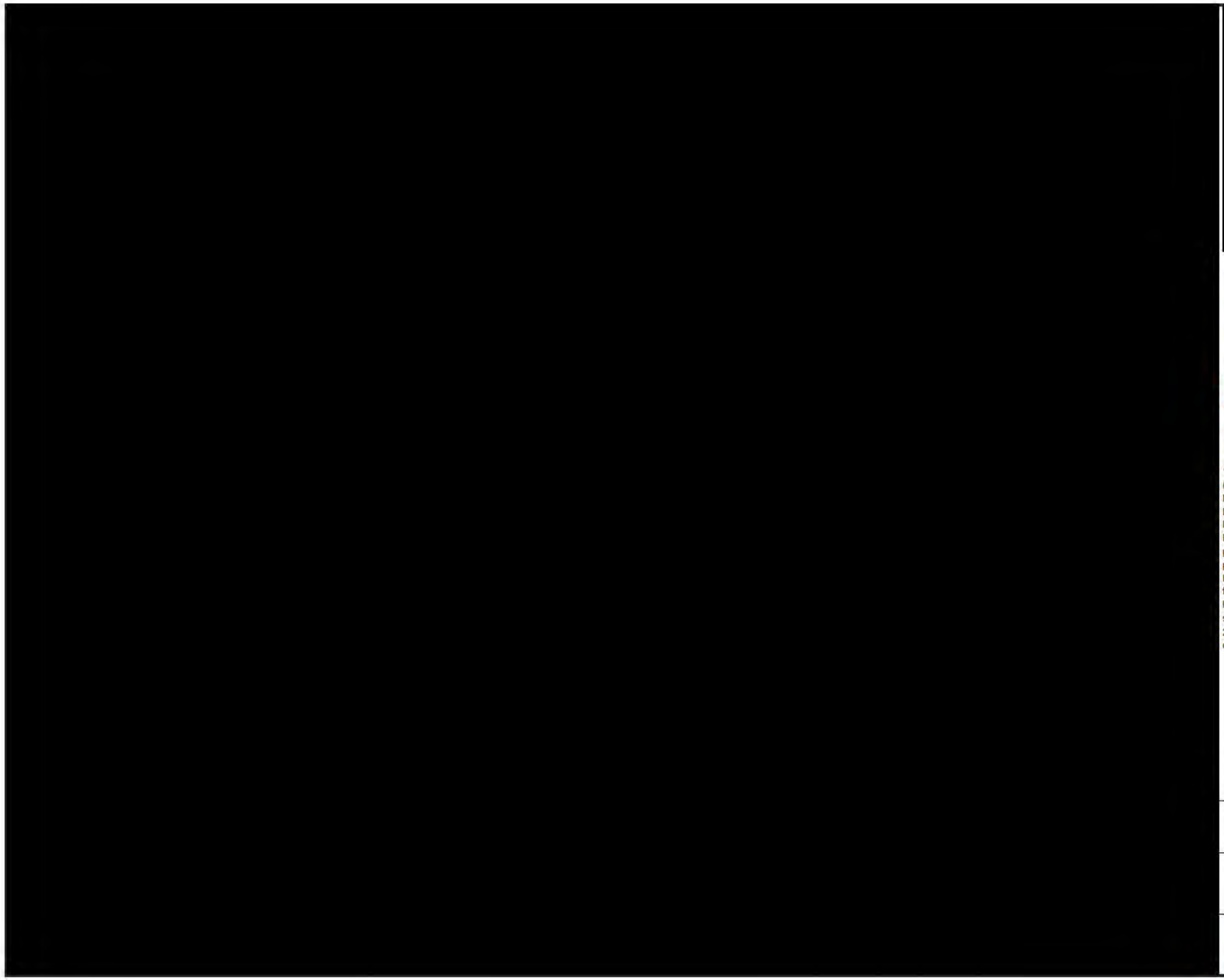
TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations - Soil Samples

[redacted]

ARCADIS

FIGURE
11-A



Legend

- Hand Auger Soil Sample Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.

2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 150 300 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations
Groundwater Samples

[redacted]

ARCADIS

FIGURE
11-B


[redacted]

Legend

- Hand Auger Soil Sample Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 200 400 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations - Soil Samples

[redacted]

ARCADIS

FIGURE
12-A

[redacted]

Legend

- Hand Auger Soil Sample Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 200 400 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations
Groundwater Samples

[redacted]

ARCADIS

FIGURE
12-B

Legend

- Hand Auger Soil Sample Location
- Temporary Well Location
- DPT Soil Boring Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 200 400 Feet

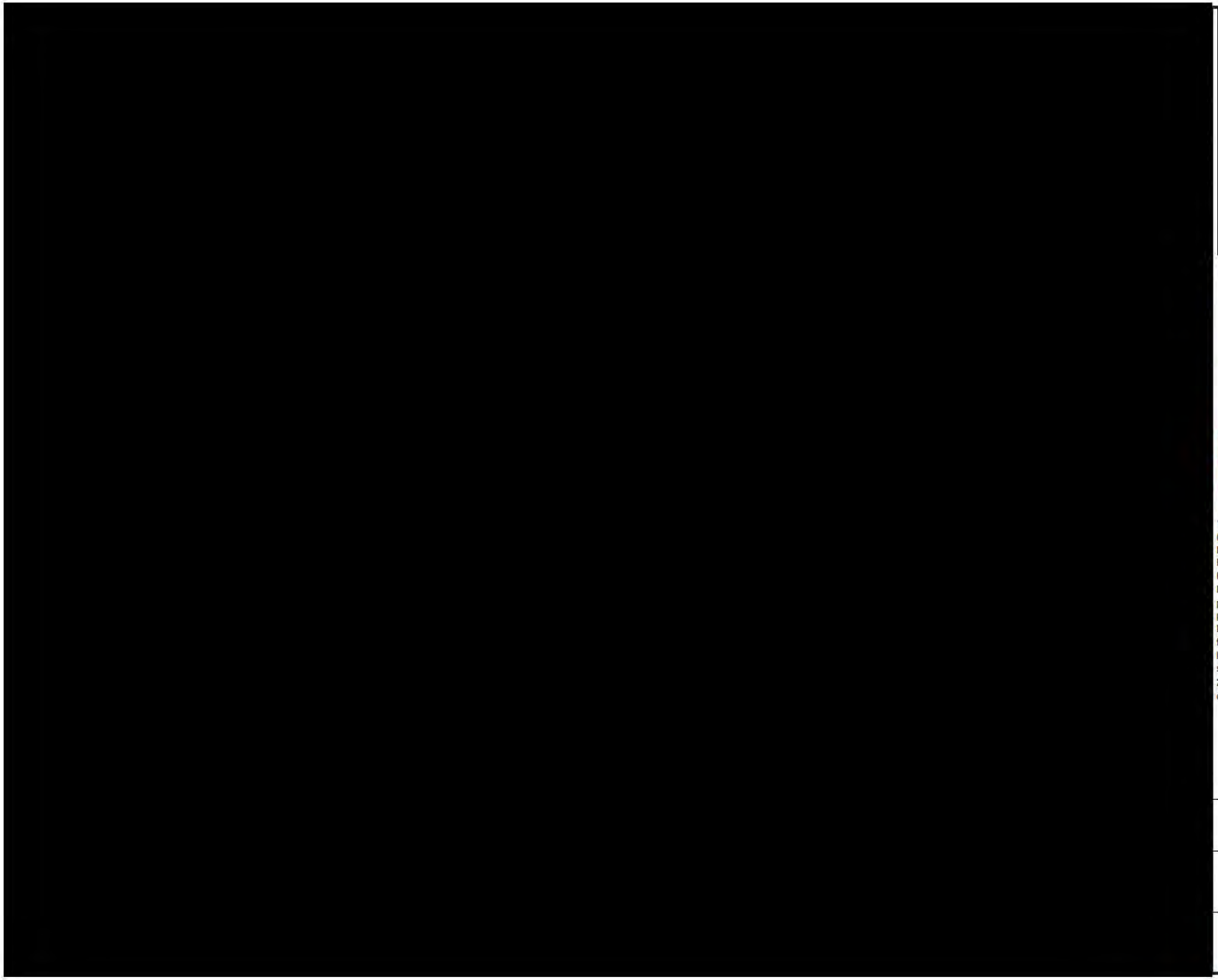
TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations - Soil Samples

[redacted]

ARCADIS

FIGURE
13-A



Legend

- Hand Auger Soil Sample
- Temporary Well Location
- DPT Soil Boring Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.

2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

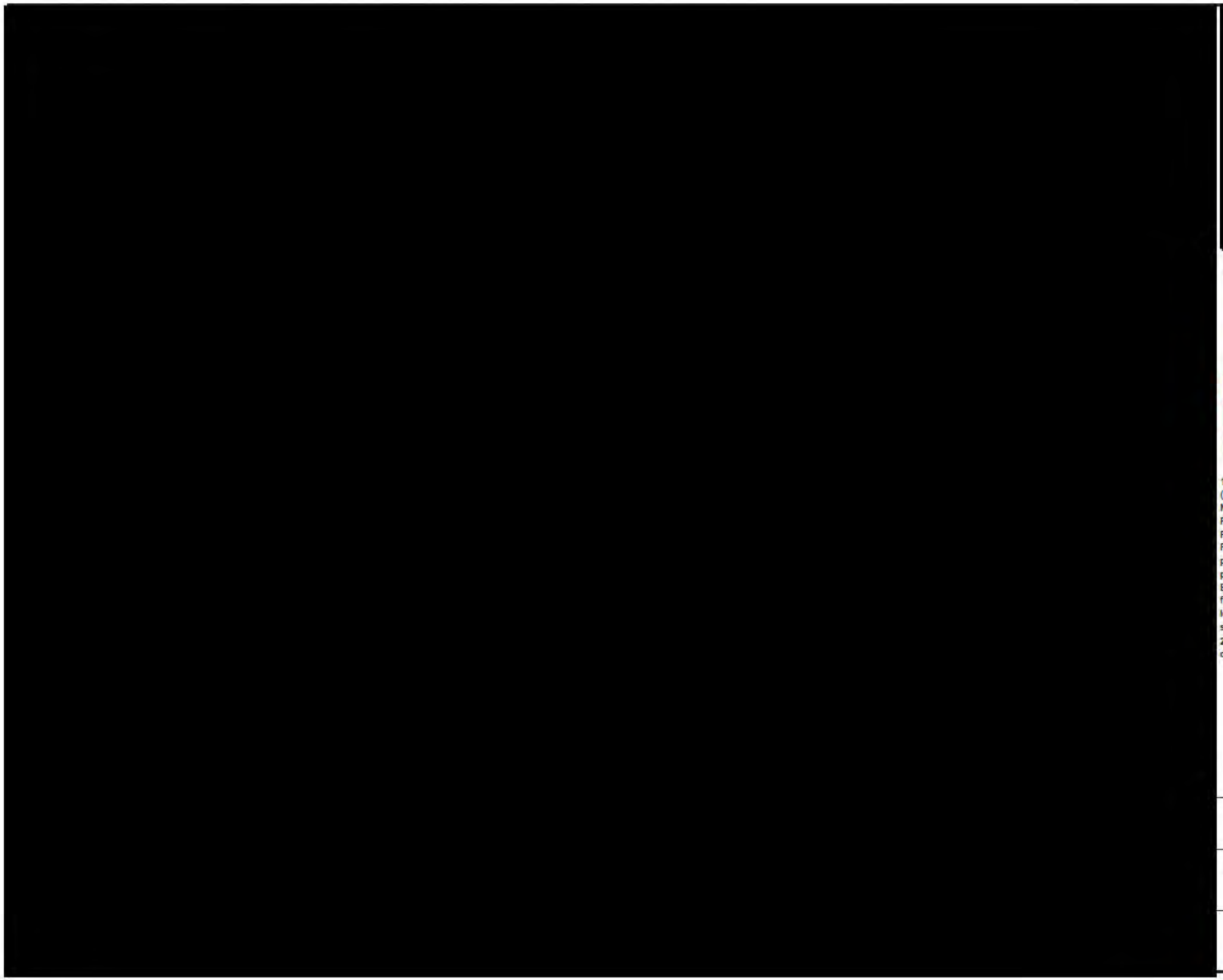
0 200 400 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations
Groundwater Samples
[redacted]

ARCADIS

FIGURE
13-B


[redacted]

Legend

- Hand Auger Soil Sample
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.

2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 150 300 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations - Soil Samples
[redacted]

ARCADIS

FIGURE
14-A

[redacted]

Legend

- Hand Auger Soil Sample
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

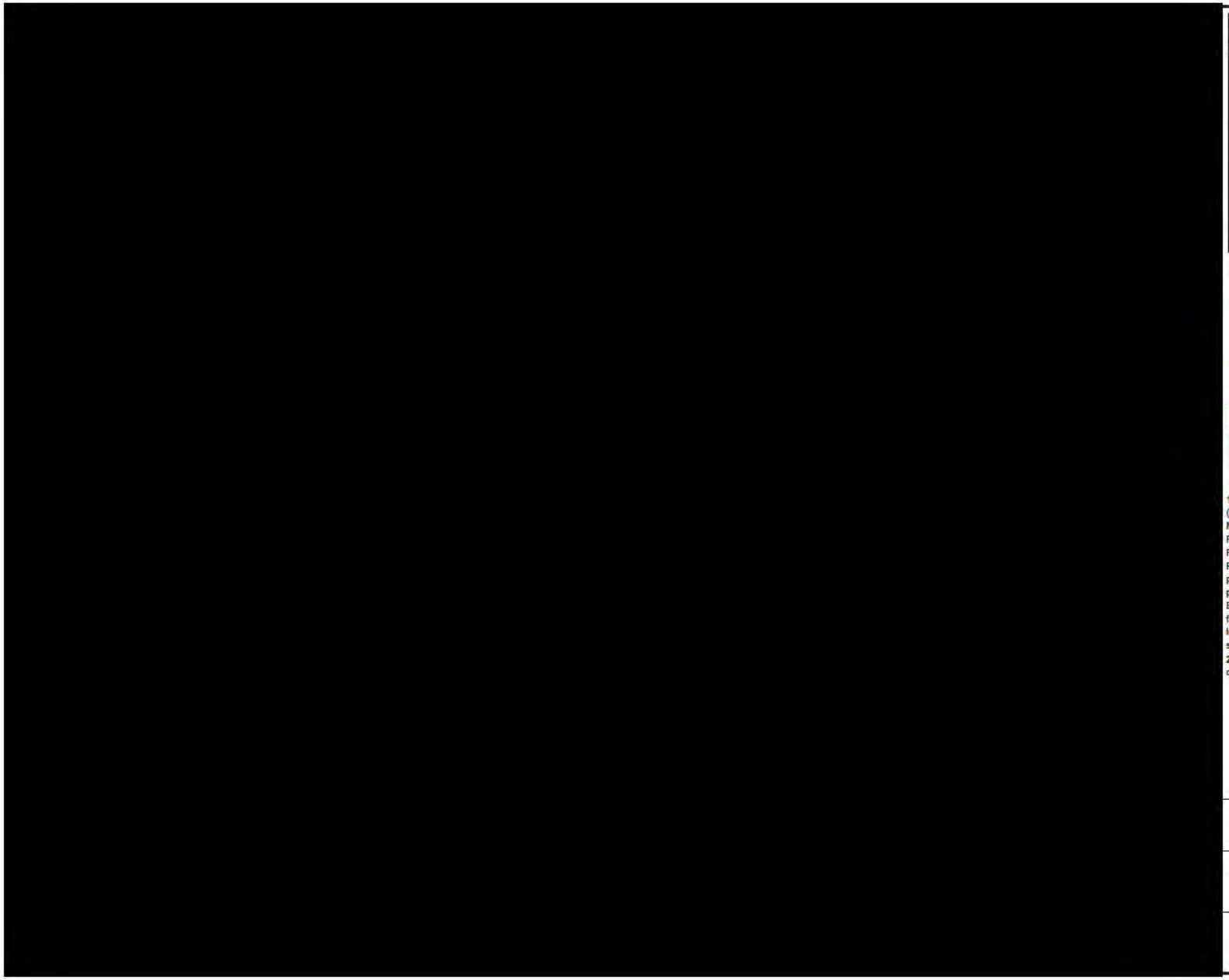
0 150 300 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations
Groundwater Samples
[redacted]

ARCADIS

FIGURE
14-B



Legend

- Hand Auger Soil Sample Location
- DPT Soil Boring Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.

2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 150 300 Feet

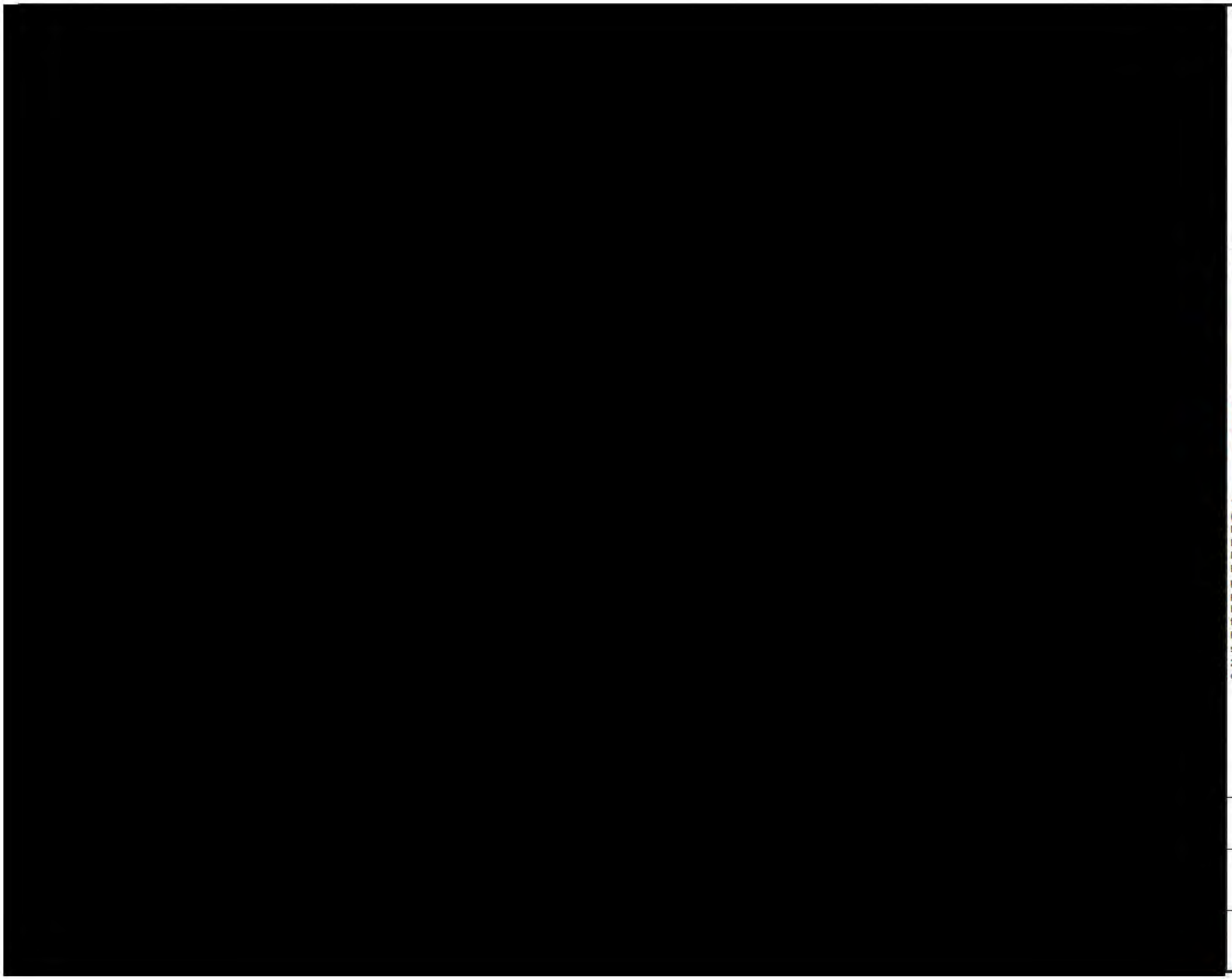
TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations - Soil Samples

[redacted]

ARCADIS

FIGURE
15-A



[redacted]

Legend

- Hand Auger Soil Sample Location
- DPT Soil Boring Location
- Temporary Well and Boring
- Existing Monitoring Wells
- AFFF Site
- Utility Corridor
- Building Footprint

1. Samples were analyzed for the full per- and polyfluoroalkyl substances (PFAS) suite. However, in accordance with Department of Defense Memorandum dated 15 Oct 2019, SUBJECT: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program (DoD Memo), analytical results were only screened against those PFAS analytes for which screening levels have been established: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS). The Florida Department of Environmental Protection provisional cleanup target levels (CTLs) established for these three PFAS are either the same or higher than the DoD screening levels, therefore, the sampling data were screened against the DoD Memo screening criteria.
2. **Bolded** values indicate the result was detected greater than the limit of detection.

N

0 200 400 Feet

TYNDALL AIR FORCE BASE
FLORIDA

PFAS Sampling Locations
Groundwater Samples

[redacted]

ARCADIS

FIGURE
15-B

VOLUME 8 OF 11

APPENDICES (CONTINUED)

VOLUME 9 OF 11

APPENDICES (CONTINUED)

VOLUME 10 OF 11

APPENDICES (CONTINUED)

VOLUME 11 OF 11

APPENDICES (CONTINUED)

THE FOLLOWING APPENDICES ARE PROVIDED ELECTRONICALLY ONLY:

-- End of Project Table of Contents --

SUBJECT: Worker Safety on Contaminated Soils Jobsites

1. FAR Clause 52.236-13 Accident Prevention
    - Requires Contractor to comply with standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910
    - Requires Contractor to comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1 in effect on the date of solicitation.

2. Specification 01 35 26 Governmental Safety Requirements
    - Section 1.2.4 provides contractual definition of a competent person for excavation and trenching.
    - Section 1.6.2.1 requires the Contractor Site Safety and Health Officer (SSHO) to
        - Review, approve, sign, implement, and enforce the Contractor Accident Prevention Plan (APP) and Activity Hazard Analysis (AHA)
        - Ensure subcontractor compliance with safety and health requirements
        - Provide and keep a record of site safety orientation and indoctrination for Contractor employees, subcontractor employees and site visitors.
    - Section 1.6.3.2 requires the Contractor to conduct safety meetings for all trade workers at least weekly
    - Section 1.7 requires the Contractor to
        - Prepare a written site-specific APP that
            - Covers all paragraph and subparagraph elements in EM 385-1-1 Appendix A
            - Is job-specific
            - Addresses any unusual or unique aspects of the project
            - Interfaces with the Contractor's overall safety and health program
            - Requires sub-contractor compliance
            - Provide plans in accordance with the requirements outlined in Appendix A of EM 385-1-1.
        - Section 1.7.2.9 requires the Contractor to
            - Identify the safety and health aspects of excavation
            - Provide and prepare an excavation plan in accordance with EM 385-1-1 section 25.A and UFGS Specification 31 00 00 Earthwork

3. Specification 31 00 00 Earthwork
    - Section 3.7 states that the Contractor will encounter contaminated soil and/or groundwater during construction activities
    - Requires the Contractor to conduct handling and moving of contaminated soil and/or groundwater to comply with section 02 61 13 and 01 57 19

4. Specification 02 61 13 (Tyndall) Excavation and Handling of Contaminated Material
    - Section 1.2.2 Requires the Contractor to fulfill its obligation under 29 CFR 1910.120 Hazardous Waste Operations and Emergency Response (HAZWOPER) and address health and Safety of its employees under this standard

5. Specification 01 57 19 (Tyndall) Temporary Environmental Controls – Tyndall Standard

- Section 1.5.5 requires Contractors to ensure and document every employee completes a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures compliance with federal, state, and local requirements.
- Section 3.6.7 requires Contractor to keep dust down at all times, including during nonworking periods
- Section 3.6.7 requires Contractor to sprinkle or treat soil with dust suppressants.
- Section 3.6.7 prohibits dry power brooming
- Section 3.6.7 restricts air-blowing to cleaning nonparticulate debris

6. 29 CFR 1910.120 (29 CFR 1926.65) Hazardous Waste Operations and Emergency Response

- Requires Contractor to develop and implement a site-specific Site Safety and Health Plan (SSHP)
- Requires all site workers are trained (Initial 24 – 40 hours + annual 8 hour refresher)
    - Personal Protective Equipment (29 CFR Subpart I)
        - Levels of Protection (A, B, C, D)
        - Use of Respirators
        - Protective clothing
    - Medical surveillance requirements
    - Exposure monitoring / Air sampling
    - Heat and Cold Stress
    - Standard Operating Procedures (SOPs)
        - Engineering controls
        - Work practices
        - Administrative controls
        - Personal hygiene and decontamination
        - Site rules / Prohibitions
        - Work permit requirements
        - Material procedures
            - Soil
            - Liquids
            - Radioactive materials
            - Spill controls
            - Container handling
                - Opening, sampling, overpacking, draining, pumping, purging, inerting, cleaning, excavation and removal
    - Site control measures
    - Emergency equipment and first aid
    - Emergency response and contingency procedures

7. EM 385-1-1 Safety and Health Requirements
    - Section 01.A.03 Restates OSHA General Duty clause requiring each employee to comply with applicable SOH requirements, wear prescribed SOH equipment, report unsafe conditions or activities, preventing avoidable mishaps, and working in a safe manner.
    - Section 01.A.12
        - Requires Contractor to develop and implement an APP that has been reviewed and accepted by the GDA
        - Requires Contractor to include hazard-specific plans for work being performed
        - Requires APP to be developed and signed by a Qualified Person and the Contractor
        - Requires the Contractor's APP to include work performed by subcontractors
    - Section 01.A.14
        - Requires Contractor to employ a Risk Management Process that includes risk identification, assessment, and prioritization to minimize, monitor, and control probability and/or impact of unfortunate event to an acceptable level
        - Contractor may use USACE AHA format or another format that includes all the elements identified in the USACE AHA.
        - AHA (or Contractor-specific format) must
            - Define steps performed within each activity / task / Defined Feature of Work (DFOW) and Identify work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and control measures
            - Must identify qualified and competent persons for specified activities
            - Used by Contractor and USACE personnel to assure work is being performed consistent with the AHA
    - Section 01.B.02 requires Contractor to provide an SOH indoctrination prior to the start of work and continuous SOH training to enable them to perform their work in a safe manner
    - Section 01.B.03 provides minimum listing of subjects required in orientation
    - Section 05 establishes USACE requirements for use of Personal Protective Clothing and Safety Equipment that adds detail to OSHA requirements in 29 CFR 1910 Subpart I
    - Section 06A.02 requires a qualified industrial hygienist or equivalent competent person in industrial hygiene operations to evaluate the jobsite for possible exposure to hazardous or toxic agents or environments to formulate a hazard control program.
    - Section 25.A.01.c requires development and use of an Excavation and Trenching Plan that includes a task-specific AHA, competent person, frequent inspections, and rescue operations.
    - Section 33 restates requirements of 29 CFR 1910.120, HAZWOPER and adds requirement to use AHAs

8. Contractor APP
   - Respiratory protection plan outlines basic OSHA requirements
   - Establishes Health Hazard Control Plan
   - Implements Hazard Communication Plan
   - Hazardous Material and Waste Site-Specific Safety Plan complies with HAZWOPER planning requirements

9. Contractor Site Orientation Extract advises app workers of presence of contaminated soils, locations of contamination and requirements for personal hygiene.

10. Contractor has added information regarding work in/around contaminated soils to all Earthwork AHAs and Preparatory meetings.

****

USACE / NAVFAC / AFCEC **UFGS-01 35 26 (May 2024)**

Preparing Activity: NAVFAC **Superseding**
UFGS-01 35 26 (November 2020)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated April 2024
****

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS

05/24

PART 3 EXECUTION

-- End of Section Table of Contents --

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USACE / NAVFAC / AFCEC | **UFGS-01 35 26 (May 2024)**

Preparing Activity: NAVFAC | **Superseding UFGS-01 35 26 (November 2020)**

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated April 2024

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SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS
05/24

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NOTE: This guide specification covers the requirements for safety and occupational health requirements for the protection of Contractor and Government personnel, property, and resources.

This guide specification is intended for use in Contracts that specify FAR 52.236-13 Accident Prevention, or its Alternate I, to include Contracts for construction, dismantling, renovation and demolition; dredging; environmental restoration (investigation, design, remediation); asbestos abatement or lead hazard control; projects in the continental U.S. and overseas.

The requirements of this guide specification are a supplement to the U.S. Army Corps of Engineers (USACE) Safety and Occupational Health Requirements, EM 385-1-1 and clarify safety concerns for high-risk construction activities.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

All additions to the specification by the designers, must be written in accordance with the Plain Writing Act of 2010.

Remove information and requirements not required in respective project, whether or not brackets are present.

The Contractor Safety Self-Evaluation Checklist is

available for download on the Whole Building Design Guide at UFGS 01 35 26 and UFGS Forms, Graphics, and Tables.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

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NOTE: This guide specification includes tailoring for DESIGN-BUILD, DESIGN-BID-BUILD, ARMY, NAVY, NAVFAC MAR, NAVFAC HI, NAVFAC PAC, INDOOR AIR QUALITY, and DREDGING projects. Where an Editor's Note states a paragraph is tailored for a Service or project type, the content of the paragraph, or a portion of the paragraph, is suited specifically to be included only for that Service or project type.

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NOTE: Include other referenced sections in the Contract where work, such as environmental restoration, asbestos abatement, or lead hazard control, requires additional safety and health plans to be made part of and appended to the APP. These sections include Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES for environmental restoration project; Section 02 82 00 ASBESTOS REMEDIATION, for asbestos abatement; Section 02 83 00 LEAD REMEDIATION for lead hazard control activities; and Section 02 85 00 MOLD REMEDIATION. For NAVY environmental restoration Contracts, an APP is required with the overall Contract and a site specific Health and Safety Plan is required for each task order (contact the FEAD Safety Manager for applicability).

Many states and municipalities have more stringent or additional requirements; modify this section as required to meet local requirements and regulations.

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PART 1 GENERAL

1.1 REFERENCES

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NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also

use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

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The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 52.2	(2017) Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ANSI/ASSP A10.34	(2021) Protection of the Public on or Adjacent to Construction Sites
ANSI/ASSP A10.44	(2020) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
ANSI/ASSP Z490.1	(2016) Criteria for Accepted Practices in Safety, Health, and Environmental Training

ASTM INTERNATIONAL (ASTM)

ASTM D6245	(2012) Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality and Ventilation
ASTM D6345	(2010) Standard Guide for Selection of Methods for Active, Integrative Sampling of Volatile Organic Compounds in Air
ASTM F855	(2020) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1048	(2016) Guide for Protective Grounding of Power Lines
IEEE C2	(2023) National Electrical Safety Code

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)

ANSI/ISEA Z89.1	(2014; R 2019) American National Standard for Industrial Head Protection

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA Z535.2	(2011; R 2017) Environmental and Facility Safety Signs

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 51B	(2024) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2023; ERTA 7 2023; TIA 23-15) National Electrical Code
NFPA 70E	(2024) Standard for Electrical Safety in the Workplace
NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 306	(2024) Standard for the Control of Gas Hazards on Vessels

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

ANSI/SMACNA 008	(2007) IAQ Guidelines for Occupied Buildings Under Construction, 2nd Edition

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety -- Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1919	Gear Certification
29 CFR 1926	Safety and Health Regulations for Construction
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

1.2 DEFINITIONS

The following definitions are for the convenience of the reader. If there

is a referenced document in the text of this specification section, that is the document that should define terms for that paragraph. If further clarification is needed, contact the Contracting Officer.

1.2.1 Site Safety and Health Officer (SSHO)

A Contractor Employee that is responsible for overseeing and ensuring implementation of the prime Contractor's Safety and Occupational Health (SOH) program according to the Contract, EM 385-1-1, applicable federal, state, and local requirements.

1.2.1.1 Level One SSHO

A designated employee with full-time SOH responsibility that meets and follows the requirements of EM 385-1-1.

1.2.1.2 Level Two SSHO

A designated employee with Level Two SSHO responsibility that meets and follows the requirements of EM 385-1-1. Level Two SSHOs cannot be assigned to projects that have a residual Risk Assessment Code (RAC) of high or extremely high.

1.2.1.3 Level Three SSHO

A designated Qualified Person or Competent Person with SOH responsibility that meets and follows the requirements of EM 385-1-1. Level 3 SSHOs cannot be assigned to projects that have a residual RAC of high or extremely high.

1.2.1.4 Alternate SSHO

An employee that meets the definition of the contract-required level SSHO, but is not the primary SSHO.

1.2.2 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are unsanitary, hazardous, or dangerous to personnel, and who has authorization to take prompt corrective measures to eliminate them.

1.2.3 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

1.3 SUBMITTALS

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NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification

technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy and Air Force projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy and Air Force projects, or choose the second bracketed item for Army projects.

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Government Acceptance or Approval does not remove responsibility from the Contractors for their actions or liability.

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

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NOTE: For NAVFAC PAC Area of Responsibility, select the "G" designation for Accident Prevention Plan (APP) and remove the "G" designation for Indoor Air Quality (IAQ) Management Plan, under the SD-01 Preconstruction Submittals.

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SD-01 Preconstruction Submittals

Accident Prevention Plan (APP); G[, [_____]]

Dive Operations Plan; G[, [_____]]

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NOTE: The following two submittal items are tailored for INDOOR AIR QUALITY. Include the following submittal when required by Section 01 33 29

SUSTAINABILITY REQUIREMENTS AND REPORTING, IAQ requirements.

****

[Final IAQ Management Plan; S

] Indoor Air Quality (IAQ) Management Plan; G[, [_____]]

SD-06 Test Reports

Accident Reports; G[, [_____]]

LHE Inspection Reports

Monthly Exposure Reports; G[, [_____]]

SD-07 Certificates

Crane Operators/Riggers

Activity Hazard Analysis (AHA); G[, [_____]]

Certificate of Compliance

Contractor Safety Self-Evaluation Checklist

Hot Work Permit

License Certificates

Portable Gauge Operations Planning Worksheet; G[, [_____]]

Radiography Operation Planning Work Sheet; G[, [_____]]

Standard Lift Plan; G[, [_____]]

Third Party Certification of Floating Cranes and Barge-Mounted Mobile Cranes

1.4 PUBLIC HEALTH EMERGENCIES

In the event of a declared public health emergency, follow safety precautions as required by the Occupational Safety and Health Administration (OSHA) www.osha.gov, the Centers for Disease Control and Prevention (CDC) www.cdc.gov, and as required by federal, state and local requirements.

1.5 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report by the fifth of each month. This report is a compilation of employee-hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the progress payment.

1.6 CONTRACTOR SAFETY SELF-EVALUATION CHECKLIST

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NOTE: Include this paragraph in NAVY projects only. Do not use on ARMY projects.

****

Contracting Officer will provide a "Contractor Safety Self-Evaluation checklist" to the Contractor at the preconstruction conference. Complete the checklist monthly and submit with each request for payment voucher. This submission is required monthly even when a payment voucher is not requested. An acceptable score of 90 or greater is required. Failure to submit the completed safety self-evaluation checklist or achieve a score of at least 90 may result in retention of up to 10 percent of the voucher. The Contractor Safety Self-Evaluation checklist can be found on the Whole Building Design Guide website at www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/ufgs-01-35-26

1.7 REGULATORY REQUIREMENTS

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NOTE: Edit to include any additional requirements which apply to the work to be performed including Federal, state and local laws, regulations and statutes; Host Nation requirements; and NAVY, AIR FORCE and ARMY installation or US Army Corps of Engineers District requirements by authority and document number. Consult with the supporting local Safety and Occupational Health Office (SOHO) for assistance in identifying local requirements.

****

In addition to the detailed requirements included in the provisions of this Contract, comply with the most recent edition of USACE EM 385-1-1, and the following[federal, state, and local][host nation] laws, ordinances, criteria, rules and regulations at the date of the Solicitation for this Contract. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.7.1 Subcontractor Safety Requirements

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NOTE: Use this paragraph and subsequent subparagraphs for NAVY projects in CONUS and Hawaii only.

****

For this Contract, neither Contractor nor any subcontractor may enter into Contract with any subcontractor that fails to meet the following requirements. The term subcontractor in this and the following paragraphs means any entity holding a Contract with the Contractor or with a subcontractor at any tier.

1.7.1.1 Experience Modification Rate (EMR)

Subcontractors on this Contract must have an effective EMR less than or equal to 1.10, as computed by the National Council on Compensation Insurance (NCCI) or if not available, as computed by the state agency's rating bureau in the state where the subcontractor is registered, when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any tier. The Prime Contractor may submit a written

request for additional consideration to the Contracting Officer where the specified acceptable EMR range cannot be achieved. Relaxation of the EMR range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain the certified EMR ratings for all subcontractors on the project and make them available to the Government at the Government's request.

1.7.1.2 OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate

Subcontractors on this Contract must have a DART rate, calculated from the most recent, complete calendar year, less than or equal to 3.4 when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any tier. The OSHA Dart Rate is calculated using the following formula:

(N/EH) x 200,000

Where:

N = number of injuries and illnesses with days away, restricted work, or job transfer

EH = total hours worked by all employees during most recent, complete calendar year

200,000 = base for 100 full-time equivalent workers (working 40-hours per week, 50 weeks per year)

The Prime Contractor may submit a written request for additional consideration to the Contracting Officer where the specified acceptable OSHA Dart rate range cannot be achieved for a particular subcontractor. Relaxation of the OSHA DART rate range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain self-certified OSHA DART rates for all subcontractors on the project and make them available to the Government at the Government's request.

1.8 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.8.1 Site Safety and Health Officer (SSHO)

1.8.1.1 Qualifications of SSHO

All SSHOs will have met the training, experience requirements identified in the EM 385-1-1 and this Contract.

1.8.1.2 Duties of SSHO

All SSHOs will carry out the roles and responsibilities as identified in this Contract and the EM 385-1-1. All SSHOs will be designated on an ENG Form 6282, provided by the Contracting Officer. Superintendent, QC Manager, and SSHO are subject to dismissal if their required duties are not being effectively carried out. If either the Superintendent, QC Manager, or SSHO are dismissed, project work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.8.1.3 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors at the project location. The SSHO, supervisors, or foremen must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.8.2 Roles and Responsibilities of Prime Contractor and SSHO

The Prime Contractor and SSHO must ensure that the requirements of all applicable OSHA and EM 385-1-1 are met for the project. The Prime Contractor must ensure an SSHO or an equally qualified Alternate SSHO(s) is at the worksite at all times to implement and administer the Contractor's safety program and Government accepted Accident Prevention Plan. If the required SSHO has to temporarily (that is, up to 24 hours / 1 day) leave the site of work due to unforeseen or emergency situations, a Level One, Two, or Three SSHO may be used in the interim and must be on the site of work at all times when work is being performed.

If the SSHO must be off-site for a period longer than 24 hours / 1 day, a qualified alternate that meets the contract requirements must be onsite.

a. Prime contractor must ensure all SSHOs will:

(1) Are designated on an ENG Form 6282.

(2) Meet minimum training and experience requirements identified in EM 385-1-1.

(3) Execute roles and responsibilities identified in EM 385-1-1.

1.8.3 Additional Requirements

****
NOTE: This paragraph is tailored for NAVY. Choose the bracketed items below when the project allows the SSHO to serve as the QC Manager or Superintendent or both. Consult with the local NAVFAC, FEAD, or ROICC construction office to determine the potential for the SSHO to wear multiple hats on the specific project based on the hazards of the project, job complexity, size, and any other pertinent factors. Coordinate with Section 01 45 00 QUALITY CONTROL. A Level One must not serve any other roles. A level Two or Three may serve in additional roles.
****

The Level[One][Two][Three] SSHO[may also][must not] serve as the Quality Control Manager. The[One][Two][Three] SSHO[may also][must not] serve as the Superintendent.

****
NOTE: Use this subparagraph for NAVFAC Pacific (excluding Contingency Engineering), Hawaii, and Marianas projects only.
****

The SSHO must have completed a 40-hour contract safety awareness course based on the content and principles of EM 385-1-1, and instructed in accordance with the guidelines of ANSI/ASSP Z490.1, by a trainer meeting the qualifications of paragraph QUALIFIED TRAINER REQUIREMENTS. If the SSHO does not have a current certification, certification must be obtained within 60 days, maximum, of Contract award.

[1.8.4 Contract Site Safety And Health Officer(s)(SSHOs) Minimum Requirements

Provide a minimum of one Level One SSHO that meets the requirements of EM 385-1-1 for this project.

][1.8.5 Contract Site Safety and Health Officer(s)(SSHOs) Minimum Requirements for Projects with[Multiple Work Sites,][Multiple Shifts,][Limited Scope,][or Maintenance, or Service Contracts].

****
NOTE: Insert this paragraph when a contract has:

1) More than one worksite or multiple shifts that require a separate full-time SSHO.

2) A limited Scope.

3) Maintenance and Service Contracts.

Fill in the worksite locations below and the required level of SSHO when a project has more than one worksite that requires a dedicated full-time SSHO. Just because a project has more than one worksite does not automatically mean additional full-time SSHOs are required. Only consider specifying additional full-time SSHOs when the contract includes separate projects and each project is uniquely different from one another usually having separate plans and specifications or large geographical distances. This is very rare and should only be specified after careful consideration and consultation with the KO, SOHO, and administering construction office. This is very rare and should only be specified after careful consideration and consultation with the FEAD/OICC/ROICC. Add or delete locations as needed.
****

Provide a separate full-time Level [One][Two][Three] SSHO at each of the following worksites:

a. [INDICATE WORKSITE LOCATION] Level [One][Two][Three] SSHO

b. [INDICATE WORKSITE LOCATION] Level [One][Two][Three] SSHO

c. [INDICATE WORKSITE LOCATION] Level [One][Two][Three] SSHO

The SSHOs for the worksites listed above must each have the required training, experience, and qualifications in accordance with EM 385-1-1.

Each SSHO is responsible for implementing and managing the Safety and Occupational Health (SOH) program at the worksite indicated, while ensuring that the 29 CFR 1926, EM 385-1-1, Contracts, and all applicable federal, state, and Local requirements are met.

]1.8.6 Dredging Contract Site Safety and Health Officer(s)(SSHOs) Requirements

****

Note: This paragraph and subsequent paragraphs are tailored for DREDGING. Dredging Contracts may include several project sites. Specification writers must coordinate with the local USACE District (KO and SOHO), NAVFAC, FEAD (Facilities, Engineering and Acquisition Division), or ROICC (Resident Officer in Charge of Construction) office to determine the project site and SSHO staffing requirements, considering size of Contract, organization of dredging operation requirements, dispersion of operations, and travel time to associated sites by SSHO.

****

1.8.6.1 Dredging SSHO Personnel Requirements

a. Provide a minimum of one primary Level One SSHO assigned for the primary shift.

Note: Hopper Dredges with U.S. Coast Guard, credentialed crews the prime contractor may designate a Level Two SSHO in lieu of having a Level one SSHO onboard.

b. For a project involving multiple work shifts, provide a minimum of a Level[One][Two] SSHO for each additional shift.

c. For individual dredging projects the prime contractor will designate additional Level Three SSHOs at locations where the primary Level One SSHO is not located (example: on dredge, tug, material placement site).

Examples of one dredging project site is reflected in each of the following:

(1) a mechanical dredge, tug(s) and scow(s), scow route, and material placement site; or

(2) a hydraulic pipeline dredge, attendant plant, and material placement site; or,

(3) a hopper dredge (include land-based material placement site - if applicable.)

d. Designated SSHOs must be present at the project site, located so that they have full mobility and reasonable access to all major work

operations and must be available during their shift for immediate verbal consultation and notification.

e. Designated Level One and Two SSHOs must have direct report authority to a senior project (or corporate) management official.

f. Designated Level Three SSHOs must report potential safety and occupational health hazards, incidents, and concerns to the Level One or Two SSHO on shift.

g. Level One and Level Two SSHOs for dredging must have a minimum of 3 years experience in one of the following areas:

(1) Supervising/managing dredging activities.

(2) Supervising/managing marine construction activities.

(3) Supervising/managing land-based construction activities.

(4) Work managing safety programs or processes.

(5) Conducting hazard analyses and developing controls in activities or environments with similar hazards.

1.8.7 Competent Person for Confined Space Entry

Provide a CP for Confined Space Entry who meets the requirements of EM 385-1-1 and herein. The CP for Confined Space Entry must supervise the entry into each confined space in accordance with EM 385-1-1.

****
NOTE: Use this paragraph for operations involving combustible or hazardous materials.
****

[Since this work involves operations that handle combustible or hazardous materials, this person must have the ability to understand and follow through on the air sampling, Personal Protective Equipment (PPE), and instructions of a Marine Chemist, Coast Guard authorized persons, or Certified Industrial Hygienist. Confined space and enclosed space work must comply with NFPA 306, 29 CFR 1915, "Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment," or as applicable in 29 CFR 1910 for general industry, 29 CFR 1926 for construction.

]1.8.8 Qualified Trainer Requirements

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NOTE: Subparagraph Item "a" below with reference to NAVFAC is tailored for NAVFAC Marianas projects only.
****

Individuals qualified to instruct the 40-hour contract safety awareness course, or portions thereof, must meet the definition of a Competent Person Trainer as defined in the EM 385-1-1, and, at a minimum, possess a working knowledge of the following subject areas: EM 385-1-1, Electrical Standards, Lockout/Tagout, Fall Protection, Confined Space Entry for Construction; Excavation, Trenching and Soil Mechanics, and Scaffolds in accordance with 29 CFR 1926.

Instructors are required to:

a. Prepare class presentations that cover construction-related safety requirements and includes topics covered in the NAVFAC Construction Safety Hazard Awareness Course for Contractors.

b. Ensure that all attendees attend all sessions by using a class roster signed daily by each attendee. Maintain copies of the roster for at least 5 years. This is a certification class and must be attended 100 percent. In cases of emergency where an attendee cannot make it to a session, the attendee can make it up in another class session for the same subject.

c. Update training course materials whenever an update of the EM 385-1-1 becomes available.

d. Provide a written exam of at least 50 questions. Students are required to answer 80 percent correctly to pass.

e. Request, review and incorporate student feedback into a continuous course improvement program.

1.8.9 Requirements for All Contractor Jobsite Personnel Holding H-1B or H-2B Visas

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NOTE: This paragraph is tailored for inclusion in NAVFAC MARIANAS projects only.
****

All Contractor jobsite workers holding an H-1B or H-2B visa must complete a minimum 16-hours of classroom training on the requirements of the latest version of EM 385-1-1 prior to their first day on the jobsite to include but not limited to the following topics: Sanitation; Medical and First Aid Requirements; Temporary Facilities; Personal Protective Equipment; Electrical; Hand and Power Tools; Material Handling and Storage; Motor Vehicles; Fall Protection; Work Platforms and Scaffoldings; Demolition; Safe Access, Ladders, Floor & Wall Openings, Stairs and Railing Systems; Excavations and Trenching; and Confined Spaces, prior to reporting to the jobsite.

Submit a list of workers who have completed the training to the Contracting Officer prior to them reporting to the jobsite. Update the list as additional workers are added. Maintain the updated list at the jobsite for review by the Government's designated authority. Include the name and qualifications of qualified trainer(s) that provided the training. Personnel who have taken the 40-hour Construction Safety Hazard Awareness Training Course for Contractors or similar course that includes emphasis on EM 385-1-1 compliance, are not required to take the 16-hours of classroom training on the requirements of the latest version of the EM 385-1-1. The 16-hours classroom training may be provided by the Guam Contractors Association (GCA), Trades Academy, or other qualified trainers as outlined in paragraph QUALIFIED TRAINER REQUIREMENTS.

1.8.10 Crane Operators/Riggers

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NOTE: Add the following paragraph for projects in the State of Hawaii only. Paragraph is tailored for

NAVFAC HI.
****

Crane Operators must also meet the crane operator requirements of the State of Hawaii for Crane certification.

1.8.11 Preconstruction Conference

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction conference. This includes the project superintendent, Site Safety and Occupational Health Officer, quality control manager, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the Contract. This list of proposed AHAs will be reviewed and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays. The creation of the APP and Schedule will be created after being given Notice to Proceed.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin until an APP is established that is acceptable to the Contracting Officer.

1.9 ACCIDENT PREVENTION PLAN (APP)

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NOTE: Contracts that include FAR 52.236-13 Accident Prevention require the Contractor to prepare and execute a written Accident Prevention Plan (APP) in accordance with EM 385-1-1 to include Activity Hazard Analyses (AHA). For Design-Build projects a Design Submittal of an APP is also required.
****

1.9.1 Accident Prevention Plan (APP)

****
NOTE: This paragraph is tailored for DESIGN-BUILD, use for DESIGN-BUILD projects only.
****

Provide a site-specific Accident Prevention Plan (APP), including Activity Hazard Analyses (AHA), in accordance with EM 385-1-1, ENG Form 6293, for the design team to follow during site visits and investigations. For subsequent visits, update the plan if there are changes in the personnel who will be attending, or the tasks to be performed. Submit the APP for review and acceptance by the Government at least 15 calendar days prior to the start of the design field work after being given Notice to Proceed. Field work must not begin until the design APP is accepted by the Contracting Officer. Prior to the start of construction incorporate the

Design APP into the Construction APP so that one site specific APP exists for the project and submit to the Contracting Officer for acceptance.

If the design scope includes borings or other subsurface investigations, include in the APP the type of field investigation and verification techniques, such as visual, local utility locating service scanning and third party subcontractor scanning, potholing, or hand digging within two feet of a known utility that will be required. Mark underground utilities before starting any ground-disturbing actions. Notify the Contracting Officer 15 days prior to the start of soil borings or sub-surface investigations.

1.9.2 Accident Prevention Plan (APP)

****
NOTE: Second paragraph includes tailoring for ARMY projects. In second paragraph, choice of bracketed options are for ARMY projects only.
****

Submit the Accident Prevention Plan (APP) for review and acceptance by the Government at least 15 calendar days prior to the start, after being given Notice to Proceed. A competent person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, ENG Form 6293, and herein. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and occupational health program referenced in the APP in the applicable APP element, and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. The Government considers the Prime Contractor to be the "controlling employer" for all worksite safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the Contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP must be signed in accordance with the APP and ENG Form 6293 Accident Prevention Plan Worksheet. The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

****
NOTE: For projects in the NAVFAC PAC Area of Responsibility, DESIGN-BUILD projects select the first set of brackets and edit the sentence by selecting "15" calendar days. For DESIGN-BID-BUILD projects, select the second set of brackets.
****

[Submit the APP to the Contracting Officer [15] [_____] calendar days prior to the date of the preconstruction conference for acceptance.][Submit the APP to the Contracting Officer within 30 calendar days of Contract award and not less than 10 calendar days prior to the date of the

preconstruction conference for acceptance.]Work cannot proceed without an accepted APP. Once reviewed and accepted by the Contracting Officer, the APP and attachments will be enforced as part of the Contract. Disregarding the provisions of this Contract or the accepted APP is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the Contract. Changes to the accepted APP must be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and Quality Control Manager. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e., imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSP A10.34), and the environment.

1.9.3 Names and Qualifications

Provide plans in accordance with the requirements outlined in EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. As a minimum, designate and submit qualifications of Competent Persons (CP) for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance. Designate and submit qualifications for additional CPs as applicable to the work performed under this Contract.

1.9.4 Plans

Provide plans in the APP in accordance with the requirements outlined in EM 385-1-1, including the following:

[1.9.4.1 Lead, Cadmium, and Chromium Compliance Plan

****
NOTE: Include this bracketed subparagraph and the following subparagraphs when project is expected to involve these hazardous materials or contaminated sites.
****

Identify the safety and health aspects of work involving lead, cadmium and chromium, and prepare in accordance with Section 02 83 00 LEAD REMEDIATION.

][1.9.4.2 Asbestos Hazard Abatement Plan

Identify the safety and health aspects of asbestos work, and prepare in

accordance with Section 02 82 00 ASBESTOS REMEDIATION.

][1.9.4.3 Site Safety and Health Plan

Identify the safety and health aspects, and prepare in accordance with Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES.

][1.9.4.4 Polychlorinated Biphenyls (PCB) Plan

Identify the safety and health aspects of Polychlorinated Biphenyls work, and prepare in accordance with Sections 02 84 33 REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBs) and 02 61 23 REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS.

][1.9.4.5 Site Demolition Plan

****
NOTE: Include this subparagraph when the project includes demolition or deconstruction activities. This paragraph includes NAVY tailoring - include the last tailored sentence on NAVY projects only. Refer to the other sections of the Contract for the types of surveys needed.
****

Identify the safety and health aspects, and prepare in accordance with Section 02 41 00 [DEMOLITION] [AND] [DECONSTRUCTION] and referenced sources. Include engineering survey as applicable.

]1.10 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the work, and provided for Prime Contractor review and approval before submitting to the Contracting Officer. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the work. Format the AHA in accordance with EM 385-1-1 or as directed by the Contracting Officer. Submit the AHA for review at least [15][_____] working days prior to the start of each activity task, or DFOW. The Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, and scaffolding.

1.10.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required

safety and health controls for that work activity.

1.10.2 AHA Signature Log

Each employee performing work as part of an activity, task or DFOW must review the AHA for that work and sign a signature log specifically maintained for that AHA prior to starting work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.11 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment manufacturer's manuals.

1.12 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment in accordance with EM 385-1-1. The Government has no responsibility to provide emergency medical treatment.

1.13 NOTIFICATIONS AND REPORTS

1.13.1 Accident Notification

Notify the Contracting Officer in accordance with the EM 385-1-1 Accident Reporting Timeline.

Table
Accident Reporting Required Timeline

Accident Type	Notify KO or COR	Complete Final Accident Report on ENG 3394 and provide to KO or COR
Fatality, in-patient hospitalization, amputation, eye loss, or property damage over $600,000.	Immediately, no later than (NLT) 8 Hours	Within 7 Days
All other accidents and near misses	Immediately, no later than (NLT) 24 Hours	Within 7 Days

Within notification include Contractor name; Contract title; type of Contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any accident or near miss.

1.13.2 Accident Reports

****
NOTE: The following subparagraphs include tailoring for NAVY and ARMY projects. The sentences referring to ESAMS are tailored for use on NAVY projects. The sentences referring to ENG Form 3394 are tailored for use on ARMY projects.
****

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. Complete the applicable NAVFAC Contractor Incident Reporting System (CIRS), and electronically submit via the NAVFAC Enterprise Safety Applications Management System (ESAMS). Complete and submit an accident investigation report in ESAMS within 7 days for accidents as defined by EM 385-1-1. Complete the investigation report within 30 days. Accidents must include a written report submitted as an attachment in ESAMS using the following outline:

(1) Summary description to include:

(a) process

(b) findings

(c) outcomes

(2) Root Cause

(3) Direct Factors

(4) Indirect and Contributing Factors

(5) Corrective Actions

(6) Recommendations

All accidents are reportable, regardless of whether or not it is recordable.

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. All accidents are reportable, regardless of whether or not it is recordable. Complete the applicable USACE Accident Report, ENG Form 3394, and provide the report to the Contracting Officer within 7 calendar days of the accident. The Contracting Officer will provide copies of any required or special forms. All accidents are reportable, regardless of whether or not it is recordable.

****
NOTE: The following subparagraph includes tailoring for ARMY and NAVY projects. The first set of sentences is tailored for use on NAVY projects only, and the second set is tailored for use on ARMY projects only.
****

b. Near Misses: For Navy Projects, complete the applicable documentation in NAVFAC Contractor Incident Reporting System (CIRS), and electronically submit via the NAVFAC Enterprise Safety Applications Management System (ESAMS). For Army projects, report all "Near Misses" to the[Contracting Officer][COR][_____], using local accident reporting procedures, within 24 hours. The[Contracting Officer][COR][_____] will provide the Contractor the required forms. Near miss reports are considered positive and proactive Contractor safety management actions.

****
NOTE: Include the following subparagraph for all NAVY projects.
****

c. Conduct an accident investigation for any load handling equipment accident (including rigging accidents) to establish the root cause(s) of the accident. Complete the Load Handling Equipment (LHE) Accident Report (Crane and Rigging Accident Report) form and provide the report to the Contracting Officer within 30 calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the Contracting Officer. The Contracting Officer will provide a blank copy of the accident report form.

1.13.3 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

[1.13.4 Certificate of Compliance and Pre-lift Plan/Checklist for LHE and Rigging

****
NOTE: Include the following paragraph for all NAVY projects; paragraph is optional for ARMY projects.
****

Provide a Certificate of Compliance for LHE entering an activity under this Contract and in accordance with EM 385-1-1. Post certifications on the crane.

Develop a Standard Lift Plan (SLP) in accordance with EM 385-1-1 and using Standard Pre-Lift Crane Plan/Checklist for each lift planned. Submit SLP to the Contracting Officer for approval within 15 calendar days in advance of planned lift.

][1.13.5 Third Party Certification of Floating Cranes and Barge-Mounted Mobile Cranes

****
NOTE: The following paragraph is tailored for NAVY projects. Include this tailored paragraph for CONUS NAVY projects only. Paragraph can be deleted on projects where no floating or barge-mounted mobile cranes would be used.
****

Floating cranes and barge-mounted mobile cranes used to perform work under the terms of this Contract must be certified in accordance with 29 CFR 1919 by an OSHA accredited person prior to submitting the required Lift Plan. Include proof of certification with the initial Lift Plan submission.

]1.14 HOT WORK PERMIT

1.14.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e., welding or cutting) or operating other flame-producing/spark producing devices, from the [Fire Division][_____]. A permit is required from the Explosives Safety Office for work in and around where explosives are processed, stored, or handled. Contractors are required to meet all criteria before a permit is issued. Provide at least two 9 kg 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of 1 hour after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency [Fire Division][_____] phone number. Report any fire, no matter how small, to the responsible [Fire Division][_____] immediately.

1.14.2 Work Around Flammable Materials

Obtain permit approval from a NFPA Certified Marine Chemist, or Certified Industrial Hygienist for "Hot Work" within or around flammable materials (such as fuel systems or welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, or vaults) that have the potential for flammable or explosive atmospheres.

Whenever these materials, except beryllium and chromium (VI), are encountered in indoor operations, local mechanical exhaust ventilation systems that are sufficient to reduce and maintain personal exposures to within acceptable limits must be used and maintained in accordance with manufacturer's instruction and supplemented by exceptions noted in EM 385-1-1.

1.15 RADIATION SAFETY REQUIREMENTS

****
NOTE: The following paragraph includes tailoring for NAVY projects. Include the tailored item for NAVY projects only.
****

Submit License Certificates, employee training records, and Leak Test Reports for radiation materials and equipment to the Contracting Officer and Radiation Safety Office (RSO), and Contracting Oversight Technician (COT) for all specialized and licensed material and equipment proposed for use on the construction project (excludes portable machine sources of ionizing radiation including moisture density and X-Ray Fluorescence (XRF)). Maintain on-site records whenever licensed radiological materials or ionizing equipment are on Government property.

Protect workers from radiation exposure in accordance with 10 CFR 20, ensuring any personnel exposures are maintained As Low As Reasonably Achievable.

1.15.1 Radiography Operation Planning Work Sheet

****
NOTE: The following paragraph includes tailoring for NAVY projects. Include the tailored item for NAVY projects only.
****

Submit a Gamma and X-Ray Radiography Operation Planning Work Sheet to Contracting Officer 14 days prior to commencement of operations involving radioactive materials or radiation generating devices. For portable machine sources of ionizing radiation, including moisture density and XRF, use and submit the Portable Gauge Operations Planning Worksheet instead. The Contracting Officer and COT will review the submitted worksheet and provide questions and comments.

Contractors must use primary dosimeters process by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

1.15.2 Site Access and Security

****
NOTE: The following paragraph includes tailoring for NAVY projects. Include the tailored items for NAVY projects only.
****

Coordinate site access and security requirements with the Contracting Officer and COT for all radiological materials and equipment containing ionizing radiation that are proposed for use on a government facility. For gamma radiography materials and equipment, a Government escort is required for any travels on the Installation. The Navy COT or Government authorized representative will meet the Contractor at a designated location outside the Installation, ensure safety of the materials being transported, and will escort the Contractor for gamma sources onto the Installation, to the job site, and off the Installation. For portable machine sources of ionizing radiation, including moisture density and XRF, the Navy COT or Government authorized representative will meet the Contractor at the job site.

Provide a copy of all calibration records, and utilization records to the COT for radiological operations performed on the site.

1.15.3 Loss or Release and Unplanned Personnel Exposure

Loss or release of radioactive materials, and unplanned personnel exposures must be reported immediately to the Contracting Officer, RSO, and Base Security Department Emergency Number.

1.15.4 Site Demarcation and Barricade

****
NOTE: Add any applicable Instructions or local requirements to first sentence.

****

Properly demark and barricade an area surrounding radiological operations to preclude personnel entrance, in accordance with EM 385-1-1, Nuclear Regulatory Commission, and Applicable State regulations and license requirements, and in accordance with requirements established in the accepted Radiography Operation Planning Work Sheet.

Do not close or obstruct streets, walks, and other facilities occupied and used by the Government without written permission from the Contracting Officer.

1.15.5 Security of Material and Equipment

Properly secure the radiological material and ionizing radiation equipment at all times, including keeping the devices in a properly marked and locked container, and secondarily locking the container to a secure point in the Contractor's vehicle or other approved storage location during transportation and while not in use. While in use, maintain a continuous visual observation on the radiological material and ionizing radiation equipment. In instances where radiography is scheduled near or adjacent to buildings or areas having limited access or one-way doors, make no assumptions as to building occupancy. Where necessary, the Contracting Officer will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, position a fully instructed employee inside the building or area to prevent exiting while external radiographic operations are in process.

1.15.6 Transportation of Material

Comply with 49 CFR 173 for Transportation of Regulated Amounts of Radioactive Material. Notify Local Fire authorities and the site Radiation Safety Officer (RSO) of any Radioactive Material use.

1.15.7 Schedule for Exposure or Unshielding

Actual exposure of the radiographic film or unshielding the source must not be initiated until after 5 p.m. on weekdays.

1.15.8 Transmitter Requirements

Adhere to the base policy concerning the use of transmitters, such as radios and cell phones. Obey Emissions control (EMCON) restrictions.

1.16 CONFINED SPACE ENTRY REQUIREMENTS

****

NOTE: The following paragraph includes tailoring for NAVY projects. Include the last bracketed sentence for NAVY projects only as applicable.

****

Confined space entry must comply with EM 385-1-1, 29 CFR 1926, 29 CFR 1910, and Directive CPL 2.100. Any potential for a hazard in the confined space requires a permit system to be used.[Contractors entering and working in confined spaces while performing shipyard industry work are required to follow the requirements of 29 CFR 1915.]

1.16.1 Rescue Procedures and Coordination with Local Emergency Responders

Develop and implement an on-site rescue and recovery plan and procedures. The rescue plan must not rely on local emergency responders for rescue from a confined space.

1.17 CONSTRUCTION INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN

****
NOTE: This paragraph and subsequent subparagraphs are tailored for INDOOR AIR QUALITY.
****

****
NOTE: Preventing indoor air quality problems resulting from the construction process sustains the comfort and health of construction workers and building occupants. Include last bracketed sentence when required by Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING, IAQ requirements.

For projects in the NAVFAC PAC Area of Responsibility, select the second set of brackets, "not less than 10 calendar days before the preconstruction conference."

The following paragraph contains tailoring for DESIGN-BUILD and DESIGN-BID-BUILD.
****

Submit an IAQ Management Plan [within [15][_____] calendar days after design[Contract award][notice to proceed] and not less than 10 calendar days before the preconstruction conference.][not less than 10 calendar days before the preconstruction conference.] Revise and resubmit Plan as required by the Contracting Officer. Make copies of the final plan available to all workers on site. Include provisions in the Plan to meet the requirements specified below and to ensure safe, healthy air for construction workers and building occupants.[Submit Final IAQ Management Plan for inclusion in the Sustainability eNotebook, in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.]

1.17.1 Requirements During Construction

Provide for evaluation of indoor Carbon Dioxide concentrations in accordance with ASTM D6245. Provide for evaluation of volatile organic compounds (VOCs) in indoor air in accordance with ASTM D6345. Use filters with a Minimum Efficiency Reporting Value (MERV) of 8 in permanently installed air handlers during construction.

1.17.1.1 Control Measures

Meet or exceed the requirements of ANSI/SMACNA 008 to help minimize contamination of the building from construction activities. The five requirements of this manual which must be adhered to are described below:

a. HVAC protection: Isolate return side of HVAC system from surrounding environment to prevent construction dust and debris from entering the duct work and spaces.

b. Source control: Use low emitting paints and other finishes, sealants, adhesives, and other materials as specified. When available, cleaning products must have a low VOC content and be non-toxic to minimize building contamination. Utilize cleaning techniques that minimize dust generation. Cycle equipment off when not needed. Prohibit idling motor vehicles where emissions could be drawn into building. Designate receiving/storage areas for incoming material that minimize IAQ impacts.

c. Pathway interruption: When pollutants are generated use strategies such as 100 percent outside air ventilation or erection of physical barriers between work and non-work areas to prevent contamination.

d. Housekeeping: Clean frequently to remove construction dust and debris. Promptly clean up spills. Remove accumulated water and keep work areas dry to discourage the growth of mold and bacteria. Take extra measures when hazardous materials are involved.

e. Scheduling: Control the sequence of construction to minimize the absorption of VOCs by other building materials.

1.17.1.2 Moisture Contamination

a. Remove accumulated water and keep work dry.

b. Use dehumidification to remove moist, humid air from a work area.

c. Do not use combustion heaters or generators inside the building.

d. Protect porous materials from exposure to moisture.

e. Remove and replace items which remain damp for more than a few hours.

1.17.2 Requirements After Construction

After construction ends and prior to occupancy, conduct a building flush-out or test the indoor air contaminant levels. Flush-out must be a minimum 2 weeks with MERV-13 filtration media as determined by ASHRAE 52.2 at 100 percent outside air. Air contamination testing must be consistent with EPA's current Compendium of Methods for the Determination of Air Pollutants in Indoor Air. After building flush-out or testing and prior to occupancy, replace filtration media. Filtration media must have a MERV of 13 as determined by ASHRAE 52.2.

1.18 DIVE SAFETY REQUIREMENTS

****
NOTE: NAVFAC SE projects require 25 working days in the bracketed option.
****

Develop a Dive Operations Plan, AHA, emergency management plan, and personnel list that includes qualifications, for each separate diving operation. Submit these documents to the District Dive Coordinator (DDC) via the Contracting Officer, for review and approval at least [15][_____] working days prior to commencement of diving operations. These documents must be at the diving location at all times. Provide each of these documents as a part of the project file.

1.19 [SEVERE STORM PLAN][SEVERE WEATHER PLAN FOR MARINE ACTIVITIES (SWPMA)]

In the event of a severe storm warning, the Contractor must comply with the applicable Storm Plan and:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

PART 2 PRODUCTS

****
NOTE: Use this tailored paragraph for ARMY projects only.
****

Not Used

2.1 CONFINED SPACE SIGNAGE

****
NOTE: Include this tailored paragraph for NAVY projects only.
****

Provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs for confined spaces must comply with NEMA Z535.2. Provide signs with wording: "DANGER--PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" in bold letters a minimum of 25 mm one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" must be red and readable from 1520 mm 5 feet.

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Head Protection that meets ANSI/ISEA Z89.1

b. Long Pants

c. Appropriate Safety Footwear

d. Appropriate Class Reflective Vests

3.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. Develop an employee check-in/check-out communication procedure to ensure employee safety.

3.1.2 Hazardous Material Use

****
NOTE: This paragraph is tailored for NAVY. Include this paragraph for NAVY projects only.
****

Each hazardous material must receive approval from the Contracting Office or their designated representative prior to being brought onto the job site or prior to any other use in connection with this Contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material.

3.1.3 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this Contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.4 Unforeseen Hazardous Material

Contract documents identify materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e., 29 CFR Part 1910.1000). If material(s) that may be hazardous to human health upon disturbance are encountered during demolition, repair, renovation, or construction operations. Stop that portion of work and notify the Contracting Officer immediately. Within [14][_____] calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification.

3.2 UTILITY OUTAGE REQUIREMENTS

****
NOTE: Consult with local Installation on notice required for utility outage.
****

Apply for utility outages[at least [_____] days in advance][in sufficient time as to not result in impacts or delays to the project schedule]. At a minimum, the written request must include the location of the outage, utilities being affected, duration of outage, any necessary sketches, and a description of the means to fulfill energy isolation requirements in accordance with EM 385-1-1. In accordance with EM 385-1-1, where outages involve Government or Utility personnel, coordinate with the Government on all activities involving the control of hazardous energy.

These activities include, but are not limited to, a review of Hazardous Energy Control Program (HECP) and HEC procedures, as well as applicable Activity Hazard Analyses (AHAs). In accordance with EM 385-1-1 and NFPA 70E, work on energized electrical circuits must not be performed without prior Government authorization. Government permission is considered through the permit process and submission of a detailed AHA. Energized work permits are considered only when de-energizing introduces additional or increased hazard or when de-energizing is infeasible.

3.3 OUTAGE COORDINATION MEETING

****
NOTE: For bracketed items, choose representative required for the Installation.
****

After the utility outage request is approved and prior to beginning work on the utility system requiring shut-down, conduct a pre-outage coordination meeting in accordance with EM 385-1-1. This meeting must include the Prime Contractor, the Prime and subcontractors performing the work, the Contracting Officer, and the[Installation representative][Public Utilities representative]. All parties must fully coordinate HEC activities with one another. During the coordination meeting, all parties must discuss and coordinate on the scope of work, HEC procedures (specifically, the lock-out/tag-out procedures for worker and utility protection), the AHA, assurance of trade personnel qualifications, identification of competent persons, and compliance with HECP training in accordance with EM 385-1-1. Clarify when personal protective equipment is required during switching operations, inspection, and verification.

3.4 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1, 29 CFR 1910, 29 CFR 1915, ANSI/ASSP A10.44, NFPA 70E.

3.4.1 Safety Preparatory Inspection Coordination Meeting with the Government or Utility

For electrical distribution equipment that is to be operated by Government or Utility personnel, the Prime Contractor and the subcontractor performing the work must attend the safety preparatory inspection coordination meeting, which will also be attended by the Contracting

Officer's Representative, and required by EM 385-1-1. The meeting will occur immediately preceding the start of work and following the completion of the outage coordination meeting. Both the safety preparatory inspection coordination meeting and the outage coordination meeting must occur prior to conducting the outage and commencing with lockout/tagout procedures.

3.4.2 Lockout/Tagout Isolation

Where the Government or Utility performs equipment isolation and lockout/tagout, the Contractor must place their own locks and tags on each energy-isolating device and proceed in accordance with the HECP. Before any work begins, both the Contractor and the Government or Utility must perform energy isolation verification testing while wearing required PPE detailed in the Contractor's AHA and required by EM 385-1-1. Install personal protective grounds, with tags, to eliminate the potential for induced voltage in accordance with EM 385-1-1.

3.4.3 Lockout/Tagout Removal

Upon completion of work, conduct lockout/tagout removal procedure in accordance with the HECP. In accordance with EM 385-1-1, each lock and tag must be removed from each energy isolating device by the authorized individual or systems operator who applied the device. Provide formal notification to the Government (by completing the Government form if provided by Contracting Officer's Representative), confirming that steps of de-energization and lockout/tagout removal procedure have been conducted and certified through inspection and verification. Government or Utility locks and tags used to support the Contractor's work will not be removed until the authorized Government employee receives the formal notification.

3.5 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with EM 385-1-1.

3.5.1 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the Site Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 and 29 CFR 1926.

3.5.1.1 Additional Personal Fall Protection Measures

In addition to the required fall protection systems, other protective measures such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1. Personal fall protection systems and equipment are required when working from an articulating or extendible boom, swing stages, or

suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing work.

3.5.1.2 Personal Fall Protection Equipment

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Snap hooks and carabineers must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 1633 kg 3,600 lbs in all directions. Use webbing, straps, and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 1.8 m 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system. Equip all full body harnesses with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1.

[3.6 SHIPYARD REQUIREMENTS

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NOTE: This paragraph is tailored for NAVY. Include this paragraph for Navy projects located within a shipyard only.
****

All personnel who enter the Controlled Industrial Area (CIA) must wear mandatory personal protective equipment (PPE) at all times and comply with PPE postings of shops both inside and outside the CIA.

]3.7 EQUIPMENT

3.7.1 Use of Explosives

Explosives must not be used or brought to the project site without prior written approval from the Contracting Officer. Such approval does not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations.

Storage of explosives, when permitted on Government property, must be only where directed and in approved storage facilities. These facilities must be kept locked at all times except for inspection, delivery, and withdrawal of explosives.

3.8 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1.

3.8.1 Electrical Work

As described in EM 385-1-1, electrical work is to be conducted in a

de-energized state unless there is no alternative method for accomplishing the work. In those cases obtain an energized work permit from the[Contracting Officer][Commanding Officer]. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator is allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers are permitted to enter. When work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety footwear, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.

3.8.2 Qualifications

Electrical work must be performed by QP with verifiable credentials who are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA. Journeyman/Apprentice ratio must be in accordance with State, Local[and Host Nation] requirements applicable to where work is being performed.

3.8.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

3.8.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with [NFPA 70][and][IEEE C2] to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

3.8.5 Testing

Temporary electrical distribution systems and devices must be inspected,

tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system, and signed by the electrical CP or QP.

-- End of Section --

SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS - TYNDALL STANDARD
08/2021

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	(Third Edition; Update IV) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.120	Hazardous Waste Operations and Emergency Response
40 CFR 112	Oil Pollution Prevention
40 CFR 122.26	Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)
40 CFR 241	Guidelines for Disposal of Solid Waste
40 CFR 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
40 CFR 258	Subtitle D Landfill Requirements
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 261.7	Residues of Hazardous Waste in Empty Containers
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 262.11	Standards Applicable to Generators of Hazardous Waste - Hazardous Waste Determination and Recordkeeping
40 CFR 262.31	Standards Applicable to Generators of Hazardous Waste-Labeling
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste

40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 273	Standards For Universal Waste Management
40 CFR 273.2	Standards for Universal Waste Management - Batteries
40 CFR 273.3	Standards for Universal Waste Management - Pesticides
40 CFR 273.4	Standards for Universal Waste Management - Mercury Containing Equipment
40 CFR 273.5	Standards for Universal Waste Management - Lamps
40 CFR 279	Standards for the Management of Used Oil
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 300.125	National Oil and Hazardous Substances Pollution Contingency Plan - Notification and Communications
40 CFR 355	Emergency Planning and Notification
40 CFR 403	General Pretreatment Regulations for Existing and New Sources of Pollution
40 CFR 50	National Primary and Secondary Ambient Air Quality Standards
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 63	National Emission Standards for Hazardous Air Pollutants for Source Categories
40 CFR 64	Compliance Assurance Monitoring
40 CFR 745	Lead-Based Paint Poisoning Prevention in Certain Residential Structures

40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 172.101	Hazardous Material Regulation-Purpose and Use of Hazardous Material Table
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

TYNDALL AFB INSTRUCTIONS AND DIRECTIVES

Tyndall AFB Hazardous Waste Management Plan

Tyndall AFB Asbestos Management Plan

Installation Restoration Program and Aqueous Film Forming Foam Guidelines For Tyndall MILCON Rebuild

Environmental Supplemental Guidance

General Environmental Requirements For Contracts

Tyndall AFB Guidelines for Non-ERP Soil Management USACE MILCON Buildout

Tyndall Soils Decision Matrix

Location Map for designated Soil Borrow Storage Area

1.2 DEFINITIONS

1.2.1 Class I and II Ozone Depleting Substance (ODS)

Class I ODS is defined in Section 602(a) of The Clean Air Act. A list of Class I ODS can be found on the EPA website at the following weblink. https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances.

Class II ODS is defined in Section 602(s) of The Clean Air Act. A list of Class II ODS can be found on the EPA website at the following weblink. https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances.

1.2.2 Contractor Generated Hazardous Waste

Contractor generated hazardous waste is materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e., methyl ethyl ketone, toluene), waste thinners, excess

paints, excess solvents, waste solvents, excess pesticides, and contaminated pesticide equipment rinse water.

1.2.3 Electronics Waste

Electronics waste is discarded electronic devices intended for salvage, recycling, or disposal.

1.2.4 Environmental Management System (EMS)

Environmental Management System is a framework that establishes environmental quality program compliance and budgeting for the three key pillars of environmental management (compliance, conservation, and pollution prevention) in accordance with AFI 32-7001 Environmental Management.

1.2.5 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally or historically.

1.2.6 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.7 Hazardous Debris

As defined in paragraph SOLID WASTE, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) in accordance with 40 CFR 261. Hazardous debris also includes debris that exhibits a characteristic of hazardous waste in accordance with 40 CFR 261.

1.2.8 Hazardous Materials

Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172.

Hazardous material is any material that: Is regulated as a hazardous material in accordance with 49 CFR 173; or requires a Safety Data Sheet (SDS) in accordance with 29 CFR 1910.120; or during end use, treatment, handling, packaging, storage, transportation, or disposal meets or has components that meet or have potential to meet the definition of a hazardous waste as defined by 40 CFR 261 Subparts A, B, C, or D. Designation of a material by this definition, when separately regulated or controlled by other sections or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this section for "control" purposes. Such material includes ammunition, weapons, explosive actuated devices, propellants, pyrotechnics, chemical and biological warfare materials, medical and pharmaceutical supplies, medical waste and infectious materials, bulk fuels, radioactive materials,

and other materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs).

1.2.9 Hazardous Waste

Hazardous Waste is any material that meets the definition of a solid waste and exhibit a hazardous characteristic (ignitability, corrosivity, reactivity, or toxicity) as specified in 40 CFR 261, Subpart C, or contains a listed hazardous waste as identified in 40 CFR 261, Subpart D.

1.2.10 Land Application

Land Application means spreading or spraying discharge water at a rate that allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" must occur. Comply with federal, state, and local laws and regulations.

1.2.11 Municipal Separate Storm Sewer System (MS4) Permit

MS4 permits are those held by installations to obtain NPDES permit coverage for their stormwater discharges.

1.2.12 National Pollutant Discharge Elimination System (NPDES)

The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

1.2.13 Oily Waste

Oily waste are those materials that are, or were, mixed with Petroleum, Oils, and Lubricants (POLs) and have become separated from that POLs. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, POLs and may be appropriately tested and discarded in a manner which is in compliance with other state and local requirements.

This definition includes materials such as oily rags, "kitty litter" sorbent clay and organic sorbent material. These materials may be land filled provided that: It is not prohibited in other state regulations or local ordinances; the amount generated is "de minimus" (a small amount); it is the result of minor leaks or spills resulting from normal process operations; and free-flowing oil has been removed to the practicable extent possible. Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, perform a hazardous waste determination prior to disposal. As this can be an expensive process, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

1.2.14 Regulated Waste

Regulated waste are solid wastes that have specific additional federal, state, or local controls for handling, storage, or disposal.

1.2.15 Sediment

Sediment is soil and other debris that have eroded and have been

transported by runoff water or wind.

1.2.16 Solid Waste

Solid waste is a solid, liquid, semi-solid or contained gaseous waste. A solid waste can be a hazardous waste, non-hazardous waste, or non-Resource Conservation and Recovery Act (RCRA) regulated waste. Types of solid waste typically generated at construction sites may include:

1.2.16.1 Debris

Debris is non-hazardous solid material generated during the construction, demolition, or renovation of a structure that exceeds 2.5-inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (for example, cobbles and boulders, including aggregates intended, but not used, for on-site mixing of concrete, mortars, and paving), broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may be reinforced with or contain ferrous wire, rods, accessories and weldments. A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.2.16.2 Green Waste

Green waste is the vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.

1.2.16.3 Material not regulated as solid waste

Material not regulated as solid waste is nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or irrigation return flows, or other regulated point source discharges; regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

1.2.16.4 Non-Hazardous Waste

Non-hazardous waste is waste that is excluded from, or does not meet, hazardous waste criteria in accordance with 40 CFR 261.

1.2.16.5 Recyclables

Recyclables are materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable, wiring, insulated/non-insulated copper wire cable, wire rope, and structural components. It also includes commercial-grade refrigeration equipment with Freon removed, household appliances where the basic material content is metal, clean polyethylene terephthalate bottles, cooking oil, used fuel oil, textiles, high-grade paper products and corrugated cardboard, stackable pallets in good condition, clean crating material, and clean rubber/vehicle tires. Metal meeting the definition of lead contaminated or lead based paint contaminated may not be included as recyclable if sold to a scrap metal company. Paint cans that meet the definition of empty containers in

accordance with 40 CFR 261.7 may be included as recyclable if sold to a scrap metal company.

1.2.16.6 Surplus Soil

Surplus soil is existing soil that is in excess of what is required for this work. Surplus soil must be managed in accordance with attachments Installation Restoration Program and Aqueous Film Forming Foam Guidelines for Tyndall MILCON-Rebuild, Tyndall AFB Guidelines for Non-ERP Soil Management USACE MILCON Build-Out, and UFGS 02 61 13 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL. Soil meeting the definition of hazardous material, hazardous waste, hazardous substance, or other regulated constituent as identified by concentrations above Florida Department of Environmental Protection's (FDEP) Soil Cleanup Target Level is not included. Contaminated soil must be managed in accordance with the requirements of the regulations associated with the classification of the contamination as indicated in attachment Installation Restoration Program and Aqueous Film Forming Foam Guidelines for Tyndall MILCON-Rebuild and UFGS 02 61 13 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL.

1.2.16.7 Scrap Metal

This includes scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe, and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

1.2.16.8 Wood

Wood is dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included. Treated wood includes, but is not limited to, lumber, utility poles, crossties, and other wood products with chemical treatment.

1.2.17 Surface Discharge

Surface discharge means discharge of water into drainage ditches, storm sewers, creeks or "waters of the United States". Surface discharges are discrete, identifiable sources and require a permit from the governing agency. Comply with federal, state, and local laws and regulations.

1.2.18 Wastewater

Wastewater is the used water and solids from a community that flow to a treatment plant.

1.2.18.1 Stormwater

Stormwater is any precipitation in an urban or suburban area that does not evaporate or soak into the ground, but instead collects and flows into storm drains, rivers, and streams.

1.2.19 Waters of the United States

Waters of the United States means Federally jurisdictional waters, including wetlands, that are subject to regulation under Section 404 of the Clean Water Act or navigable waters, as defined under the Rivers and Harbors Act.

1.2.20 Wetlands

Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

1.2.21 Universal Waste

The universal waste regulations streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, mercury-containing equipment (for example, thermostats), and lamps (for example, fluorescent bulbs), and aerosol cans. The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect these items and send them for recycling or proper disposal. These regulations can be found at 40 CFR 273.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Preconstruction Survey

Solid Waste Management Permit; G

Regulatory Notifications and Permits
(Water, Air, Waste, Utility, etc); G

Environmental Protection Plan; G

Stormwater Notice of Intent and/or Stormwater Pollution Prevention Plan (SWPPP) (for NPDES coverage under the general permit for construction activities); G

Dirt and Dust Control Plan; G

Employee Training Records; G

Environmental Manager Qualifications

Hazardous Materials Forms(TAFB FORMS 81&82)and Safety Data Sheets; G

SD-06 Test Reports

Laboratory Analysis

Inspection Reports

Monthly Solid Waste Disposal Documentation Report

SD-07 Certificates

Employee Training Records

Certificate of Competency

Erosion and Sediment Control Inspector Qualifications

SD-11 Closeout Submittals

Stormwater Pollution Prevention Plan Compliance Notebook; G

Stormwater Notice of Termination (for NPDES coverage under the general permit for construction activities); G

Waste Determination Documentation; G

Disposal Documentation for Hazardous and Regulated Waste; G

Assembled Employee Training Records; G

Solid Waste Management Permit

Monthly Solid Waste Disposal Documentation Report; G

Hazardous Waste/Debris Management

Regulatory Notifications; G

Sales Documentation; G

Contractor Certification

As-Built Topographic Survey

Hazardous Material Usage Form (TAFB FORM 83)

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire duration of this Contract. Comply with federal, state, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

Tests and procedures assessing whether construction operations comply with Applicable Environmental Laws may be required. Analytical work must be performed by qualified laboratories; and where required by law, the laboratories must be certified.

1.4.1 Conformance with the Environmental Management System

Perform work under this contract consistent with the policy and objectives identified in the installation's Environmental Management System (EMS) in

accordance with AFI 32-7001, Environmental Management. Perform work in a manner that conforms to objectives and targets of the environmental programs and operational controls identified by the EMS. Support Government personnel when environmental compliance and EMS audits are conducted by escorting auditors at the Project site, answering questions, and providing proof of records being maintained. Provide monitoring and measurement information as necessary to address environmental performance relative to environmental, energy, and transportation management goals. In the event an EMS nonconformance or environmental noncompliance associated with the contracted services, tasks, or actions occurs, take corrective and preventative actions. In addition, employees must be aware of their roles and responsibilities under the installation EMS and of how these EMS roles and responsibilities affect work performed under the contract.

Coordinate with the installation's EMS coordinator to identify training needs associated with environmental aspects and the EMS, and arrange training or take other action to meet these needs. Provide training documentation to the Contracting Officer. The Installation Environmental Office will retain associated environmental compliance records. Make EMS Awareness training completion certificates available to Government auditors during EMS audits and include the certificates in the Employee Training Records. See paragraph EMPLOYEE TRAINING RECORDS.

1.5 QUALITY ASSURANCE

1.5.1 Preconstruction Survey and Protection of Features

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. Prior to start of any onsite construction activities, perform a Preconstruction Survey of the project site with the Contracting Officer, and take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record. Include in the report a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. The Contractor and the Contracting Officer will sign this survey report upon mutual agreement regarding its accuracy and completeness. Protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference that their preservation may cause to the work under the Contract.

1.5.2 Regulatory Notifications

Provide regulatory notification requirements in accordance with federal, state and local regulations. In cases where the Government will also provide public notification (such as stormwater permitting), coordinate with the Contracting Officer. Submit copies of regulatory notifications to the Contracting Officer at least 30 days prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all-inclusive): demolition, renovation, NPDES defined site work, construction, removal or use of a permitted air emissions source, and remediation of controlled substances (asbestos, hazardous waste, lead paint). All permit applications must be reviewed by the 325 CES/CEIE and signed by the 325 CES Commander prior to submittal. The 325 CES/CEIE shall be copied on all regulatory correspondence.

1.5.3 Environmental Brief

Attend an environmental brief to be included in the preconstruction meeting. Provide the following information: TAFB Forms 81/82 which includes the types, quantities, and use of hazardous materials that will be brought onto the installation, along with Safety Data Sheets for each material listed on the form 82 and types and quantities of wastes/wastewater that may be generated during the Contract. Discuss the results of the Preconstruction Survey at this time.

Prior to initiating any work on site, meet with the Contracting Officer and installation Environmental Office to discuss the proposed Environmental Protection Plan (EPP). Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural and cultural resources, required reports, required permits, permit requirements (such as mitigation measures), and other measures to be taken.

1.5.4 Environmental Manager

Appoint in writing an Environmental Manager for the project site. The Environmental Manager is directly responsible for coordinating contractor compliance with federal, state, local, and installation requirements. The Environmental Manager must ensure compliance with Hazardous Waste Program requirements (including hazardous waste handling, storage, manifesting, and disposal); implement the EPP; ensure environmental permits are obtained, maintained, and closed out; ensure compliance with Stormwater Program requirements; ensure compliance with Hazardous Materials (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (lead, asbestos, PCB transformers). This can be a collateral position; however, the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure Contractor personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out. Submit Environmental Manager Qualifications to the Contracting Officer.

1.5.5 Employee Training Records

Prepare and maintain Employee Training Records throughout the term of the contract meeting applicable 40 CFR requirements. Provide Employee Training Records in the Environmental Records Binder. Ensure every employee completes a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures compliance with federal, state and local regulatory requirements for RCRA Large Quantity Generator. Provide a Position Description for each employee, by subcontractor, based on the Davis-Bacon Wage Rate designation or other equivalent method, evaluating the employee's association with hazardous and regulated wastes. This Position Description will include training requirements as defined in 40 CFR 262.17(a)(7) for a Large Quantity Generator facility. Submit these Assembled Employee Training Records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

Train personnel to meet EPA and state requirements. Conduct environmental protection/pollution control meetings for personnel prior to commencing construction activities. Contact additional meetings for new personnel and when site conditions change. Include in the training and meeting agenda: methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, waters of the United States, and endangered species and their habitat that are known to be in the area. Provide copy of the Erosion and Sediment Control Inspector Qualifications as defined by EPA or Certification as required by state.

1.5.6 Non-Compliance Notifications

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with federal, state or local environmental laws or regulations, permits, and other elements of the Contractor's EPP. After receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. FAR 52.242-14 Suspension of Work provides that a suspension, delay, or interruption of work due to the fault or negligence of the Contractor allows for no adjustments to the contract for time extensions or equitable adjustments. In addition to a suspension of work, the Contracting Officer may use additional authorities under the contract or law. The Prime Contractor will have the sole responsibility to ensure all their subcontractors comply with all environmental protection requirements of this specification section.

1.6 ENVIRONMENTAL PROTECTION PLAN

The purpose of the EPP is to present an overview of known or potential environmental issues that must be considered and addressed during construction. Incorporate construction related objectives and targets from the installation's EMS into the EPP. Include in the EPP measures for protecting natural and cultural resources, required reports, and other measures to be taken. Meet with the Contracting Officer or Contracting Officer Representative to discuss the EPP and develop a mutual understanding relative to the details for environmental protection including measures for protecting natural resources, required reports, and other measures to be taken. Submit the EPP within 15 days after Contract award and not less than 10 days before the preconstruction meeting. Revise the EPP throughout the project to include any reporting requirements, changes in site conditions, or contract modifications that change the project scope of work in a way that could have an environmental impact. No requirement in this section will relieve the Contractor of any applicable federal, state, and local environmental protection laws and regulations. During Construction, identify, implement, and submit for approval any additional requirements to be included in the EPP. Maintain the current version onsite.

The EPP includes, but is not limited to, the following elements:

1.6.1 General Overview and Purpose

1.6.1.1 Descriptions

A brief description of each specific plan required by environmental permit or elsewhere in this Contract such as stormwater pollution prevention plan, spill control plan, solid waste management plan, wastewater management plan, air pollution control plan, contaminant prevention plan, traffic control plan, Non-Hazardous Solid Waste Disposal Plan, and borrowing material plan.

1.6.1.2 Duties

The duties and level of authority assigned to the person(s) on the job site who oversee environmental compliance, such as who is responsible for adherence to the EPP, who is responsible for spill cleanup and training personnel on spill response procedures, who is responsible for manifesting hazardous waste to be removed from the site (if applicable), and who is responsible for training the Contractor's environmental protection personnel.

1.6.1.3 Procedures

A copy of any standard or project-specific operating procedures that will be used to effectively manage and protect the environment on the project site.

1.6.1.4 Communications

Communication and training procedures that will be used to convey environmental management requirements to Contractor employees and subcontractors.

1.6.1.5 Contact Information

Emergency contact information contact information (office phone number, cell phone number, and e-mail address).

1.6.2 General Site Information

1.6.2.1 Drawings

Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, jurisdictional wetlands, material storage areas, structures, sanitary facilities, storm drains and conveyances, and stockpiles of excess soil.

1.6.2.2 Work Area

Work area plan showing the proposed activity in each portion of the area and identify the areas of limited use or nonuse. Include measures for marking the limits of use areas, including methods for protection of features to be preserved within authorized work areas and methods to control runoff and to contain materials on site, and a traffic control plan.

1.6.2.3 Documentation

A letter signed by an officer of the firm appointing the Environmental

Manager and stating that person is responsible for managing and implementing the Environmental Program as described in this contract. Include in this letter the Environmental Manager's authority to direct the removal and replacement of non-conforming work.

1.6.3 Management of Natural Resources

a. Land resources.

b. Tree protection.

c. Replacement of damaged landscape features.

d. Temporary construction.

e. Stream crossings.

f. Fish and wildlife resources.

g. Wetland areas.

1.6.4 Protection of Historical and Archaeological Resources

a. Objectives.

b. Methods.

1.6.5 Stormwater Management and Control

a. Ground cover.

b. Erodible soils.

c. Temporary measures.

(1) Structural Practices.

(2) Temporary and permanent stabilization.

d. Effective selection, implementation and maintenance of Best Management Practices (BMPs).

1.6.6 Protection of the Environment from Waste Derived from Contractor Operations

Control and disposal of solid and sanitary waste. Control and disposal of hazardous waste.

This item consist of the management procedures for hazardous waste to be generated. The elements of those procedures will coincide with the Installation Hazardous Waste Management Plan. The Contracting Officer will provide a copy of the Installation Hazardous Waste Management Plan. As a minimum, include the following:

a. List of the types of hazardous wastes expected to be generated.

b. Procedures to ensure a written waste determination is made for appropriate wastes that are to be generated.

c. Sampling/analysis plan, including laboratory method(s) that will be used for waste determinations and copies of relevant laboratory certifications.

d. Methods and proposed locations for hazardous waste accumulation/storage (that is, in tanks or containers).

e. Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted). The contractor shall provide applicable landfill tipping fee(s)and the projected cost of disposing of all project waste in the landfill(s), where allowed per UFGS 02 61 13 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL.

f. Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268).

g. Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and similar.

h. Used oil management procedures in accordance with 40 CFR 279; Hazardous waste minimization procedures.

i. Plans for the disposal of hazardous waste by permitted facilities; and Procedures to be employed to ensure required employee training records are maintained.

1.6.7 Prevention of Releases to the Environment

Procedures to prevent releases to the environment,

Notifications in the event of a release to the environment,

1.6.8 Regulatory Notification and Permits

List what notifications and permit applications must be made. Some permits require up to 180 days to obtain. Demonstrate that those permits have been obtained or applied for by including copies of applicable environmental permits. The EPP will not be approved until the permits have been obtained.

1.6.9 Clean Air Act Compliance

1.6.9.1 Haul Route

Submit truck and material haul routes along with a Dirt and Dust Control Plan for controlling dirt, debris, and dust on Installation roadways. As a minimum, identify in the plan the subcontractor and equipment for cleaning along the haul route and measures to reduce dirt, dust, and debris from roadways.

1.6.9.2 Pollution Generating Equipment

Identify air pollution generating equipment or processes that may require federal, state, or local permits under the Clean Air Act. Determine requirements based on any current installation permits and the impacts of the project. Provide a list of all fixed or mobile equipment, machinery or operations that could generate air emissions during the project to the

Installation Environmental Office (Air Program Manager).

If emergency generators, boilers, or other sources of air pollutants will be associated with this facility, coordinate with the 325 CES/CEIEC Air Quality Program Manager, 283-4341 BEFORE source installation. Ensure generator engines are certified to meet 40 CFR Part 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines or CFR Part 60 Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines.

Any facility having refrigeration equipment, including air conditioning equipment, which uses a Class I or II substance (listed at 40 CFR 82, Subpart A, Appendices A and B), and any facility which maintains, services, or repairs motor vehicles using a Class I or Class II substance as refrigerant must comply with all requirements of 40 CFR 82, Subparts B and F, and with Chapter 62-281, F.A.C. Any refrigerant recycle/recovery equipment must be registered with the Air Quality Program manager (283-4341).

1.6.9.3 Stationary Internal Combustion Engines

Identify portable and stationary internal combustion engines that will be supplied, used or serviced. Comply with 40 CFR 60 Subpart IIII, 40 CFR 60 Subpart JJJJ, 40 CFR 63 Subpart ZZZZ, and local regulations as applicable. At minimum, include the make, model, serial number, manufacture date, size (engine brake horsepower), and EPA emission certification status of each engine. Maintain applicable records and log hours of operation and fuel use. Logs must include reasons for operation and delineate between emergency and non-emergency operation.

1.6.9.4 Refrigerants

Identify management practices to ensure that heating, ventilation, and air conditioning (HVAC) work involving refrigerants complies with 40 CFR 82 requirements. Technicians must be certified, maintain copies of certification on site, use certified equipment and log work that requires the addition or removal of refrigerant. Any refrigerant reclaimed is the property of the Government, coordinate with the Installation Environmental Office to determine the appropriate turn in location.

1.6.9.5 Air Pollution-engineering Processes

Identify planned air pollution-generating processes and management control measures (including, but not limited to, spray painting, abrasive blasting, demolition, material handling, fugitive dust, and fugitive emissions). Log hours of operations and track quantities of materials used.

1.6.9.6 Compliant Materials

Provide the Government a list of and SDSs for all hazardous materials proposed for use on site. Materials must be compliant with all Clean Air Act regulations for emissions including solvent and volatile organic compound contents, and applicable National Emission Standards for Hazardous Air Pollutants requirements. The Government may alter or limit use of specific materials as needed to meet installation permit requirements for emissions.

1.7 LICENSES AND PERMITS

Obtain licenses and permits required for the construction of the project and in accordance with FAR 52.236-7 Permits and Responsibilities. Notify the Government of all general use permitted equipment the Contractor plans to use on site.

1.8 ENVIRONMENTAL RECORDS BINDER

Maintain on-site a separate three-ring Environmental Records Binder and submit at the completion of the project. Make separate parts within the binder that correspond to each submittal listed under paragraph CLOSEOUT SUBMITTALS in this section.

1.9 SOLID WASTE MANAGEMENT PERMIT

Provide the Contracting Officer with written notification of the quantity of anticipated solid waste or debris that is anticipated or estimated to be generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance from the receiving location or as applicable; submit one copy of the receiving location state and local Solid Waste Management Permit or license showing such agency's approval of the disposal plan before transporting wastes off Government property.

1.9.1 Monthly Solid Waste Disposal Report

Monthly, submit a solid waste disposal report to the Contracting Officer. For each waste, the report will state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste.

1.10 FACILITY HAZARDOUS WASTE GENERATOR STATUS

Tyndall AFB is designated as a Large Quantity Generator. Meet the regulatory requirements of this generator designation for any work conducted within the boundaries of this Installation. Comply with provisions of federal, state, and local regulatory requirements applicable to this generator status regarding training and storage, handling, and disposal of construction derived wastes.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 ENVIRONMENTAL PERMITS AND COMMITMENTS

The Contractor shall ensure that required environmental permits are obtained prior to start of construction and/or installing or operating any new or modified equipment or processes or disturbing any land area. The contractor shall coordinate all environmental permits with the Contracting Officer and Tyndall AFB Environmental Office. The Contractor shall prepare any required technical documentation for the permit application, and submit to the Contracting Officer and Tyndall AFB Environmental Office for review. The 325 CES/CES will sign and forward applications to the contractor for submittal to the appropriate regulatory authority. The Contractor shall be responsible for operating within permit limits and abiding by all permit conditions. The

Contracting Officer and 325 CES/CEIE shall be notified immediately of any exceedances of permit limits or violation of permit conditions. The Contractor shall immediately notify the Contracting Officer and 325 CES/CEIE of any unforeseen environmental conditions, which may conflict with approved permits. Any certifications required by permits shall be the responsibility of the Contractor. Copies of all permits and certifications shall be submitted to the Contracting Officer and 325 CES/CEIE.

Assurance that subcontractors comply with all environmental protection requirements of this section will be the sole responsibility of the prime Contractor.

3.2 PROTECTION OF NATURAL RESOURCES

Minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitats. Prior to the commencement of activities, consult with the Installation Environmental Office, regarding rare species or sensitive habitats that need to be protected. The protection of rare, threatened, and endangered animal and plant species identified, including their habitats, is the Contractor's responsibility.

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work that is consistent with the requirements of the Installation Environmental Office or as otherwise specified. Confine construction activities to within the limits of the work indicated or specified.

3.2.1 Flow Ways

Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as specified and permitted.

3.2.2 Vegetation

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Contractor is responsible for any resultant damage.

Protect existing trees that are to remain to ensure they are not injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Coordinate with the Contracting Officer and Installation Environmental Office to determine appropriate action for trees and other landscape features scarred or damaged by equipment operations.

3.2.3 Streams

Stream crossings must allow movement of materials or equipment without violating water pollution control standards of the federal, state, and local governments. Construction of stream crossing structures must be in compliance with any required permits including, but not limited to, Clean Water Act Section 404, and Section 401 Water Quality.

The Contracting Officer's approval and appropriate permits are required

before any equipment will be permitted to ford live streams. In areas where frequent crossings are required, install temporary culverts or bridges. Obtain Contracting Officer's approval prior to installation. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition unless otherwise required by the Contracting Officer.

3.3 STORMWATER

Do not discharge stormwater from construction sites to the sanitary sewer. Discharge of hazardous substances will not be permitted under any circumstances. Construction site runoff will be prevented from entering any storm drain by the use of best management practices from the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual. Prior to any project that disturbs greater than one acre, the contractor must complete a Notice of Intent with FDEP and have a Stormwater Pollution Prevention Plan approved by the Contracting Officer and 325 CES/CEIE. A notice of termination must also be filed at the conclusion of the project.

3.3.1 Construction General Permit

Comply with State of Florida Department of Environmental Protection Generic Permit for Stormwater Discharge from Large and Small Construction Activities. Under the terms and conditions of the permit, install, inspect, maintain BMPs, prepare stormwater erosion and sediment control inspection reports, and submit SWPPP inspection reports. Maintain construction operations and management in compliance with the terms and conditions of the general permit for stormwater discharges from construction activities.

3.3.1.1 Stormwater Pollution Prevention Plan

Submit a project-specific Stormwater Pollution Prevention Plan (SWPPP) to the Contracting Officer for approval, prior to the commencement of work. The SWPPP must meet the requirements of 40 CFR 122.26 and the EPA General Permit and the State of Florida General Permit for stormwater discharges from construction sites.

Include the following:

a. Comply with terms of the state general permit for stormwater discharges from large and small construction activities. Prepare SWPPP in accordance with state requirements. Use state guidance located at https://floridadep.gov/water/stormwater/content/construction-activity-cgp to prepare the SWPPP.

b. Select applicable BMPs from EPA Fact Sheets located at https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr or in accordance with applicable state or local requirements.

c. Include a completed copy of the Notice of Intent, BMP Inspection Report Template, and Stormwater Notice of Termination, except for the effective date.

3.3.1.2 Stormwater Notice of Intent and/or Stormwater Pollution Prevention Plan (SWPPP) for Construction Activities

Prepare and submit a Stormwater Notice of Intent for NPDES coverage under the general permit for construction activities to the Contracting Officer for review and approval. Create a Stormwater Pollution Prevention Plan (SWPPP) for the project meeting the Florida General Permit for Stormwater Discharge from Large and Small Construction Activities for stormwater discharges from construction sites.

Submit the approved NOI and appropriate permit fees onto the appropriate federal or state agency for approval. No land disturbing activities may commence without permit coverage. Maintain an approved copy of the SWPPP at the onsite construction office, and continually update as regulations require, reflecting current site conditions.

3.3.1.3 Inspection Reports

Submit "Inspection Reports" to the Contracting Officer in accordance with the State of Florida Construction General Permit.

3.3.1.4 Stormwater Pollution Prevention Plan Compliance Notebook

Create and maintain a three ring binder of documents that demonstrate compliance with the Construction General Permit. Include a copy of the permit Notice of Intent, proof of permit fee payment, SWPPP and SWPPP update amendments, inspection reports and related corrective action records, copies of correspondence with the State Permitting Agency, and a copy of the permit Notice of Termination in the binder. At project completion, the notebook becomes property of the Government. Provide the compliance notebook to the Contracting Officer.

3.3.1.5 Stormwater Notice of Termination for Construction Activities

Submit a Notice of Termination to the Contracting Officer for approval once construction is complete and final stabilization has been achieved on all portions of the site for which the permittee is responsible. Once approved, submit the Notice of Termination to the appropriate state or federal agency.

3.3.2 Erosion and Sediment Control Measures

Provide erosion and sediment control measures in accordance with state and local laws and regulations. Preserve vegetation to the maximum extent practicable.

Erosion control inspection reports may be compiled as part of a stormwater pollution prevention plan inspection reports.

3.3.2.1 Erosion Control

Prevent erosion by mulching, Compost Blankets, Geotextiles, temporary slope drains,and/or silt fence. Stabilize slopes by sodding, seeding, or such combination of these methods necessary for effective erosion control. Use of hay bales is prohibited.

3.3.2.2 Sediment Control Practices

Implement sediment control practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Implement sediment control practices prior to soil disturbance and prior to creating areas with concentrated flow, during the construction process to minimize erosion and sediment laden runoff. Include the following devices: silt fence, temporary diversion dikes, and/or storm drain inlet protection.

3.3.3 Work Area Limits

Mark the areas that need not be disturbed under this Contract prior to commencing construction activities. Mark or fence isolated areas within the general work area that are not to be disturbed. Protect monuments and markers before construction operations commence. Where construction operations are to be conducted during darkness, any markers must be visible in the dark. Personnel must be knowledgeable of the purpose for marking and protecting particular objects.

3.3.4 Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Contracting Officer. Move or relocate the Contractor facilities only when approved by the Government. Provide erosion and sediment controls for onsite borrow and spoil areas to prevent sediment from entering nearby waters. See UFGS 02 61 13 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL for additional requirements. Control temporary excavation and embankments for plant or work areas to protect adjacent areas.

3.3.5 Environmental Resource Permit

The Contractor shall comply with all Environmental Resource Permit requirements in accordance with FL Admin Code 62-330.

3.4 SURFACE AND GROUNDWATER

3.4.1 Dewatering

Construction operations for dewatering must be constantly controlled to maintain compliance with existing state water quality standards and designated uses of the surface water body. Comply with the State of Floridawater quality standards and anti-degradation provisions. Do not discharge excavation ground water to the sanitary sewer, storm drains, or to surface waters without prior specific authorization in writing from the Installation Environmental Office. Discharge of hazardous substances will not be permitted under any circumstances. Use sediment control BMPs to prevent construction site runoff from directly entering any storm drain or surface waters.

If the construction dewatering is noted or suspected of being contaminated, it may only be released to the storm drain system if the discharge is specifically permitted. Obtain authorization for any contaminated groundwater release in advance from the Installation Environmental Officer and the federal or state authority, as applicable. Discharge of hazardous substances will not be permitted under any circumstances. See UFGS 02 61 13 EXCAVATION AND HANDLING OF CONTAMINATED MATERIAL for additional requirements.

3.4.2 Waters of the United States

Do not enter, disturb, destroy, or allow discharge of contaminants into waters of the United States.

3.5 PROTECTION OF CULTURAL RESOURCES

3.5.1 Archaeological Resources

If, during excavation or other construction activities, any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, activities that may damage or alter such resources will be suspended. Resources covered by this paragraph include, but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, immediately notify the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Cease all activities that may result in impact to or the destruction of these resources. Secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources. The Government retains ownership and control over archaeological resources.

3.6 AIR RESOURCES

Equipment operation, activities, or processes will be in accordance with 40 CFR 64 and state air emission and performance laws and standards.

3.6.1 Preconstruction Air Permits

Notify the Air Program Manager, through the Contracting Officer, at least 60 days prior to bringing equipment, assembled or unassembled, onto the Installation, so that air permits can be secured. Necessary permitting time must be considered in regard to construction activities. Clean Air Act (CAA) permits must be obtained prior to bringing equipment, assembled or unassembled, onto the Installation.

Confirm that these permits have been obtained.

3.6.2 Burning

Burning is prohibited on the Government premises.

3.6.3 Class I and II ODS Prohibition

Class I and II ODS are Government property and must be returned to the Government for appropriate management. Coordinate with the Installation Environmental Office to determine the appropriate location for turn in of all reclaimed refrigerant.

3.6.4 Accidental Venting of Refrigerant

Accidental venting of a refrigerant is a release and must be reported immediately to the Contracting Officer.

3.6.5 EPA Certification Requirements

Heating and air conditioning technicians must be certified through an EPA-approved program. Maintain copies of certifications at the employees' places of business; technicians must carry certification wallet cards, as provided by environmental law.

3.6.6 Dust Control

Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster. Since these products contain Crystalline Silica, comply with the applicable OSHA standard, 29 CFR 1910.1053 or 29 CFR 1926.1153 for controlling exposure to Crystalline Silica Dust.

3.6.6.1 Particulates

Dust particles, aerosols and gaseous by-products from construction activities, and processing and preparation of materials (such as from asphaltic batch plants) must be controlled at all times, including weekends, holidays, and hours when work is not in progress. Maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates that would exceed 40 CFR 50, state, and local air pollution standards or that would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, baghouse, scrubbers, electrostatic precipitators, or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp. Provide sufficient, competent equipment available to accomplish these tasks. Perform particulate control as the work proceeds and whenever a particulate nuisance or hazard occurs. Comply with state and local visibility regulations.

3.6.6.2 Abrasive Blasting

Abrasive blasting operations cannot be performed.

3.6.7 Odors

Control odors from construction activities. The odors must be in compliance with state regulations and local ordinances and may not constitute a health hazard.

3.7 WASTE MINIMIZATION

Minimize the use of hazardous materials and the generation of waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the EPP. Obtain a copy of the installation's Pollution Prevention/Hazardous Waste Minimization Plan for reference material when preparing this part of the EPP. If no written plan exists, obtain information by contacting the Contracting Officer. Describe the anticipated types of the hazardous materials to be used in

the construction when requesting information.

3.7.1 Salvage, Reuse and Recycle

Identify anticipated materials and waste for salvage, reuse, and recycling in accordance with AFMAN 32-7002, Environmental Compliance and Pollution Prevention and DODI 4715.23, Integrated Recycling and Solid Waste Management. Describe actions to promote material reuse, resale or recycling. All scrap metal should remain property of the U.S. government. Coordination with the 325 CES/CEIE recycling manager is required.

Include the name, physical address, and telephone number of the hauler, if transported by a franchised solid waste hauler. Include the destination and, unless exempted, provide a copy of the state or local permit (cover) or license for recycling.

3.7.2 Nonhazardous Solid Waste Diversion Report

Maintain an inventory of nonhazardous solid waste diversion and disposal of construction and demolition debris. Submit a report to the Contracting Officer on the first working day after each fiscal year quarter, starting the first quarter that nonhazardous solid waste has been generated. Include the following in the report:

Construction and Demolition (C&D) Debris Disposed	cubic yards or tons as appropriate
C&D Debris Recycled	cubic yards or tons as appropriate
C&D Debris Composted	cubic yards or tons as appropriate
Total C&D Debris Generated	cubic yards or tons as appropriate
Waste Sent to Waste-To-Energy Incineration Plant (This amount should not be included in the recycled amount)	cubic yards or tons as appropriate

3.8 WASTE MANAGEMENT AND DISPOSAL

3.8.1 Waste Determination Documentation

Complete a Waste Determination form (provided at the pre-construction conference) for Contractor-derived wastes to be generated. All potentially hazardous solid waste streams that are not subject to a specific exclusion or exemption from the hazardous waste regulations (e.g., scrap metal, domestic sewage) or subject to special rules, (lead-acid batteries and precious metals) must be characterized in accordance with the requirements of 40 CFR 261 or corresponding applicable state or local regulations. Base waste determination on user knowledge of the processes and materials used, and analytical data when necessary. Consult with the Installation environmental staff for guidance on specific requirements. Attach support documentation to the Waste Determination form. As a

minimum, provide a Waste Determination form for the following waste (this listing is not inclusive): oil- and latex -based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and containers of the original materials.

3.8.1.1 Sampling and Analysis of Waste

3.8.1.1.1 Waste Sampling

Sample waste in accordance with EPA SW-846. Clearly mark each sampled drum or container with the Contractor's identification number, and cross reference to the chemical analysis performed.

3.8.1.1.2 Laboratory Analysis

Follow the analytical procedure and methods in accordance with the 40 CFR 261. Provide analytical results and reports performed to the Contracting Officer.

3.8.1.1.3 Analysis Type

Identify hazardous waste by analyzing for the following characteristics: ignitability, corrosivity, reactivity, or toxicity based on TCLP results.

3.8.2 Solid Waste Management

3.8.2.1 Monthly Solid Waste Disposal Documentation Report

Provide copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, a statement indicating the disposal location for the solid waste that is signed by an employee authorized to legally obligate or bind the firm may be submitted. The Contractor certification must include the receiver's tax identification number and business, EPA or state registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained for the Contractor's own use, submit the information previously described in this paragraph on the solid waste disposal report. Prices paid or received do not have to be reported to the Contracting Officer unless required by other provisions or specifications of this Contract or public law.

3.8.2.2 Control and Management of Solid Wastes

Perform work under this contract consistent with the policies and objectives identified in Tyndall Integrated Solid Waste Management Plan (ISWMP) and in accordance with AFMAN 32-7002, Environmental Compliance and Pollution Prevention. Pick up solid wastes, and place in covered containers that are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Employ segregation measures so that no hazardous or toxic waste will become co-mingled with non-hazardous solid waste. Transport solid waste off Government property and dispose of it in compliance with 40 CFR 260, state, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill is the minimum acceptable offsite solid waste disposal option. Verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. Segregate and separate treated wood components disposed at a lined landfill approved to accept this waste in accordance with local and state regulations.

Solid waste disposal offsite must comply with most stringent local, state, and federal requirements, including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

Manage hazardous material used in construction, including but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and used rags, in accordance with 49 CFR 173.

3.8.3 Control and Management of Hazardous Waste

Do not dispose of hazardous waste on Government property. Do not discharge any waste to a sanitary sewer, storm drain, or to surface waters or conduct waste treatment or disposal on Government property without written approval of the Contracting Officer.

3.8.3.1 Hazardous Waste/Debris Management

Identify construction activities that will generate hazardous waste or debris. Provide a documented waste determination for resultant waste streams. Identify, label, handle, store, and dispose of hazardous waste or debris in accordance with federal, state, and local regulations, including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268.

Manage hazardous waste in accordance with the approved Hazardous Waste Management Section of the EPP. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities is identified as being generated by the Government. Prior to removal of any hazardous waste from Government property, hazardous waste manifests must be signed by personnel from the Installation Environmental Office. Do not bring hazardous waste onto Government property. Provide the Contracting Officer with a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D.

3.8.3.2 Waste Storage/Satellite Accumulation/90 Day Storage Areas

Accumulate hazardous waste at satellite accumulation points and in compliance with 40 CFR 262.15 and applicable state or local regulations. Individual waste streams will be limited to 55 gallons of accumulation (or 1 quart for acutely hazardous wastes). If the Contractor expects to generate hazardous waste at a rate and quantity that makes satellite accumulation impractical, the Contractor may request a temporary 90 day accumulation point be established. Submit a request in writing to the Contracting Officer and provide the following information (Attach Site Plan to the Request):

Contract Number	
Contractor	
Haz/Waste or Regulated Waste POC	
Phone Number	
Type of Waste	
Source of Waste	
Emergency POC	

Contract Number	
Phone Number	
Location of the Site	

Attach a Waste Determination form for the expected waste streams. Allow 10 working days for processing this request. Additional compliance requirements (e.g., training and contingency planning) that may be required are the responsibility of the Contractor. Barricade the designated area where waste is being stored and post a sign identifying as follows:

"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

3.8.3.3 Hazardous Waste Disposal

3.8.3.3.1 Responsibilities for Contractor's Disposal

Provide hazardous waste manifest to the Installations Environmental Office for review, approval, and signature prior to shipping waste off Government property.

3.8.3.3.1.1 Services

Provide service necessary for the final treatment or disposal of the hazardous material or waste in accordance with 40 CFR 260, local, and state, laws and regulations, and the terms and conditions of the Contract within 60 days after the materials have been generated. These services include necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal or transportation, include manifesting or complete waste profile sheets, equipment, and compile documentation).

3.8.3.3.1.2 Samples

Obtain a representative sample of the material generated for each job done to provide waste stream determination.

3.8.3.3.1.3 Analysis

Analyze each sample taken and provide analytical results to the Contracting Officer. See paragraph WASTE DETERMINATION DOCUMENTATION.

3.8.3.3.1.4 Labeling

Determine the Department of Transportation's (DOT's) proper shipping names for waste (each container requiring disposal) and demonstrate to the Contracting Officer how this determination is developed and supported by the sampling and analysis requirements contained herein. Label all containers of hazardous waste with the words "Hazardous Waste" or other words to describe the contents of the container in accordance with 40 CFR 262.31 and applicable state or local regulations.

3.8.3.3.2 Contractor Disposal Turn-In Requirements

Hazardous waste generated must be disposed of in accordance with the following conditions to meet installation requirements:

a. Drums must be compatible with waste contents and drums must meet DOT requirements for 49 CFR 173 for transportation of materials.

b. Band drums to wooden pallets.

c. No more than three 55 gallon drums or two 85 gallon over packs are to be banded to a pallet.

d. Band using 1-1/4 inch minimum band on upper third of drum.

e. Provide label in accordance with 49 CFR 172.101.

f. Leave 3 to 5 inches of empty space above volume of material.

3.8.3.4 Universal Waste Management

Manage the following categories of universal waste in accordance with federal, state, and local requirements and installation instructions:

a. Batteries as described in 40 CFR 273.2.

b. Lamps as described in 40 CFR 273.5.

c. Mercury-containing equipment as described in 40 CFR 273.4.

d. Pesticides as described in 40 CFR 273.3 and Armed Forces Management Board (AFPMD) standard pesticides list.

e. Aerosol Cans.

Mercury is prohibited in the construction of this facility, unless specified otherwise, and with the exception of mercury vapor lamps and fluorescent lamps. Dumping of mercury-containing materials and devices such as mercury vapor lamps, fluorescent lamps, and mercury switches, in rubbish containers is prohibited. Remove without breaking, pack to prevent breakage, and transport out of the activity in an unbroken condition for disposal as directed.

3.8.3.5 Electronics End-of-Life Management

Recycle or dispose of electronics waste, including, but not limited to, used electronic devices such computers, monitors, hard-copy devices, televisions, mobile devices, in accordance with 40 CFR 260-262, state, and local requirements, and installation instructions.

3.8.3.6 Disposal Documentation for Hazardous and Regulated Waste

Contact the Contracting Officer for the facility RCRA identification number that is to be used on each manifest.

3.8.4 Releases/Spills of Oil and Hazardous Substances

3.8.4.1 Response and Notifications

Exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated in accordance with 40 CFR 300. Maintain spill cleanup equipment and materials at the work site. In the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Installation Fire Department, the Installation Command Duty Officer, the Installation Environmental Office, the Contracting Officer and the state or local authority.

Submit verbal and written notifications as required by the federal (40 CFR 300.125 and 40 CFR 355), state, local regulations and instructions. Provide copies of the written notification and documentation that a verbal notification was made within 20 days. Spill response must be in accordance with 40 CFR 300 and applicable state and local regulations. Contain and clean up these spills without cost to the Government.

3.8.4.2 Clean Up

Clean up hazardous and non-hazardous waste spills. Reimburse the Government for costs incurred including sample analysis materials, clothing, equipment, and labor if the Government will initiate its own spill cleanup procedures, for Contractor- responsible spills, when: Spill cleanup procedures have not begun within one hour of spill discovery/occurrence; or, in the Government's judgment, spill cleanup is inadequate and the spill remains a threat to human health or the environment.

3.8.5 Mercury Materials

Immediately report to the Environmental Office and the Contracting Officer instances of breakage or mercury spillage. Clean mercury spill area to the satisfaction of the Contracting Officer.

Do not recycle a mercury spill cleanup; manage it as a hazardous waste for disposal.

3.8.6 Wastewater

3.8.6.1 Disposal of wastewater must be as specified below.

3.8.6.1.1 Treatment

Do not allow wastewater from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, and forms to enter water ways or to be discharged prior to being treated to remove pollutants. Dispose of the construction- related waste water off-Government property in accordance with 40 CFR 403, state, regional, and local laws and regulations.

3.8.6.1.2 Surface Discharge

For discharge of ground water, obtain a state or federal permit specific for pumping and discharging ground water prior to surface discharging. Surface discharge in accordance with the requirements of the NPDES or state STORMWATER DISCHARGES FROM CONSTRUCTION SITES permit.

3.8.6.1.3 Land Application

Water generated from the flushing of lines after disinfection or disinfection in conjunction with hydrostatic testing must be discharged into the sanitary sewer with prior approval and notification to the Wastewater Treatment Plant's Operator.

3.9 HAZARDOUS MATERIAL MANAGEMENT

Address procedures and proper handling of hazardous materials, including the appropriate transportation requirements. Do not bring hazardous material onto Government property that does not directly relate to requirements for the performance of this contract. Submit an SDS and estimated quantities to be used for each hazardous material to the Contracting Officer and the 325 CES/CEIEC Hazardous Materials Management Office for approval prior to bringing the material on the installation. Typical materials requiring SDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. Use hazardous materials in a manner that minimizes the amount of hazardous waste generated. Containers of hazardous materials must have National Fire Protection Association labels or their equivalent. Certify that hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste, in accordance with 40 CFR 261.

3.9.1 Hazardous Material (HM)

For the purposes of the document, Hazardous Materials (HM) are defined as any product, material, chemical or substance listed in 49 CFR 172.101 (revised) and 40 CFR 302-304 (revised). Specifically, a HM is any substance or material, in any quantity or form that has the potential to harm human health or the environment or displays specific characteristics (reactive, corrosive, ignitable, and toxic).

Perform work under this contract consistent with the policies and objectives identified in AFMAN 32-7002, Environmental Compliance and Pollution Prevention. A letter of review from 325 CES/CEIE Must be accomplished prior to commencement of work on each task order. The Contractor shall submit TAFB Form 81 (Contractor Questionnaire) and TAFB Form 82 (Chemical Inventory) if applicable (within 10 duty days after the Notice to Proceed is issued), for review. The Contractor should note that Tyndall AFB is required to report chemicals used such as (but not limited to) compressed gases, adhesives, aerosol cans, sealants, paints, lubricants, oils, cleaners, degreasers, pesticides, Fuels. Copies of manufacturer-specific Safety Data Sheets (SDS) must be attached to TAFB Form 82. These SDSs shall also be readily accessible at the location of each hazardous material. After submission, 325 CES/CEIE will notify the Project Manager and/or CONS of the reportable chemicals and of any special instructions. As directed by the CO, the Contractor is required to submit TAFB Form 83 (Reporting Entry Form) showing material usage monthly until completion of the task order. A letter from CEIE will be accomplished with each submittal monthly and/or completion. The CO must be notified of

any changes from the original submittal (i.e., new chemical is added, size of container or unit of issue changes or if the manufacturer changes), changes must be submitted using TAFB form 82. An up-dated letter of review indicating changes will be sent from CEIE to the Contracting Office before the material can be brought onto the installation.

3.9.2 Hazardous Waste (Includes Special and Universal Waste)

The Contractor shall be considered the primary co-generator for all hazardous wastes generated throughout the duration of the contract. However, all hazardous waste management activities shall be coordinated and approved by the Contracting Officer and Tyndall AFB. The Contractor shall identify what wastes are hazardous using specific and technical knowledge and/or sampling and analysis. This responsibility also includes preparation of waste profile sheets, packaging, marking and labeling of wastes in accordance with 49 CFR Subchapter C.

Hazardous and special waste include, but are not limited to:

1. Fuels and oils of all types
2. Used tires
3. Computer monitors
4. Lighting ballast
5. Exit signs and lighting (batteries)
6. Asbestos (survey required)
7. Lead roof vent flashing
8. All electronic devices
9. Aerosol spray cans (including empties)
10. Paints
11. Adhesives
12. Corrosives
13. Non-flammable and non-corrosive cleaners
14. Fertilizer
15. Hydraulic fluid
16. Antifreeze

Universal waste include, but are not limited to:

1. Spent fluorescent lamps
2. High Intensity Discharge (HID) lamps
3. Batteries (except alkaline)
4. Mercury thermostats
5. Silent switches
6. Mechanical switches
7. Relays and contacts
8. Aerosol spray cans (including empties)

All hazardous, special, and universal waste items mentioned-above shall be managed IAW local, state, federal, and Tyndall AFB Hazardous Waste Management Plan. Under no circumstances shall hazardous, special, or universal waste be disposed of in the dumpster. In addition, the Contractor shall ensure that all employees, including their subs, comply with the rules and procedures outlined in this specification and the Tyndall AFB Hazardous Waste Management Plan.

The Contractor shall be familiar with and have immediate access to the following publications and regulations:

a. Environmental Protection Agency (EPA): Title 40 Code of Federal

Regulations, Parts 260-279

b. Occupational Safety and Health Administration (OSHA): 29 Code of Federal Regulations Parts 1910 and 1926

c. Department of Transportation (DOT): Title 49 Code of Federal Regulations, Parts 171-177

d. Tyndall AFB Hazardous Waste Management Plan

The Contactor shall manage all hazardous waste, special waste, and universal waste IAW the Tyndall Hazardous Waste Management Plan. In addition, the Contractor shall ensure that all employees, including their subs, comply with the rules and procedures outlined in the Tyndall AFB Hazardous Waste Management Plan.

If transportation of Hazardous Wastes is required, the Contractor shall possess or ensure the transportation of hazardous waste has a valid state and federal identification number and provide such identification to the Contracting Officer and Tyndall AFB environmental office prior to any waste movement. The Contractor shall ensure a designated representative from 325 CES/CEIE signs the hazardous waste/non-hazardous waste manifests and profiles.

3.9.3 Toxic Waste

a. Asbestos: All asbestos work must be accomplished in accordance with federal, state, and local laws and the Tyndall AFB Asbestos Management Plan.

(1) Notice of Asbestos Renovation or Demolition, DEP Form 62-257.900(1) must be submitted to Florida Department of Environmental Protection at least 10 working days prior to any demolition and/or renovation regardless of whether asbestos is present or not. A copy of this notification must be provided to the Contracting Officer and 325 CES/CEIE prior to performing any work.

(2) A copy of all submittals must be provided to the Contracting Officer and 325 CES/CEIE with adequate time built in for review.

(3) The use of materials, products or equipment containing asbestos is not allowed. See sample list below.

(4) Prior to the commencement of construction, the prime Contractor, each subcontractor and material/equipment supplier shall provide the Contracting Officer and 325 CES/CEIE with a Notarized statement that to the best of their knowledge, no asbestos will be used in the construction of this project. Additionally, the Contractor must have available the most current Safety Data Sheet proving the materials contain no asbestos.

(5) Sample list of Asbestos Containing Materials (ACM):

Note: The following list does not include every product/material that may contain asbestos. It is intended as a general guide to show which types of materials may contain asbestos:

(1) Cement Pipes (2) Cement Wallboard

(3) Cement Siding	(4) Asphalt Floor Tile
(5) Vinyl Floor Tile	(6) Vinyl Sheet Flooring
(7) Flooring Backing	(8) Construction Mastics
(9) Acoustical Plaster	(10) Decorative Plaster
(11) Textured Paints/Coatings	(12) Ceiling Tiles & Lay-in-Panels
(13) Spray-Applied Insulation	(14) Blown-in Insulation
(15) Fireproofing Materials	(16) Taping Compounds
(17) Packing Materials	(18) High Temperature Gaskets
(19) Laboratory Hoods	(20) Laboratory Gloves
(21) Fire Blankets & Table Tops	(22) Fire Curtains
(23) Elevator Equipment Panels	(24) Elevator Brake Shoes
(25) HVAC Duct Insulation	(26) Boiler Insulation
(27) Breeching Insulation	(28) Ductwork Flexible Fabric
(29) Cooling Towers	(30) Pipe Insulation
(31) Heating and Electrical	(32) Electrical Panel Partitions
(33) Electrical Cloth ducts	(34) Spackling compounds
(35) Chalkboards	(36) Roofing Shingles
(37) Roofing Felt	(38) Base Flashing
(39) Thermal Paper Products	(40) Fire doors
(41) Caulking/putties	(42) Adhesives
(43) Wallboard	(44) Joint Compounds
(45) Vinyl Wall Coverings	(46) Electrical Wiring Insulation

Caution needs to be taken to ensure materials purchased do not contain one or more % asbestos by volume.

b. Lighting Ballast: When fluorescent and mercury vapor fixtures are removed, the ballast shall be examined for PCB labeling. Ballast is presumed to contain PCBs unless they are clearly labeled "NO PCBs". Suspected ballasts shall be removed and disposed of IAW Tyndall AFB Hazardous Waste Management Plan.

c. Lead Based Paint: No paint containing lead shall be used during the course of this contract. The Occupational Health and Safety Act (OSHA) Lead Construction Standard, 29 CFR 1926.62 is in effect whenever materials are disturbed that contain any amount of lead. This will require contractors disturbing lead-based paint to institute medical surveillance, training, engineering controls, worker protection measures and employee monitoring until monitoring results per the lead paint standard demonstrate that employee exposure is below the action level and permissible exposure limit. The Contractor on site must maintain all documentation regarding lead exposure by either historical data or project data. This data shall also be made available to the Contracting Officer and 325 CES/CEIE.

(1) Prior to the commencement of construction, the prime Contractor, each subcontractor and material/equipment supplier shall provide to the Contracting Officer and 325 CES/CEIE with a Notarized statement that to the best of their knowledge, no lead based paint will be used in the construction of this project. Additionally, the Contractor must have available the most current Safety Data Sheet proving that the paint does not have any lead content.

(2) The Contractor shall be responsible for collection and disposal of all lead paint chips and lead paint-contaminated materials, and for accumulation of these chips/materials on site. The Contractor

shall test the paint materials, provide containers for proper disposal, and transport any resulting hazardous waste to an appropriate hazardous waste accumulation area should it test positive as hazardous waste. All necessary accumulation, disposal activities and documentation shall be coordinated with the Contracting Officer and 325 CES/CEIE.

(3) A copy of Contractor's exposure assessment data shall be provided to the Contracting Officer and 325 CES/CEIE.

(4) Copies of all lead paint-related documentation generated from this project, including lead testing, air monitoring and hazardous waste manifests, shall be provided by the the Contractor to the Contracting Officer. A copy shall be forwarded to 325 CES/CEIE within 10 working days of test completion.

3.10 PREVIOUSLY USED EQUIPMENT

Clean previously used construction equipment prior to bringing it onto the project site. Equipment must be free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the U.S. Department of Agriculture jurisdictional office for additional cleaning requirements.

3.11 CONTROL AND MANAGEMENT OF ASBESTOS-CONTAINING MATERIAL (ACM)

Manage and dispose of asbestos- containing waste in accordance with 40 CFR 61. Manifest asbestos-containing waste and provide the manifest to the Contracting Officer. Notifications to the state and Installation Air Program Manager are required before starting any asbestos work.

3.12 CONTROL AND MANAGEMENT OF LEAD-BASED PAINT (LBP)

Manage and dispose of lead-contaminated waste in accordance with 40 CFR 745. Manifest any lead-contaminated waste and provide the manifest to the Contracting Officer.

3.13 CONTROL AND MANAGEMENT OF LIGHTING BALLAST AND LAMPS CONTAINING PCBS

Manage and dispose of contaminated waste in accordance with 40 CFR 761.

3.14 PETROLEUM, OIL, LUBRICANT (POL) STORAGE AND FUELING

POL products include flammable or combustible liquids, such as gasoline, diesel, lubricating oil, used engine oil, hydraulic oil, mineral oil, and cooking oil. Store POL products and fuel equipment and motor vehicles in a manner that affords the maximum protection against spills into the environment. Manage and store POL products in accordance with EPA 40 CFR 112, and other federal, state, regional, and local laws and regulations. Use secondary containments, dikes, curbs, and other barriers, to prevent POL products from spilling and entering the ground, storm or sewer drains, stormwater ditches or canals, or navigable waters of the United States. Describe in the EPP (see paragraph ENVIRONMENTAL PROTECTION PLAN) how POL tanks and containers must be stored, managed, and inspected and what protections must be provided. Storage of fuel on the project site must be in accordance with EPA, state, and local laws and regulations and paragraph OIL STORAGE INCLUDING FUEL TANKS. The COR and Tyndall AFB Environmental Office must approve the use of fuel storage tanks on base, and the contractor must ensure adequate spill containment

(spill kits) for any tanks approved for use on Tyndall AFB. The contractor must have written spill procedures for tanks and heavy equipment that they use on base.

POL/Storage Tanks: Storage tanks and POL can be a source of contamination if not managed appropriately. Contractor personnel obtaining fuels from Storage Tanks agrees to follow all 62-761 FAC and the following list of Air Force Technical Order's to ensure compliance: 37-1-1, 37A-1-101, 42B-1-1, 42B-1-1S-2, 42B-1-16, 42B-1-22, 42B-1-23, and 42C-1-12.

All fuel, oil, and chemical spills that occur on Tyndall AFB (regardless of amount) must be immediately reported to the base Fire and Emergency Services (911).

3.14.1 Used Oil Management

Manage used oil generated on site in accordance with 40 CFR 279. Determine if any used oil generated while onsite exhibits a characteristic of hazardous waste. Used oil containing 1,000 parts per million of solvents is considered a hazardous waste and disposed of at the Contractor's expense. Used oil mixed with a hazardous waste is also considered a hazardous waste. Dispose in accordance with paragraph HAZARDOUS WASTE DISPOSAL.

3.14.2 Oil Storage Including Fuel Tanks

Provide secondary containment and overfill protection for oil storage tanks. A berm used to provide secondary containment must be of sufficient size and strength to contain the contents of the tanks plus 5 inches freeboard for precipitation. Construct the berm to be impervious to oil for 72 hours that no discharge will permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Use drip pans during oil transfer operations; adequate absorbent material must be onsite to clean up any spills and prevent releases to the environment. Cover tanks and drip pans during inclement weather. Provide procedures and equipment to prevent overfilling of tanks. If tanks and containers with an aggregate aboveground capacity greater than 1320 gallons will be used onsite (only containers with a capacity of 55 gallons or greater are counted), provide and implement a SPCC plan meeting the requirements of 40 CFR 112. Do not bring underground storage tanks to the installation for Contractor use during a project. Submit the SPCC plan to the Contracting Officer for approval.

Monitor and remove any rainwater that accumulates in open containment dikes or berms. Inspect the accumulated rainwater prior to draining from a containment dike to the environment, to determine there is no oil sheen present.

3.15 INADVERTENT DISCOVERY OF PETROLEUM-CONTAMINATED SOIL OR HAZARDOUS WASTES

If petroleum-contaminated soil, or suspected hazardous waste is found during construction that was not identified in the Contract documents, immediately notify the Contracting Officer. Do not disturb this material until authorized by the Contracting Officer.

3.16 CHLORDANE

Evaluate excess soils and concrete foundation debris generated during the

demolition of housing units or other wooden structures for the presence of chlordane or other pesticides prior to reuse or final disposal.

3.17 SOUND INTRUSION

Make the maximum use of low-noise emission products, as certified by the EPA. Blasting or use of explosives are not permitted without written permission from the Contracting Officer, and then only during the designated times. Confine pile-driving operations to the period between 8 a.m. and 4 p.m., Monday through Friday, exclusive of holidays, unless otherwise specified.

Keep construction activities under surveillance and control to minimize environment damage by noise. Comply with the provisions of the State of Florida rules.

3.18 POST CONSTRUCTION CLEANUP

Clean up areas used for construction in accordance with Contract Clause: "Cleaning Up". Unless otherwise instructed in writing by the Contracting Officer, remove traces of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. Grade parking area and similar temporarily used areas to conform with surrounding contours.

3.19 INSTALLATION RESTORATION PROGRAM (IRP)

Contractor must follow these guidances:

a. Installation Restoration Program and Aqueous Film Forming Foam Guidelines for Tyndall MILCON Rebuild (dated 25 August 2021, Attached);

b. Environmental Supplemental Guidance (Version 8, Attached);

c. General Environmental Requirements For Contracts (Version 2, Attached);

d. Tyndall AFB Guidelines for Non-ERP Soil Management USACE MILCON Buildout (Attached);

e. Tyndall Soils Decision Matrix (Attached)

f. Omitted

g. Tyndall AFB Hazardous Waste Management Plan;

h. Tyndall AFB Asbestos Management Plan;

i. 40 CFR 262.11

j. 40 CFR 273.6

-- End of Section --

Installation Restoration Program and Aqueous Film Forming Foam Guidelines for Tyndall MILCON-Rebuild
8 November 2021

Overview: The contractor shall be responsible for performing characterization work, as required, and be responsible for the final disposition of soils and groundwater from construction projects at Tyndall Air Force Base. Characterization efforts shall include a combination of generator knowledge and analytical testing. Soil and groundwater within Installation Restoration Program (IRP) site boundaries and/or Aqueous Film Forming Foam (AFFF) site boundaries and any soil outside of IRP and AFFF site boundaries that shows evidence of contamination shall be managed in accordance with applicable RCRA and CERCLA requirements and with applicable guidelines herein. For groundwater, the guidelines also apply to dewatering effluent within 500 feet of an IRP/AFFF site boundary and known perfluorooctane Sulfonate (PFOS) and/or perfluorooctanoic Acid (PFOA) contamination.

All excavated soil within the MILCON Rebuild program shall be managed in accordance with these requirements. The Contractor shall not dispose of characterized soils off-base that screen within Air Force (AF) and regulatory levels required herein, but shall move excess soil to designated on base soils borrow storage area for final disposition. Contractor shall dispose of soil with contaminant levels that exceed Air Force (AF) and regulatory screening levels at an authorized off-base disposal facility. Soil outside of IRP and AFFF site boundaries are considered clean/non-contaminated (unless soil shows evidence of contamination), does not require characterization, and shall be moved to designated soils borrow storage area for final disposition. All designated soils borrow storage areas are anticipated to be within 15 miles of the project site. Soil management outside of these areas and soils brought on-site from off-base for backfill shall follow "Tyndall AFB Guidelines for Non-ERP Soil Management", except as noted here.

Where PFOA/PFOS is the sole "chemical of concern" when assessing soil/water media, the contractor is instructed to follow Air Force guidance. This guidance requires removal and/or treatment of any soil/water media that tests above the EPA lifetime health advisory (LHA)/Air Force approved reference dose (RFd) standard of 2E-05 milligrams per kilograms-day (e.g., 70 ppt water or 1.30 mg/kg soil). Soil should be sampled and tested for PFOA/PFOS in areas of known AFFF releases; soil need not be tested for PFOA/PFOS in other areas unless the soil will be moved outside the boundaries of Tyndall AFB. Untested soil and soil/water media that tests below the Air Force approved reference dose shall be available for unrestricted use/reuse within the boundaries of Tyndall AFB. If the Contracting Officer deems necessary for either previously untested soil or soil below the Air Force approved reference dose to leave the boundaries of Tyndall AFB, the contractor shall first sample and test the soil following testing guidance herein, and then follow applicable state and local requirements for soil disposition. Payment for Contracting Officer required additional soil testing and off-base disposal will be handled under the changes clause of this contract. In no instance should the contractor dispose of this type of soil in a Subpart C Landfill without first coordinating plans through USACE C.O.R. Further,

consistent with Air Force policy, PFOA/PFOS is not a contaminant with a defined maximum contaminate level. Therefore any liquid concentration of PFOA/PFOS below the EPA lifetime health advisory concentration may be reinserted into the ground within the boundaries of Tyndall AFB.

1. OSHA Compliance: The contractor has the responsibility to fulfill its obligation under 29 CFR 1910.120, Occupational Safety and Health Administration Standards (OSHA), Hazardous Waste Operations and Emergency Response (HAZWOPER), and address the health and safety of its employees associated with construction activities relative to this project.

2. Analytical testing shall be conducted at a Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP)-certified laboratory. The contractor is required to utilize the services of a qualified environmental professional for sampling and a DoD ELAP-certified laboratory for testing. The Contractor may establish an on-site laboratory at the project site if determined necessary by the Contractor. However, on-site test laboratories shall also be accredited under the DoD ELAP and meet all state and federal requirements, including state certification, where appropriate.

3. The Contractor shall comply with applicable federal, state, and local requirements for any task involving the transportation and disposal of solid or hazardous wastes in a manner compliant with 40 Code of Federal Regulations (CFR) 260-265 and 268, and 49 CFR 171, 172, 173, 178, 179, and other applicable regulations.

4. The Contractor shall obtain and comply with all FDEP approved/issued wastewater permits which generally contain requirements for, depending on the type of facility and disposal means, the treatment of the wastewater, disposal to surface water (NPDES), discharge to ground water, and land-application of reclaimed water.

5. The Contractor is responsible for developing and obtaining AF approval of soil and groundwater management work plans through USACE C.O.R. Work plans shall detail means and methods to ensure proper management of waste soil and water, ensuring contamination is not spread during construction, dewatering, and containerizing activities. Work plans shall be submitted a minimum of 30 days prior to start of work at the site.

6. If any contamination is encountered or suspected (e.g., suspicious odors, fuel smells, soil staining, odd soil colors, unfamiliar liquids, buried materials, etc.) at the site, contact USACE and 325 CES HWPM. These soils are to be separated, stockpiled on-site and covered with polyethylene plastic sheeting at least 10 mil thick until properly tested and disposed.

7. Documentation of any sampling and testing results, and reuse or disposal actions shall be provided in a summary report prepared by the contractor in accordance with UFGS section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, section 02 61 13, EXCAVATION AND

HANDLING OF CONTAMINATED MATERIAL and section 02 81 00 TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS.

8. Construction activities shall avoid damaging or disturbing any monitoring wells and shall protect wells from the introduction of contaminants (mud/dirt or PVC glue introduced/caps or plugs removed/risers compromised) that may be located in the construction area. Cost to sample, repair, and/or replace damaged wells, as a result of construction, shall be incurred by the contractor. No wells may be abandoned without prior approval of the USACE C.O.R who will coordinate this action with the Tyndall RPM. If wells must be abandoned, repaired, or replaced, the action shall be in accordance with FDEP regulations, and the well shall be surveyed by a Florida licensed water well driller. Monitoring well abandonment, repair, or installation documentation and applicable GIS files shall be provided to the Tyndall RPM through the USACE C.O.R. Placement of replacement wells will require coordination with Environmental Protection Agency (EPA), FDEP, and the Tyndall RPM.

9. Proper decontamination is required for any equipment which contacts contaminated soils or groundwater prior to mobilization outside IRP/construction site boundaries. Decontamination fluids are to be collected and stored in 55-gallon drums, properly labeled and stored on pallets in an on-base waste accumulation area in a manner not to exceed the time requirements of a RCRA Central Accumulation Point (usually 90 days for a LQG) and applicable laws until sampled, characterized, and disposed of at a proper disposal facility.

10. Baseline sampling at all temporary on-base waste accumulation and/or treatment areas shall be completed prior to storage of soil piles. Soil piles must be constructed to prevent effluent from migrating to clean areas by using bottom and top polyethylene plastic liners, and stockpile covers shall be appropriately secured and weighed down. When PFOA/PFOS are the sole chemicals of concern, ground barrier cover need not be employed. Soil piles must be regularly inspected and maintained to ensure the cover remains intact, excessive water does not accumulate, wattles remain in place, signs are legible and in place, and safety warning devices are present and upright. The contractor shall complete final cleanup in locations used for treatment and/or stockpiling waste materials and collect and analyze confirmation samples to verify cleanup success.

11. The Government will prepare soil borrow storage areas for final disposition and will direct and oversee all contractor disposal activities, unless contract requirements note otherwise. Contractor shall provide all testing and reporting documentation to C.O.R. for waste management following completion of all disposal activities. For contractor prepared and managed soil borrow storage areas, the following applies. Requirements from #10. above shall apply for soil borrow storage area(s), except where noted that stockpile bottom liners are not required. All aspects of grading, site and stockpile preparation, site fencing, handling, placement, and maintenance, including stockpile cover materials and liner materials and all other items incidental to construction of stockpiles. Soil shall be managed in accordance with “Stockpile Erosion Protection” section of the Florida Storm water erosion and Sedimentation Control

Inspectors Manual. Contractor shall obtain a Construction General Permit and prepare a Storm water Pollution Prevention Plan (SWPPP) to address any runoff from the soil stockpile, but must be submitted to Tyndall AFB Environmental Office through C.O.R. for review and approval. Per the SWPPP, additional soil storage site maintenance shall include weekly stockpile and SWPPP inspections and reporting; performing periodic and emergency maintenance as required; and preparing a draft and final stockpile Inspection & Maintenance and SWPPP inspection report. The report shall include all inspection records and shall note the repairs performed during the year. The Contractor will maintain these long-term stockpiles until the project's Beneficial Occupancy Date (BOD), unless earlier BOD for soils management is approved by Contracting Officer. See contract plans and specifications for additional requirements.

12. Soil management - within IRP site boundaries:

a. Soil inside IRP site boundaries is believed to be contaminated but has not historically been shown to be hazardous. See AF provided Remedial Investigation (RI) reports for constituents of concern (COCs) within project limits for use in characterization efforts.

b. Excavated soil within these areas that is suitable for reuse as defined by geotechnical requirements shall be redeposited back within the point of excavation. Soil may be temporarily moved within the IRP study area as long as it is subsequently redeposited in the same excavated area. Soils should be staged on polyethylene plastic liner, properly covered and labeled, and shall not leave that IRP site boundary until redeposited or tested as described below. Best management practices shall be utilized to prevent spreading contamination into previously uncontaminated or less contaminated areas within the IRP site boundary.

c. If soils are to be removed for disposal from the site, they shall be tested prior to disposal or reuse. Soils shall be properly characterized and classified as either hazardous or non-hazardous wastes in accordance with the U.S. Air Force Hazardous Waste Management Plan 325th Fighter Wing Tyndall AFB (specifically Appendix A Waste Analysis Plan) dated 10/23/2020; tested utilizing the Toxic Characteristic Leaching Procedure (TCLP), analyzed for characteristic hazardous chemicals (40 CFR 261, Subpart C) and/or as required by the authorized disposal facility. Results are to be provided to the United States Army Corps Engineers (USACE) and the 325 Civil Engineer Squadron (CES) Hazardous Waste Program Manager (HWPM) prior to any transportation for proper disposal at an authorized disposal facility. Additionally, soils that exhibit a hazardous waste characteristic are to be further sampled, consistent with Paragraph 12.d. to determine applicability of Land Disposal Restrictions (LDR) and any Underlying Hazardous Constituents (40 CFR 268). Copies of transportation and disposal documents (profiles, manifests, bills of lading) are to be provided to USACE and the 325 CES HWPM. An AF representative will sign all profiles and hazardous waste manifests. The government anticipates that soil will not be a classified as hazardous waste; if the soil is classified as hazardous waste, payment for disposal will be handled under the changes clause of this contract.

d. Soil from excavation or construction activities that is contaminated with a Resource Conservation Recovery Act (RCRA) characteristic or listed waste or contains a waste for which a LDR exists must be assessed to determine if it requires transport and final disposition off-base. Such waste may be moved to an appropriate staging area within the IRP/construction site pending results before determining final disposition so long as it is properly covered and labeled. If the soil is determined to have listed waste contained within the testing sample, absent exemption or exclusion (e.g., application of the RCRA ICR rule) such media must remain within the IRP/construction site boundary until final disposition. Listed waste shall not be redeposited at the point of generation –absent ability to apply a RCRA exclusion or exemption. If the soil is not hazardous, it may be moved outside the IRP/construction site boundary to an approved on-base waste accumulation area (if designated available) for storage until final disposition or to soils borrow storage area for final disposition. All excess non-hazardous IRP soil shall be stockpiled in a dedicated IRP stockpile at designed soils borrow storage area. Prior to transport to soils borrow storage area for final disposition, soil shall be tested per each disposal unit using a composited sample with aliquots from all four corners of the container not to exceed 20 cubic yards, analyzed by DoD ELAP-certified laboratory, and results provided with transportation and disposal documents to USACE COR and 325 CES HWPM.

e. For reuse at a location other than the point of generation soil shall be tested for COCs per following methods. Soils are to be staged in soil piles of 400 CY within the IRP/construction site or approved on-base waste accumulation area (if designated available), sampled, and analyzed in accordance with the parameters identified below. One composite sample of eight aliquots is to be collected from each 400 CY stockpile. The 400-CY soil stockpile shall be divided into eight equal sections of 50 CY each (e.g., spokes dividing a wagon wheel). The "A" sample is to be always collected on the north side of the stockpile, and the subsequent samples are to be collected in a clockwise manner. In lieu of site defined COCs, contractor shall test for following constituents:

- Volatile Organic Compounds (VOCs) per Method 8260
- Semi-volatile Organic Compounds (SVOCs) [Base/Neutrals (e.g., PAHs, Pesticides, PCBs) and Acid Extractables (e.g., Phenols)] per Methods 8270/8081/8082
- RCRA metals by Method 6020
- Petroleum Residual Organics (by FL-PRO)

Analytical results will be compared to the FDEP industrial/commercial and residential Soil Cleanup Target Levels (SCTLs) to determine acceptability of the proposed material as clean fill. Results of every analyte must be below the FDEP appropriate Soil Cleanup Target Levels in order to be used as backfill on TAFB.

13. Soil management – generally

a. Soil in areas of known AFFF-releases should be tested for PFOA/PFOS levels pursuant to AF policy. Soil outside of known AFFF-releases need not be tested for PFOA/PFOS levels unless

directed by the Contracting Officer as noted above. Soil containing PFOA and/or PFOS may be tested on-site, next to the point of generation, within the MILCON-rebuild Zone, and/or within an approved on-base waste accumulation area. Analytical results are to be compared to the EPA RSL/Air Force policy standard (for PFOS and/or PFOA) to determine acceptability of the proposed material for reuse anywhere within the boundaries of Tyndall AFB. Notify USACE and 325 CES regarding PFOA and/or PFOS soil samples above the EPA RSL and treat soil as required herein. If other COCs exceeding regulatory standards are identified in the soil, then the soil will be managed to address the regulated COC(s) in the manner prescribed herein. PFOA/PFOS, without other identifiable contaminants of concern present, is not considered hazardous. See AF provided AFFF site investigation reports for use in characterization efforts. To the extent PFOA/PFOS is the sole COC, the contractor is instructed to follow Air Force guidance in the Overview above.

b. Soils are to be staged in soil piles of 400 CY within the AFFF/construction site or approved on-base waste accumulation area (if designated available), sampled, and analyzed in accordance with the parameters identified below. One composite sample of eight aliquots is to be collected from each 400 CY stockpile. The 400-CY soil stockpile shall be divided into eight equal sections of 50 CY each (e.g., spokes dividing a wagon wheel). The “A” sample is to be always collected on the north side of the stockpile, and the subsequent samples are to be collected in a clockwise manner. Analytical results are to be compared to the EPA RSL/Air Force policy standard (for PFOS and/or PFOA) to determine acceptability of the proposed material for reuse within the point of excavation, within the project limits, and anywhere within the boundaries of Tyndall AFB.

c. Excavated soil that either need not be tested or that tests below EPA RSL/AF policy standard and is suitable for reuse as defined by geotechnical requirements shall be reused within the project limits or within the boundaries of Tyndall AFB as allowed by the AF. Soil excess to project needs with PFOS/PFOA detected below 1.30 mg/kg shall be moved to designated on-base soils borrow storage area for final disposition. Notify USACE and 325 CES regarding PFOA and/or PFOS soil samples above 1.30 mg/kg and handle soil as required below in 13.d. If other COCs exceeding regulatory standards are identified in the soil, then the soil shall also be managed to address the regulated COC(s) as prescribed in paragraph 12 above. Soils should be staged on polyethylene plastic liner, properly covered and labeled, and shall not leave testing area until tested. Best management practices shall be utilized to prevent spreading contamination into previously uncontaminated or less contaminated areas within the AFFF site boundary.

d. Excess soil which exceeds 1.30 mg/kg for PFOS and/or PFOA may be treated to below 1.3 mg/kg or be disposed of at an authorized off-base disposal facility. For all excess PFOA/PFOS soil destined for off-base disposal, soil shall be tested and documented prior to disposal as described in part 1. above. AFFF- related solid waste with PFOS/PFOA is not considered hazardous waste. The government anticipates that soil will not have PFOS and/or PFOA above 1.3 mg/kg; if detected above this EPA RSL screening level, payment for disposal will be handled under the changes clause of this contract. Excess soil moved to the soils borrow storage area for

final disposition will require separate stockpiles for: 1) AFFF: excess soil with sole COCs of PFOS/PFOA, which tests below EPA RSL/AF policy standard; 2) IRP: excess soil with comingled COCs not required to be disposed at an authorized off base facility (i.e. not hazardous waste); and 3) excess soil that shows no evidence of contamination outside of IRP and AFFF site boundaries.

14. Groundwater management - generally

a. Groundwater inside **AFFF**/IRP site boundaries and within 500 feet of **AFFF**/IRP site boundaries or areas of known AFFF releases is believed to be contaminated but has not historically been shown to be hazardous. See AF provided Remedial Investigation (RI) reports for constituents of concern (COCs) within project limits for use in characterization efforts. PFOA/PFOS, without other identifiable contaminants of concern present, is not considered hazardous. See AF provided AFFF site investigation reports for use in characterization efforts. To the extent PFOA/PFOS is the sole COC, the contractor is instructed to follow Air Force guidance. This guidance states that if groundwater meets the EPA lifetime health advisory (LHA)/Air Force approved reference dose (RfD) standard of 2E-05 milligram per kilogram (mg/kg) -day (e.g., 70 ppt water), the groundwater media may be reinserted into the ground within the boundaries of Tyndall AFB. If sample results exceed EPA LHA of 70 parts per trillion (ppt) for PFOS and/or PFOA, then filtration will be required until groundwater effluent meets the EPA LHA before reinserting into the ground.

b. Dewatering within a contaminated groundwater plume or an area with known contamination is allowed as long as effluent percolates back into the known plume areas (FDEP to approve infiltration plan), other approved on-site method(s) of disposition are used (e.g., discharge to stormwater system/surface water discharge or reinjection using “connector wells” under Rule 62-528.600 under permitted conditions), and/or the dewatering liquid is disposed of off-site.

c. Dewatering effluent destined for disposal at an authorized disposal facility requires analysis for characteristic hazardous chemicals and the potential presence of listed hazardous waste and other constituents as required by 40 CFR 262.11 and treatment/disposal facilities. Results are to be provided to the USACE and the 325 CES HWPM prior to any transportation for proper disposal at an authorized disposal facility or may be conservatively handled as hazardous waste in accordance with appropriate hazardous waste laws and regulations if approved by USACE and the 325 CES HWPM or required by the contract or statement of work. Copies of transportation and disposal documents (profiles, manifests, bills of lading) are to be provided to USACE and the 325 CES HWPM. An AF representative will sign all hazardous waste manifests.

d. For groundwater inside AFFF site boundaries, within 500 feet of AFFF site boundaries, or within 500 feet of known AFFF releases, sample recovered groundwater from dewatering activities at the influent and effluent locations of the dewatering and /or treatment systems at the following frequency and analyze samples at a certified laboratory.

- Sample 4 times a day for 2 Days (i.e. 7 AM, 10 AM, 1 PM, and 4 PM)
- Sample 2 times a day for following 3 weeks (i.e. 8 AM and 4 PM)
- If pumping is still occurring at this dewatering location, then sample 1 time per day until the dewatering point is no longer being used (i.e. 11 AM)

NOTE:

1. If clean sample results (all contaminants are below their groundwater cleanup target level [GCTL] and/or PFOS and/or PFOA is below 70 ppt) are found for any 4 consecutive sampling events during the duration of dewatering from a specific dewatering point then confirmatory samples can be immediately reduced to a frequency of 1 per day until dewatering is complete. A treatment step won't be needed on the dewatered water that is below the "clean" threshold.

2. If a contractor determines a treatment step is to be used on dewatered water before infiltrating it back into the point of generation, then only Steps 1 and 3 need to be followed during the duration of dewatering at a dewatering point.

(a) If quantities of liquid PFOS/PFOA waste must be treated, contractor will use either Granular Activated Carbon (GAC), ion exchange, or other approved treatment technology to bring chemical concentrations below the LHA, before returning it to its source location at the point of generation in accordance with Air Force (AF) and permitting requirements.

(b) Alternative on-site (next to the point of generation, within the MILCON-rebuild Zone, or within an approved accumulation area) final disposition options may be approved for use. Contractor is responsible for coordinating with the AF through the C.O.R. Treated and/or non-treated dewatering effluent may be discharged to storm water system/surface water discharge under permitted conditions (including compliance with surface water standards). This action would be considered an on-site disposal option.

Environmental Supplemental Guidance

The A/E is required to address all environmental regulations as well as guidance provided by Tyndall BCE, including but not limited to: *Installation Restoration Program and Aqueous Film Forming Foam Guidelines for MILCON Rebuild* dated 5 April 2021; *Environmental Protection* "General Environmental Requirements for Contracts v2"; Tyndall Map PFOS & PFOA Areas; Final AFFF SI Report delivered to regulators; Basewide Conceptual Site Model, Tyndall Air Force Base; DoD Vapor Intrusion Handbook; Environmental Restoration Program Site Reports; IRP Map 2016 May 10 Base Map – Restoration Sites (with wetlands); Wetlands Delineation Survey; AF813s; and Final NEPA guidance.

The following information is supplemental guidance for vapor intrusion risk determination for projects located within IRP and/or AFFF sites.

1. Follow the requirements of the DoD Vapor Intrusion Handbook

    1.1. Vapor intrusion shall be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. A/E shall conduct screening level evaluations as required for facility designs. If design model data exceeds the generic screening levels then the A/E shall provide the requirements for a vapor intrusion system in the RFP.

The following information is supplemental guidance for demolition:

1. Existing buildings shown to be demolished within the zone limits shall be demolished by others prior to construction contract award.
2. Any data required for design (construction methods and environmental testing) shall be provided by Tyndall Base Civil Engineering Office (BCE).
3. The A-E is responsible for showing demolition of any pavements and underground utilities interfering with construction and including related design requirements in the contract drawings and specifications.

The following information is supplemental guidance for boring activities.

1. General Requirements:
    1.1. The Contractor shall develop a Site-specific Safety and Health Plan (SSHP) in accordance with 29 CFR 1910.120 and EM 385-1-1. SSHP will be submitted to USACE PM and TL for Mobile District Safety Office approval prior to drilling. The plan shall define emergency procedures, discuss any site hazards that could be encountered during execution of this performance work statement, address accident prevention, and present appropriate action levels for potential contaminants to be encountered.

    For all drilling sites that are within documented areas of known soil and/or groundwater contamination, this SSHP must include at a minimum: the identification of the known contaminants and respective hazard evaluations, procedures for managing Investigative Derived Wastes (IDW), the selected personal protective equipment, and address all decontamination procedures for personnel and equipment

    1.2. All borings and piezometers outside of designated IRP sites or AFFF site boundaries, which penetrate depths greater than 9 feet, shall be backfilled and tremie grouted per contract requirements. Cuttings that are not redeposited in bore hole shall be spread in the vicinity of the bore hole or handled in accordance with Environmental requirements and guidance addressed above. Note that storage of containerized materials shall remain within the vicinity of the boring location on the site.

2. Installation Restoration Program (IRP) Sites:

1.1. Boring activities within designated IRP sites, including soil and/or within 50 feet of and within groundwater contamination plume, are required to adhere to the following:

1.1.1. All cuttings shall be recovered and containerized in 55 gallon drums, sampled and tested for full Resource Conservation and Recovery Act (RCRA) Toxicity Characteristic Leaching Procedure (TCLP), evaluated based on industry limits and disposed of at an appropriate offsite facility. All test results shall be provided to the appropriate facility environmental representative. Note that storage of containerized materials shall remain within the vicinity of the boring location on the site until time of removal.

1.1.2. Waste Profile and all waste manifests to be signed by 325th CES prior to disposal.

1.1.3. The entire borehole shall be grouted using tremie pipe from the bottom of the maximum penetration depth continuously to the ground surface.

1.1.4. Borings that approach and/or exceed a confining layer are required to adhere to the following:

1.1.4.1. Continuous sampling for the entire exploration depth.

1.1.4.2. If required to bore through a confining layer to satisfy the required sampling depth for geotechnical design purposes, a casing shall be installed between the ground surface and the top of the confining layer and sealed with grout before boring may extend below the top of the confining layer.

1.1.5. Decontamination of drilling equipment is required after completion of drilling within each IRP site, and within 50 feet of and within each IRP groundwater plume.

2. Aqueous Film Forming Foam (AFFF) Sites:

2.1. Borings within AFFF site boundaries are required to follow the Installation Restoration Program and Aqueous Film Forming Foam Guidelines for MILCON Rebuild dated 5 April 2021. Preferred disposal will follow Tyndall RPM guidance.

2.1.1. Decontamination of drilling equipment is required after completion of drilling within designated AFFF sites.

ENVIRONMENTAL PROTECTION

1. General:

All projects shall minimize environmental pollution and damage that may occur as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work must be protected during the entire duration of a project. Contractor shall comply, and assure that all sub-contractors comply, with all applicable federal, state, and local laws and regulations, Air Force Instructions, Air Force Manuals, Engineering Technical Letters, regulations, ordinances, policies and standards related to environmental matters. Copies of local policies and procedures will be provided to the contractor upon request.

The use of materials which have been identified by Governmental agencies as being hazardous or creating potentially hazardous conditions will not be allowed on any project. Specifically, products containing lead, asbestos, polychlorinated biphenyl (PCB), and Ozone depleting chemicals are prohibited. The contractor shall assume a strict and cautious position in responding to reports of other materials, which may be identified as hazardous during construction period.

If any material originally specified or approved for use in the work should become listed as suspected or verified as being hazardous, the contractor shall immediately notify the Contracting Officer and initiate efforts to postpone the installation or use of the material until the matter can be investigated.

All contractors must comply with requirements for the protection of natural resources (e.g. wetlands) and cultural resources (archeological sites and historic buildings). In the event of any unexpected discoveries of intact archaeological deposits or human remains, all ground-disturbing activity near the find shall cease and the contractor shall contact 325 CES/CEIE. Contractor shall not resume any work near the find until consultation with Native American Tribes and State Historical Preservation Office is concluded.

The contractor shall reimburse the Government for any remediation undertaken to clean up releases by the contractor and for any civil or criminal fines or penalties for any environmental infraction caused by the contractor.

2. Environmental Permits:

a. Obtaining and complying with all environmental permits and commitments required by Federal, State, Regional, and local environmental laws and regulations is the Contractor's responsibility.

b. All permits applications will be staffed through 325 CES/CEIE for signature and forward to Florida Department of Environmental Protection or US Army Corps of Engineers as necessary.

c. Typical environmental permitting process for execution methods:

1. Design-Build: The prime contractor’s A/E shall provide the necessary design work, payment, and application forms to obtain any permits for potable water, sanitary sewer, stormwater treatment facility, and 62-621 construction activity as part of the overall contract. The prime contractor is responsible for completion of the necessary as-built permit certifications once the items are complete.

2. Design-Bid-Build: The A/E of record shall provide the necessary design work, payment, and application form to obtain any ERP permits for wetland fill activities, potable water, sanitary sewer, and stormwater treatment facility and provide to 325 CES/CEIE at final design. The construction contractor

is responsible for obtaining the 62-621 construction activity permit. The contractor shall provide as-built certifications for permitted items at the end of construction.

3. As-built certifications shall be staffed by the contractor through 325 CES/CEIE for signature and forward to Florida Department of Environmental Protection (FDEP).

d. Sanitary sewer and drinking water permits: The A-E shall bear full responsibility to accurately conceive, and design the proposed utility system and/or modifications to the existing system(s) based on acceptable practices for design as required by state and federal regulations.

3. National Environmental Protection Act (NEPA):

In the event that the government has prepared any NEPA Documentation, i.e. Environmental Impacts Statement (EIS), Environmental Assessments (EA), or a Finding of No Significant Impact (FONSI), the designer shall prepare the design so that it is entirely compatible with any and all requirements of the NEPA documents.

4. Fuel Tanks:

For any new fuel tanks, the Storage Tank Manager (325 CES/CEIE) must approve prior to install to ensure that proper registration and coordination with State agencies is performed as needed.

5. Air Quality:

a. Many operations are subject to specific air quality regulations. State-specific emission standards are identified in Chapter 62-296 of the Florida Administrative Code (F.A.C.). Florida regulates hazardous air pollutants (HAP) in accordance with the National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40 of the Code of Federal Regulations (CFR): Part 61 is regulation by HAP and Part 63 is regulation by industrial category. There are also federal New Source Performance Standards specified for criteria air pollutants in Title 40, Part 60 of the CFR.

b. Contractors working on projects that involve the creation or changing, in any way, of an air pollution source located at Tyndall AFB shall coordinate with 325 CES/CEIE to modify the existing air operating permit or, for a new air source, apply for a construction permit. The cost of any fees involved shall be paid by the conbtractor. Conduct a thorough site/plan survey to identify all activities that generate and/or control air emissions. Air permitting requirements are specified in Chapters 62-4, 62-204, 62-210, and 62-212 of the Florida Administrative Code (F.A.C.). Projects utilizing regulated equipment are required to obtain permits prior to beginning construction on new emissions units, modifying an existing emissions unit or installing air pollution control equipment. These permits will specify applicable emissions standards and work practices to control the emissions of pollutants such as particulate matter, carbon monoxide, nitrogen oxides, sulfur oxides, volatile organic compounds, and hazardous air pollutants.

c. Prior to the start of the project, the Contractor will submit a listing of all stationary and mobile emission sources and associated criteria and hazardous air pollutants for each source. During the project, the list will be maintained by the Contractor, and updates submitted to 325 CES/CEIE as changes occur. Air pollution sources include, but are not limited to, external combustion sources (boilers), internal combustion sources (gas, diesel, propane, natural gas – fired generators and other internal combustion driven types of equipment), woodworking shops, paint spray booths, fuel storage and dispensing operations, welding operations, abrasive cleaning, degreasers and emitters of ozone depleting substances and/or hazardous air pollutants (HAPS).

6. Asbestos Containing Materials: The Contractor and subcontractors are prohibited from using any Asbestos Containing Materials (ACM) on any assigned project. In the event the Contractor encounters previously unidentified ACM or suspected ACM during work, the Contractor shall take all necessary precautions to ensure the ACM is not disturbed. The Contractor shall immediately notify the 325 CES Project Manager and Contracting Officer and await further guidance. The Government will take steps, as necessary, to ascertain the material's composition and determine any necessary remedial action.

a. The Contractor or subcontractors performing asbestos removal must be licensed/certified by the State of Florida, show proof of acceptable Federal/State approved disposal site, and must have properly certified and trained asbestos abatement workers. Contractor must perform in strict compliance with all applicable State, Local, and Federal regulations.

b. Notice of Demolition or Asbestos Renovation, DEP Form 62-257.900(1) must be submitted to Florida Department of Enviro Many operations are subject to specific air quality regulations. State-specific emission standards are identified in Chapter 62-296 of the Florida Administrative Code (F.A.C.). Florida regulates hazardous air pollutants (HAP) in accordance with the National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Title 40 of the Code of Federal Regulations (CFR): Part 61 is regulation by HAP and Part 63 is regulation by industrial category. There are also federal New Source Performance Standards specified for criteria air pollutants in Title 40, Part 60 of the CFR, postmarked or received at least 10 working days prior to the start of all demolitions (i.e. load-bearing structures) and for the removal of asbestos-containing material from all applicable sources meeting or exceeding the thresholds identified in the Asbestos National Emission Standards for Hazardous Air Pollutants regulations. A copy of this notification must be provided to the Contracting Officer and 325 CES/CEIE prior to performing any work.

c. Contractors will coordinate with 325 CES/CEIEC Hazardous Waste Program Manager or designee for approval and signature of disposal shipping documents.

7. Hazardous Waste:

a. The Contractor shall conduct and record hazardous waste determinations for all Solid Wastes to identify, characterize, store and dispose of any hazardous waste generated during work in strict accordance with Federal and State guidelines found in the Code of Federal Regulations..

b. The contractor shall comply with all provisions of 40 CFR 260 through 281 regarding the generation, storage, and disposal of hazardous waste. The contractor shall stop all work in the event 325 CES/CEIE identifies noncompliance with federal and state regulations and shall correct any discrepancies immediately within 2 hours of notification. All hazardous waste shall be labeled and an inventory management system will be initiated to insure timely removal and proper disposal. No on-base disposal will be allowed.

c. All drums will be labeled with a hazardous waste label. The label shall include the proper DOT shipping name, UN or NA number, EPA waste number, generator information. The label shall be placed on the side of the drum. All drums used to store hazardous waste shall be non-leaking and safe to handle. Contractor shall be responsible for over packing drums that are rusted, dented, or leaking. Drums and/or over-packs shall be provided by the contractor. All drums shall be "new" DOT approved containers.

d. Hazardous waste transportation and disposal shall be coordinated through 325 CES/CEIE. The contractor shall be responsible for transportation and disposal of all hazardous waste at an EPA approved treatment, storage, disposal facility (TSDF). The transportation and disposal facilities shall be approved

by 325 CES/CEIE prior to their use. Manifests and profiles shall be signed only by 325 CES/CEIE. Drums shall be disposed of within 90 days of placing the first drop in the container.

8. Solid, Liquid, and Gaseous Contaminants: The Contractor shall be responsible for the proper disposal of all solid, liquid, and gaseous contaminants in accordance with all applicable Federal, State, and Local codes and regulations, as described elsewhere herein.

9. Covered Chutes: All chutes for refuse, and the like, shall be covered or of such a design to fully confine the material to prevent dust dissemination.

10. Management of Liquid Wastes: The contractor shall not dispose of any waste or residual material on the ground or in any storm sewer or drainage system. This includes but is not limited to paints, coatings, solvents, petroleum products, etc. Discharge of any material or diluted material into sanitary or industrial sewer systems shall be coordinated with the Base Environmental Element through the Contracting Officer, and shall be approved by the Base Environmental Element. Waste material for disposal shall be disposed of in accordance with Federal and State waste regulations and with local base policies. If in doubt, consult with the Base Environmental Element, Tyndall AFB, through the Contracting Officer.

11. Hazardous Chemical and Liquid Petroleum Products Spill Prevention: All hazardous materials and wastes shall be stored and handled in a manner to minimize the potential for spills. Liquid containers of 55 gallons or greater will be stored on or in a secondary containment compatible with the material being stored, and capable of containing the entire contents of the largest single container. (e.g. A secondary containment pallet capable of holding 60 gallons may have more than a single 55 gallon drum stored upon it). Spill response materials and tools shall be available in the immediate area to contain and control a spill. In the event of a spill every effort will be made to prevent the material from entering a storm water or sanitary sewer inlet. If the spill is a result of negligence or failure to adhere to these requirements the contractor will be solely responsible for the cost of cleanup and restoration of the area. Copies of the Spill Prevention, Containment and Countermeasures Plan and the Hazardous Material Management Plan will be provided to the Contractor by the Contracting Officer upon request.

12. Hazardous Material Inventory and Tracking:

a. A letter of review from 325 CES/CEIEC Must be accomplished prior to commencement of work on each task order.

b. The contractor shall submit TAFB Form 81 (Contractor Questionnaire) and TAFB Form 82 (Chemical Inventory) for review and approval to the 325 CES/CEIEC Hazardous Materials Office (HAZMO) 7-10 business days prior to commencement of work.

c. The Contractor should note that Tyndall AFB is required to report chemicals used such as (but not limited to) compressed gases, adhesives, aerosol cans, sealants, paints, lubricants, oils, cleaners, degreasers, pesticides, and fuels. Copies of manufacturer-specific Safety Data Sheets (SDS) must be attached to TAFB Form 82. These SDSs shall also be readily accessible at the location of each hazardous material. **Materials Safety Data Sheets (MSDS) are no longer accepted.**

d. After submission, the 325 CES/CEIEC HAZMO will notify the Project Manager and/or CONS of the reportable chemicals and of any special instructions. **The contractor or subcontractor cannot bring any materials onto the installation until they have received a hazardous materials approval letter from the 325 CES/CEIEC HAZMO.** As directed by the CO, the Contractor is required to submit TAFB Form 83 (Reporting Entry Form) showing material usage monthly until completion of the task order. A letter from 325 CES/CEIEC HAZMO will be accomplished with each submittal monthly and/or

completion. The CO must be notified of any changes from the original submittal (i.e. new chemical is added, size of container or unit of issue changes or if the manufacturer changes), changes must be submitted using TAFB form 82. An updated letter of review indicating changes will be sent from 325 CES/CEIEC HAZMO to the Contracting Office before the material can be brought onto the installation. Prime contractors shall be responsible to ensure all sub-contractors comply with this requirement.

e. The contractor shall identify a single Point of Contact (POC) in writing to the HAZMO. Submit changes in writing to the HAZMO as they occur.

f. All containers will be labeled and the Contractor will provide the 325 CES Environmental Element, the Fire Department, and Readiness Flight with a listing of all Extremely Hazardous Substances (as defined in 40 CFR Part 355, Appendix A), approximate volumes of petroleum based substances (i.e., lubricants, fuels, etc.) and hazardous materials as defined in 40 CFR Part 302.4. This information will be updated any time different materials are brought on base.

g. All contractors and subcontractors must comply with the requirements for hazardous materials in accordance with AFMAN 32-7002, Environmental Compliance and Pollution Prevention.

13. The contractor shall notify the Contracting Officer upon encountering any material thought to be hazardous that was not generated by the contractor during the work. The Government shall be responsible for characterization, transportation, storage and disposal of the material if it is determine to be hazardous.

14. Non-Hazardous Solid Waste Diversion Reporting: The Contractor shall maintain an inventory of non-hazardous solid waste diversion and disposal of construction and demolition debris. The Contractor shall submit a report to 325 CES/CEIE through the Contracting Officer on the first business day after each fiscal year quarter, starting the first quarter that non-hazardous solid waste has been generated. The following shall be included in the report:

a. Construction and Demolition (C&D) Debris Disposed = in thousands of pounds

b. Non-C & D recycled items (i.e. cardboard, paper, metal, plastic, glass, etc.) = in thousands of pounds

c. Total C&D Debris Generated = in thousands of pounds.

15. Burning of any type of materials will not be permitted to accomplish the work.

16. All pesticide usage must be coordinated with the Base Entomologist (283-4358). Pesticides must be applied by certified personnel.

17. Stormwater

a. If disturbing 1 acre or more, the contractor needs an NPDES construction permit which meets standards set forth in FDEP Doc. No. 62-621.300(4)(a), Oct 22, 2000. The Notice of Intent shall be submitted along with the appropriate fee to the NPDES Stormwater Notice Center 48 hours before beginning construction. A copy of the permit application and permit letter must be provided to the Environmental Element within 1 week of submittal or receipt. A copy of the Stormwater Pollution Prevention Plan (SWPPP) must be kept on-site. Additionally, a Notice of Termination (NOT) shall be submitted to the NPDES Stormwater Notice Center with a copy provided to 325 CES/CEIE when project is completed.

b. Work specific Best Management Practices (BMP's) shall be implemented prior to construction activities and maintained at all times during construction to prevent siltation and turbid discharges. Identify and cover Stormwater structures using protection devices before performing any work. The BMP's are to be installed along the perimeter of all work areas to prevent the displacement of fill material outside the work area into surface waters, stormwater inlets, etc. Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be stabilized using approved sod, seeding, degradable mats, staked hay bales, staked filter cloth, barriers, turbidity screens, or a combination of similar stabilizing materials to prevent erosion. The erosion control measures shall remain in place and be maintained until all authorized work is completed and the work areas are stabilized and verified by USAF personnel.

c..There shall be no storage or stockpiling of tools, materials (i.e. lumber, pilings, debris) within wetlands, ditches, swales, or elsewhere within waters of the state.

d. All stormwater conveyance structures shall remain in operable condition and shall not be allowed to deteriorate or otherwise contribute to a water quality violation.

e. The contractor shall provide at least one person on each land-disturbing project site who is certified in the *Florida Stormwater, Erosion, and Sedimentation Control Inspector Training and Certification Program*. This person will conduct and document site inspections weekly and after rainfall events according to FDEP Document No. 62-621.300(4)(a), for land-disturbing projects 1 acre and over conducted within Tyndall's fence line. This inspection log shall be made available as needed to project managers, base environmental office or FDEP.

18. Disposal of waste water will be as specified below:

a. Waste water from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, forms, etc. will not be allowed to enter water ways or to be discharged prior to being treated to remove pollutants. Dispose of the construction related waste water off-Government property in accordance with all Federal, State, Regional and Local laws and regulations.

b. For discharge of ground water, the Contractor will obtain a State or Federal permit specific for pumping and discharging ground water prior to surface discharging.

19. Petroleum, Oils, & Lubricants (POL)/ Tanks: Contractors with POL tanks must maintain a maintenance log, reconciliation records and also ensure secondary containment valves are closed. Employees must have proper training for spill cleanup and response. Contractor shall ensure all areas are free of spill residues. Tyndall AFB's Environmental Compliance POL/Tank Program Manager can be reached at 283-2723.

20. Scrap metal generated from base projects shall remain the property of the US Government unless otherwise specified in the contract. The contractors and/or subcontractors must coordinate with the 325 CES/CEIEC Recycling Manager and the Tyndall Recycling Center Manager for turning over materials to the base for recycling. All revenue generated from the sale of scrap metal should be returned to the Tyndall AFB Recycling Program.

21. Storage: Storage areas for material designated for reuse or recycling should be coordinated with the 325 CES/CEIEC Solid Waste/Recycling Manager. Any solid waste generated by the project is the responsibility of the contractor to dispose of off the installation.

22. Environmental Management Systems (EMS). Contractors must perform work consistent with the policy and objectives identified in the installations Environmental Management Systems in accordance with AFI 32-7001, Environmental Management. Perform work in a manner that conforms to objectives and targets of environmental programs and operational controls identified by the EMS. Provide monitoring and measurement information as necessary to address environmental performance relative to environmental, energy, and transportation management goals. In the event of an EMS nonconformance or environmental noncompliance associated with the contracted services, tasks, or actions occurs, take corrective and preventative actions. In addition, employees must be aware of their roles and responsibilities under the installation EMS and of how these EMS roles and responsibilities affect work performed under the contract. Coordinate training needs associated with environmental aspects and the EMS, and arrange training or take other action to meet these needs. Provide training documentation to the Contracting Officer. Make EMS Awareness training completion certificates available to Government auditors during EMS audits and include the certificates in the Employee Training Records.

23. References:

a. Air Force

1. AFI 32-7001, Environmental Management
2. AFMAN 32-1053, Integrated Pest Management
3. AFMAN 32-1067, Water and Fuel Systems
4. AFMAN 32-7002, Environmental Compliance and Pollution Prevention
5. AFMAN 32-7003, Environmental Conservation

b. Florida Department of Environmental Protection

1. Florida Administrative Code (F.A.C) Chapters 62-210-300 and 62-296, Air Regulations
2. Chapter 62-730, Hazardous Waste
3. Chapter 62-762, Aboveground Storage Tanks Systems
4. Chapter 62-710, Used Oil Management
5. Chapter 62-4, Permits
6. Chapter 62-330, Environmental Resources Permitting
7. Chapter 62-331, State 404 Program
8. 62-25 Regulation of Stormwater Discharges

c. Environmental Protection Agency

1. 40 Code of Federal Regulations (CFR) 260-281, Hazardous Waste Management

2. 40 CFR Part 302.4, Designation of Hazardous Substances

3. 40 CFR Part 60-63, National Emissions Standards for Hazardous Air Pollutants

Tyndall AFB Guidelines for Non-ERP Soil Management
USACE MILCON Build-Out
22 May 2020

Projects outside ERP study areas shall be conducted within the following guidelines. To the extent these guidelines conflict with provisions contained within the contract, Statement of Work, or approved work plans, those documents control.

1. Soil outside ERP study areas is not believed to be contaminated. It is the government's intent to use any excess viable (free of roots and debris) soil from excavation or construction activities on other projects on TAFB that are not on ERP study areas. Therefore, excess soil without any evidence of contamination as described in Section #4 below, may be moved to the designated soils borrow storage area for use on other construction projects on TAFB as directed by government officials without testing for contamination.

2. Deviations from statement in Section #1 above:
2a. Excess soil with evidence of contamination as described in Section #4 below discovered during excavation must be tested utilizing criteria for verifying soil is clean found in Section #3 below prior to moving the soil to the soils borrow storage area. If the excess soil is verified as clean, the soil may be moved to the soils borrow storage area. If the excess soil is not verified as clean, the soil shall be disposed of at an authorized disposal facility as described in Section #2b below with the caveat that if the results of the analysis conducted as described in Section #3 below can be used to determine that the soil is not hazardous to the satisfaction of the 325 CES HWPM and an authorized disposal facility, then TCLP analysis is not required and the totals analysis can be used for the waste profile. Otherwise, contaminated soil must follow the requirements in the current IRP MILCON Guidelines.
2b. If the government determines the soils borrow storage area is full and can no longer receive excess soil generated from outside ERP study areas, the excess soil must be disposed of offsite at an authorized disposal facility. A Hazardous Waste Determination (HWD) must be conducted on this excess soil The HWD shall be conducted by testing excess soil utilizing TCLP analysis or the analysis outlined in Section #3 below for clean fill and the divide by 20 rule to approximate the TCLP result. These analytical results and all waste profiles shall be provided to the 325 CES Hazardous Waste Program Manager (HWPM) prior to any transportation for proper disposal at an authorized disposal facility or may be conservatively handled as hazardous waste in accordance with appropriate hazardous waste laws and regulations if approved by the 325 CES HWPM or required by the contract or statement of work. Copies of transportation and disposal documents (profiles, manifests, bills of lading) must be provided to the 325 CES HWPM. The contractor is responsible for the sampling, profiling, proper handling, and disposal of any contaminated media. Utilize the services of a qualified environmental professional for sampling and testing. The 325 CES HWPM is the signature authority for all disposal documents as the generator's representative.

3. Any soils brought on-site from off-base and used for backfill should be properly tested or certified clean (with appropriate documentation) to ensure that no contaminants are being applied on-site. The source of backfill should be natural or virgin material (other than the operation of a borrow pit facility) and should be in an area which has not previously been used for commercial or industrial activities. If the soils to be used for backfill are not certified clean with appropriate documentation, testing of the soils shall be required and must include at least one (1) soil sample collected from the borrow source and analyzed for the following parameters:

- Volatile Organic Compounds (VOCs) per Method 8260
- Semi-volatile Organic Compounds (SVOCs) [Base/Neutrals (e.g., PAHs, Pesticides, PCBs) and Acid Extractables (e.g., Phenols)] per Methods 8270/8081/8082
- RCRA metals by Method 6020
- Petroleum Residual Organics (by FL-PRO)

Analytical results will be compared to the FDEP residential Soil Cleanup Target Levels to determine acceptability of the proposed material as clean fill. Results of every analyte must be below the FDEP residential Soil Cleanup Target Levels in order to be used as backfill on TAFB.

4. Contractors must be made aware of the appropriate procedures if any contamination is encountered (i.e. suspicious odors, fuel smells, soil staining, odd soil colors, unfamiliar liquids, buried materials, etc.) at the site. If these conditions are encountered, AFCEC/CZOE and 325 CES/CEIEC must be contacted. If discovered, these soils should be separated, stockpiled on, and covered with visqueen until properly tested/disposed.

Tyndall Soils Decision Matrix

is there a need for the soil to be reused within the limits of the AFFF site?	is there a need for the soil to be reused outside of the limits of the AFFF site?	sampling required?	PFAS and PFOA < EPA RSL screening levels (1.3 mg/kg)	PFAS and PFOA > EPA RSL screening levels
yes	NA	yes, for PFOS and PFOA	reuse within the limits of the AFFF site boundaries	dispose of in a Subtitle D Municipal Solid Waste Landfill
no	yes	yes, for PFOS and PFOA	reuse at a location outside of AFFF site boundaries	dispose of in a Subtitle D Municipal Solid Waste Landfill
	no	yes, for PFOS and PFOA	move soil to designated soil borrow storage area: dedicated PFOS/PFOA stockpile (if no other COCs): if comingled with other COCs, now follow IRP guidance	dispose of in a Subtitle D Municipal Solid Waste Landfill
NA can't reuse unsuitable soil	NA can't reuse unsuitable soil	yes, for PFOS and PFOA	move soil to designated soil borrow storage area: dedicated PFOS/PFOA stockpile (if no other COCs): if comingled with other COCs, now follow IRP guidance	dispose of in a Subtitle D Municipal Solid Waste Landfill
is there a need for the soil to be reused at point of excavation (within the limits of the IRP site)?	is there a need for the soil to be reused outside of the point of excavation?	sampling required?	Non-hazardous?	Hazardous?
yes	NA	No	Screening not applicable. Reuse at point of excavation within the limits of the IRP site.	Screening not applicable. Reuse at point of excavation within the limits of the IRP site.
no	yes	yes, TCLP and either COCs or full suite VOC, SVOC, RCRA metals, FL-PRO	reuse soil if below project specific SCTLs; move soil above SCTL to soil borrow storage area (dedicated IRP stockpile)	dispose of in a Subtitle C Landfill.
	no	yes, TCLP	move soil to designated soil borrow storage area: dedicated IRP stockpile	dispose of in a Subtitle C Landfill.
NA can't reuse unsuitable soil	NA can't reuse unsuitable soil	yes, TCLP	move soil to designated soil borrow storage area: dedicated IRP stockpile	dispose of in a Subtitle C Landfill.
is there a need for the soil to be reused?		sampling required?	shows NO evidence of contamination?	shows evidence of contamination?
yes		No	Screening not applicable. Reuse on construction site	notify COR, follow non-ERP guidelines
no		No	Screening not applicable. Move soil to designated soil borrow storage area: dedicated clean soil stockpile	notify COR, follow non-ERP guidelines
NA can't reuse unsuitable soil		No	Screening not applicable. Move soil to designated soil borrow storage area: dedicated clean soil stockpile	notify COR, follow non-ERP guidelines

allation Restoration Program and Aqueous Film Forming Foam Guidelines for Tyndall MILCON-Rebuild and Tyndall AFB Guidelines for Non-ERP Soil Management
uirements

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Site 3 – [redacted]

[redacted]

- **Size:** [redacted]
- **Use:** Clean soil storage and reuse

[redacted]

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SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
02/19

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

40 CFR 273	Standards for Universal Waste Management
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

1.2 DEFINITIONS

1.2.1 Co-mingle

The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.

1.2.2 Construction Waste

Waste generated by construction activities, such as scrap materials, damaged or spoiled materials, temporary and expendable construction materials, and other waste generated by the workforce during construction activities.

1.2.3 Demolition Debris/Waste

Waste generated from demolition activities, including minor incidental demolition waste materials generated as a result of Intentional dismantling of all or portions of a building, to include clearing of building contents that have been destroyed or damaged.

1.2.4 Disposal

Depositing waste in a solid waste disposal facility, usually a managed landfill, regulated in the US under the Resource Conservation and Recovery Act (RCRA).

1.2.5 Diversion

The practice of diverting waste from disposal in a landfill, by means of eliminating or minimizing waste, or reuse of materials.

1.2.6 Final Construction Waste Diversion Report

A written assertion by a material recovery facility operator identifying

constituent materials diverted from disposal, usually including summary tabulations of materials, weight in short-ton.

1.2.7 Recycling

The series of activities, including collection, separation, and processing, by which products or other materials are diverted from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel.

1.2.8 Reuse

The use of a product or materials again for the same purpose, in its original form or with little enhancement or change.

1.2.9 Salvage

Usable, salable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.

1.2.10 Source Separation

The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

1.3 CONSTRUCTION WASTE (INCLUDES DEMOLITION DEBRIS/WASTE)

Divert a minimum of 60 percent by weight of the project from the landfill. Follow applicable industry standards in the management of waste. Apply sound environmental principles in the management of waste. (1) Practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction waste and demolition debris/waste from landfills and incinerators and to facilitate the recycling or reuse of .

1.4 CONSTRUCTION WASTE MANAGEMENT

Implement a construction waste management program for the project. Take a pro-active, responsible role in the management of construction waste, recycling process, disposal of demolition debris/waste, and require all subcontractors, vendors, and suppliers to participate in the construction waste management program. Establish a process for clear tracking, and documentation of construction waste and demolition debris/waste.

1.4.1 Implementation of Construction Waste Management Program

Develop and document how the construction waste management program will be implemented in a construction waste management plan. Submit a Construction Waste Management Plan to the Contracting Officer for approval. Construction waste and demolition debris/waste materials include un-used construction materials not incorporated in the final work, as well as demolition debris/waste materials from demolition activities or deconstruction activities. In the management of waste, consider the availability of viable markets, the condition of materials, the ability to provide material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project

completion mandates.

1.4.2 Oversight

The Quality Control Manager, as specified in Section 01 45 00.00 10 QUALITY CONTROL, is responsible for overseeing and documenting results from executing the construction waste management plan for the project.

1.4.3 Special Programs

Implement any special programs involving rebates or similar incentives related to recycling of . Retain revenue or savings from salvaged or recycling, unless otherwise directed. Ensure firms and facilities used for recycling, reuse, and disposal are permitted for the intended use to the extent required by federal, state, and local regulations.

1.4.4 Special Instructions

Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the projects. Designation of single source separating or commingling will be clearly marked on the containers.

1.4.5 Waste Streams

Delineate waste streams and characterization, including estimated material types and quantities of waste, in the construction waste management plan. Manage all waste streams associated with the project. Typical waste streams are listed below. Include additional waste steams not listed:

a. Land Clearing Debris
b. Asphalt
c. Masonry and CMU
d. Concrete
e. Metals (e.g. banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, bronze, etc.)
f. Wood (nails and staples allowed)
g. Glass
h. Paper
i. Plastics (PET, HDPE,PVC,LDPE,PP,PS, Other)
j. Gypsum
k. Non-hazardous paint and paint cans
l. Carpet
m. Ceiling Tiles
n. Insulation
o. Beverage Containers

1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. Submittals with an "S" are for inclusion in the Sustainability eNotebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Waste Management Plan; G

SD-06 Test Reports

Quarterly Reports

Annual Report

SD-11 Closeout Submittals

Final Construction Waste Diversion Report; S

1.6 MEETINGS

Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer to discuss the proposed construction waste management plan and to develop a mutual understanding relative to the management of the construction waste management program and how waste diversion requirements will be met.

The requirements of this meeting may be fulfilled during the coordination and mutual Understanding meeting outlined in Section 01 45 00.00 10 QUALITY CONTROL. At a minimum, discuss and document waste management goals at following meetings:

a. Preconstruction meeting.

b. Regular Quality Control meetings.

c. Work safety meeting (if applicable).

1.7 CONSTRUCTION WASTE MANAGEMENT PLAN

Submit Construction Waste Management Plan within 15 days after notice to proceed. Revise and resubmit Construction Waste Management Plan until it receives final approval from the Contracting Officer, in order for construction to begin. Execute demolition or deconstruction activities in accordance with Section 02 41 00 DEMOLITION. Manage demolition debris/waste or deconstruction materials in accordance with the approved construction waste management plan.

An approved construction waste management plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Ensure all subcontractors receive a copy of the approved Construction Waste Management Plan. The plan demonstrates how to meet the project waste diversion requirement. Also, include the following in the plan:

a. Identify the names of individuals responsible for waste management and waste management tracking, along with roles and responsibilities on the project.

b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

c. Description of the regular meetings to be held to address waste management.

d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials.

e. Name of landfill and/or incinerator to be used.

f. Identification of local and regional re-use programs, including non-profit organizations such as schools, local housing agencies, and organization that accept used materials such as material exchange networks and resale stores. Include the name, location, phone number for each re-use facility identified, and provide a copy of the permit or license for each facility.

g. List of specific materials, by type and quantity, that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Identify the recycling facilities by name, address, and phone number.

h. Identification of materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.

i. Description of the means by which any materials identified in item (g) above will be protected from contamination.

j. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

k. Copy of training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.

l. Identification of at least 5 construction or demolition material streams for diversion.

m. Detailed plan and distribution of waste diversion between buildings, when project is a part of a campus.

n. Facilities or subcontractors offering construction waste transport on-site or off-site must ensure that proper shipping orders, bill of lading, manifests, or other shipping documents containing waste diversion information meet requirements of 40 CFR 273 Universal Waste Management, 49 CFR 173 Shippers - General Requirements for Shipments and Packagings, and 49 CFR 178 Specifications for Packaging. Individuals signing manifests or other shipping documents should meet the minimum training requirements.

o. List each supplier who deliver construction materials, in bulk, or package products in returnable containers or returnable packaging, or have take-back programs. List each program and the applicable material to actively monitor and track to assist in meeting waste diversion requirements on the project.

p. Identify any local jurisdiction requirements for waste management. Include those requirements, points of contact, etc.

Distribute copies of the waste management plan to each subcontractor, Quality Control Manager, and the Contracting Officer.

1.8 RECORDS (DOCUMENTATION)

1.8.1 General

Maintain records to document the types and quantities of waste generated and diverted though re-use, recycling and/or sale to third parties; through disposal to a landfill or incinerator facility. Provide explanations for any materials not recycled, reused or sold. Collect and retain manifests, weight tickets, sales receipts, and invoices specifically identifying diverted project waste materials or disposed materials.

1.8.2 Accumulated

Maintain a running record of materials generated and diverted from landfill disposal, including accumulated diversion rates for the project. Make records available to the Contracting Officer during construction or incidental demolition activities. Provide a copy of the diversion records to the Contracting Officer upon completion of the construction, incidental demolitions or minor deconstruction activities.

1.9 REPORTS

1.9.1 General

Maintain current construction waste diversion information on site for periodic inspection by the Contracting Officer. Include in the quarterly reports, annual reports and final reports: the project name, contract information, information for waste generated, diverted and disposed of for the current reporting period and show cumulative totals for the project. Reports must identify quantifies of waste by type and disposal method. Also include in each report, supporting documentation to include manifests, weigh tickets, receipts, and invoices specifically identifying the project and waste material type and weighted sum.

1.9.2 Quarterly Reporting

Provide cumulative reports at the end of each quarter (December, March, June, and September, corresponding with the federal fiscal year for reporting purposes). Submit quarterly reports not later than 15 calendar days after the preceding quarter has ended. Submit Quarterly Reports to the appropriate office or identified point of contact.

1.9.3 Annual Reporting

Provide a cumulative construction waste diversion report annually. Submit annual report not later than 30 calendar days after the preceding fourth quarter has ended. Provide copy of annual construction waste diversion report to the installation POC.

1.10 FINAL CONSTRUCTION WASTE DIVERSION REPORT

A Final Construction Waste Diversion Report is required at the end of the project. Provide Final Construction Waste Diversion Report 60 days prior

to the Beneficial Occupancy Date (BOD). The final Construction Waste Diversion Report must be included in the Sustainability eNotebook in accordance with Section 01 33 29 SUSTAINABILITY REPORTING.

1.11 COLLECTION

Collect, store, protect, and handle reusable and recyclable materials at the site in a manner which prevents contamination, and provides protection from the elements to preserve their usefulness and monetary value. Provide receptacles and storage areas designated specifically for recyclable and reusable materials and label them clearly and appropriately to prevent contamination from other waste materials. Keep receptacles or storage areas neat and clean.

Train subcontractors and other service providers to either separate waste streams or use the co-mingling method as described in the construction waste management plan. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. Separate materials by one of the following methods described herein:

1.11.1 Source Separation Method

Separate waste products and materials that are recyclable from trash and sort as described below into appropriately marked separate containers and then transport to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the category types as defined in the construction waste management plan.

1.11.2 Co-Mingled Method

Place waste products and recyclable materials into a single container and then transport to an authorized recycling facility, which meets all applicable requirements to accept and dispose of recyclable materials in accordance with all applicable local, state and federal regulations. The Co-mingled materials must be sorted and processed in accordance with the approved construction waste management plan.

1.11.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

1.12 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures as described in the waste management plan. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

1.12.1 Reuse

Give first consideration to reusing construction and demolition materials as a disposition strategy. Recover for reuse materials, products, and

components as described in the approved construction waste management plan. Coordinate with the Contracting Officer to identify onsite reuse opportunities or material sales or donation available through Government resale or donation programs. Sale of recovered materials is not allowed on the Installation.

1.12.2 Recycle

Recycle non-hazardous construction and demolition/debris materials that are not suitable for reuse. Track rejection of contaminated recyclable materials by the recycling facility. Rejected recyclables materials will not be counted as a percentage of diversion calculation. Recycle all fluorescent lamps, HID lamps, mercury (Hg) -containing thermostats and ampoules, and PCBs-containing ballasts and electrical components as directed by the Contracting Officer. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.

1.12.3 Compost

Consider composting on site if a reasonable amount of compostable materials will be available and a utilization of compostable material can be determined and appropriately planned for. Compostable materials include plant materials, sawdust and certain food scraps. Composting as a strategy must be explicitly addressed in the Construction Waste Management Plan submitted for approval to ensure it is feasible.

1.12.4 Waste

Dispose by landfill or incineration only those waste materials with no practical use, economic benefit, or recycling opportunity.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used. -- End of Section --

HQUSACE
441 G Street, NW
Washington, DC 20314
26 1800Z April 2021

USACE Daily Tasking Order 21-04-26 (CG's Policy on Per and Polyfluoroalkyl Substances (PFAS) Work Acceptance Requirements)

References:

a. OPORD 2018-01 (Daily Tasking Order)

Time zone used throughout the order. Zulu (UTC)

1. EXSUM: This DTO provides LTG Spellmon's direction on work acceptance to be conducted by USACE Directorate for per- and polyfluoroalkyl (PFAS) substances. USACE Commanders shall utilize the process outlined in this policy to seek approval for work acceptance. The CG's requirements can be found in Attachment 1 (USACE-wide PFAS Policy), and the work acceptance process for USACE activities to follow is contained within Appendix C.

2. BACKGROUND: The CG is retaining work acceptance for all PFAS-related efforts due to the high visibility and evolving federal and Office of the Secretary of Defense frameworks currently impacting execution of these efforts.

3. SUSPENSE: This policy is effective immediately.

4. POC: [redacted], Environmental Division, [redacted]@usace.army.mil; [redacted].

5. DTOs and all attachments are available on the USACE SharePoint at: https://team.usace.army.mil/sites/HQ-CO/PDT/HQ-G33/SiteAssets/PublishedOpord.aspx

6. If you have a potential DTO for your organization or community of practice, please contact the USACE Operations Center at DLL-HQ-FUOPS@usace.army.mil or 202-761-1001.

ACKNOWLEDGE: All USACE HQ Directorates, Separate Offices, MSCs, Centers, FOAs, and the 249th EN BN acknowledge receipt of this order at ce-uoc@usace.army.mil.

SCOTT A. SPELLMON
Lieutenant General, USA
Commanding

USACE Daily Tasking Order 21-04-26 (CG's Policy on Per and Polyfluoroalkyl Substances (PFAS) Work Acceptance Requirements)

OFFICIAL
FOR:

[redacted]

COL, G3

Attachments: (1)

1. USACE-wide PFAS Policy

USACE PFAS MEMORANDUM REFERENCES

a. ER 5-1-10, "Corps-Wide Areas of Work Responsibility" https://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_5-1-10.pdf?ver=2013-09-08-233246-750

b. Memorandum, CEMP-ZB, Subject: Adherence to Mission Assignments and Alignment of Acquisition with Missions https://cops.usace.army.mil/sites/RM/CERM-P/Shared%20Documents/ER%205-1-13%20Revision/CEMP%20-%20Adherence%20to%20Mission%20Assignments%20and%20Alignment%20of%20Acquisitions%20with%20Missions%20(20May2013).pdf

c. ER 5-1-11, "USACE Business Process" https://www.publications.usace.army.mil/Portals/76/ER_5-1-11.pdf?ver=2019-05-02-093141-910

DOD AND SERVICE SPECIFIC EMERGING CONTAMINANT AND PFAS REFERENCES as of 01 APR 2021 (documents are subject to update; check related websites for latest versions)

i. Department of Defense Instruction (DODI) 4715.18, 04 SEP 2019, "Emerging Chemicals of Environmental Concern." https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/471518p.pdf?ver=2019-09-04-073023-037

ii. Memorandum, DAIM-ISE, 04 SEP 2018, "Subject: Army Guidance for Addressing Releases of Per- and Polyfluoroalkyl Substances." https://www.fedcenter.gov/admin/itemattachment.cfm?attachmentid=1150

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Per- and Polyfluoroalkyl Substances (PFAS) 101

What are PFAS?

- PFAS refers to the entire class of approximately 600 per- and polyfluoroalkyl substances in commerce, of which perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) were historically the most widely-used throughout the U.S.
- PFAS are man-made chemicals found in many industrial and consumer products because they increase resistance to heat, stains, water, and grease. PFAS are not uniquely attributable to Department of Defense (DoD) activities.
- Commercial and consumer use of PFAS started in the 1950s. Uses include keeping food from sticking to cookware, making sofas and carpets resistant to stains, and making clothes and mattresses more waterproof. PFAS are also found in food packaging and firefighting materials. A variety of other industries use PFAS because they help reduce friction, including the aerospace, automotive, building and construction, and electronics industries.
- In the 1970s, DoD began using aqueous film forming foam (AFFF) that contained PFOS and, in some formulations, PFOA. AFFF is mission critical because it quickly extinguishes petroleum-based fires.
- PFOS, PFOA, and other PFAS have been found in people, the environment, wildlife, and fish all over the world; do not break down easily in the environment; might affect people's health; and are the subject of increasing regulation worldwide.
- In 2016, the U.S. Environmental Protection Agency issued a lifetime Health Advisory (HA) for PFOS (perfluorooctane sulfonate) and PFOA (perfluorooctanoic acid) in drinking water of 70 parts per trillion. For context, one (1) ppt is equivalent to one (1) drop of water in 20 Olympic-sized swimming pools.

How are People Exposed to PFAS?

- Sources of PFAS in the environment may include industrial sources, areas with frequent use of products containing PFAS (e.g., airports, fire training areas), and consumer products. There are no natural sources of PFAS in the environment.
- Places where PFAS can be found include:
    - Public water systems and drinking water wells, soil, and outdoor air near industrial sources or areas with frequent PFAS use;
    - Indoor air in spaces that contain carpets, textiles, and other consumer products treated with PFAS to resist stains;
    - Consumer products including non-stick coatings on cookware, grease-resistant paper, and stain-resistant coatings on carpets, upholstery, and other fabrics;

    - Surface water (e.g., lakes, ponds) and runoff from areas where AFFF has been used, such as military or civilian airfields;
    - Locally caught fish from water containing PFAS;
    - Food items sold in the marketplace; and
- Although PFOS and PFOA use in the United States has declined dramatically since 2006, as a result of EPA's PFOA Stewardship Program, they are still produced internationally and can be imported into the United States in consumer goods. However, other PFAS are manufactured in the United States as replacements to PFOS and PFOA.
- Due to PFAS' ability to build up in the body, even small amounts consumed regularly can result in measurable levels in exposed people.
- Scientists are still studying the health effects of exposure to PFAS. Although more research is needed, some studies in people have shown that certain PFAS may affect health. Service members, family members, civilians, and veterans should see their healthcare provider if they have any concerns with PFAS exposure and possible health effects.
- Low levels of PFAS can be detected in most environmental media, including water, food and inside people's homes.

How has DoD Historically Used or Released PFAS to the Environment?

- DoD used AFFF containing PFOS and PFOA in firefighting and crash response vehicle testing, fire training exercises, crash crew training exercises, hangar system operations and testing, responses to fuel fires or spills, and emergency response actions. DoD also uses materials that can contain PFAS in the vapor suppression systems at plating shops.
- Releases to the environment can result from use, spills and leaks of these materials during handling or in storage, wastewater treatment, and disposal locations such as landfills.

How Does DoD Respond to PFAS Releases?

- Although EPA's HA is guidance and is not an enforceable drinking water standard, DoD proactively addressed drinking water impacted by DoD releases.
- DoD's priority is to quickly address PFOS and PFOA in drinking water from DoD activities under the federal cleanup law (i.e., the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)). DoD follows the CERCLA process to fully investigate releases, prioritize responses, and determine appropriate cleanup actions based on risk.
- No one is currently drinking water above the HA level, on or off base, where DoD is the known source.
- DoD is investigating and addressing all of its sites with a known or suspected release of PFAS. Under CERCLA, DoD investigates if a release occurred, takes short-term cleanup actions (called "removal actions") where there is an immediate need for action, and takes long-term cleanup actions (called "remedial

actions") to address any remaining unacceptable risks. The process from the initial assessment to the beginning of actual cleanup is a multi-year effort.

What is DoD Doing About AFFF?

- AFFF is mission critical because it quickly extinguishes petroleum-based fires.
- DoD is one of many users of AFFF, and other major users include commercial airports, the oil and gas industry, and local fire departments.
- DoD updated the Military Specification (MILSPEC) for AFFF, so that new supplies available for emergency firefighting responses, do not contain detectable levels of PFOS or PFOA.
- To prevent future releases to the environment, DoD prohibits using AFFF for maintenance, testing, and training on DoD installations world-wide and is actively researching fluorine-free alternatives to AFFF. AFFF is used during emergency responses and each use is treated as a spill response to limit environmental effects.
- No fluorine-free foam has proved it can meet military specifications to protect DoD Service members by rapidly extinguishing dangerous fuel fires. However, DoD is actively seeking an alternative that can meet this critical safety need.

# # #

CECG (40-8B1-01)
SUBJECT: U.S. Army Corps of Engineers (USACE) Per- and Polyfluoroalkyl Substances (PFAS) Work Acceptance Requirements
APPENDIX C: PFAS Work Acceptance Process and Delegated Points of Contact

1. Project Delivery Teams (PDT) will obtain work approval from its aligned MP, CW, or ERDC Program Director. As soon as the PDT is aware of the request or potential need, the PDT lead (study, program, or project manager) will provide key information to their business line point of contact (POC) as shown in Table 1 for review of the proposed PFAS actions and through the SharePoint form shown in Appendix D.

2. The business line POC will provide approval or disapproval for work acceptance of the activity and provide clear guidance in response to the request after review of the information provided by the PDT. The POC may also coordinate with Office of Counsel and other POCs listed in Table 1, the requesting USACE activity, the relevant chain of command, subject matter experts, other functional division(s), and/or the stakeholder depending on the complexity of the proposed work, to make the determination. The POC will prioritize the request to ensure that the PDT receives the decision in the shortest amount of time possible, given the above review.

3. If approved to conduct the proposed work, PDTs in MP and CW will engage the Environmental and Munitions Center of Expertise (EM CX) for review of draft performance work statements, draft quality assurance project plans, and draft reports for pre-investigation, investigation, removal, and remedial phases. The EM CX will ensure technical consistency and the use of up-to-date approaches to address PFAS. PDTs will provide project funding unless program funding has already been made available to the EM CX and account for review times, including any required comment resolution, for these document reviews. PDTs may request expedited reviews if needed to meet critical stakeholder timelines. CW Navigation PDTs will also ensure that project plans are provided to the ERDC POC for review. PDTs will refer to the latest PFAS information by leveraging the sources cited in Appendix A, the USACE PFAS working group, and other resources, as needed throughout the work.

4. To catalog current PFAS-related projects, PDTs already conducting PFAS work will complete the work request form via the SharePoint site link in Appendix D. The PFAS Coordination team will use this information to stay informed and recommend consistency of operations where applicable.

5. The POCs in Table 1, including Counsel (CECC-E), will form a new HQUSACE PFAS Coordination Team, and CECC-E will be consulted on all legal matters associated with USACE PFAS activities. The Coordination Team will support the USACE-wide implementation of this policy, review PFAS project information from the SharePoint site, communicate regularly through email and meetings, and generally collect and share information amongst themselves and more broadly to maintain shared visibility of PFAS activities across USACE. The team will meet no less than quarterly, leverage the PFAS team SharePoint site, and report to the Environmental Community of Practice Steering Committee, comprised of the Chiefs of ENV DIV (CEMP-CE), Planning (CECW-P), Operations and Regulatory (CECW-CO), Engineering and Construction (CECW-C), Construction (CECW-C), and Engineer Research and Development Center (CEERD) ENV Laboratory (EL) at their periodic meetings.

CECG (40-8B1-01)
SUBJECT: USACE PFAS Work Acceptance Requirements
APPENDIX C: PFAS Work Acceptance Process and Delegated POCs

Table 1 – PFAS Activities POCs

DIRECTORATE	FUNCTIONAL DIVISION	BUSINESS LINE / PROGRAM	POC
Counsel	Office of Counsel	All	[redacted]
CW	Directorate of Contingency Operations (DCO)	DCO	[redacted]
CW	Engineering & Construction (E&C)	AFFF redesign – Fire Protection	[redacted]
CW	E&C	All other E&C	[redacted]
CW	Operations & Regulatory (OPS & REG)	Environmental Compliance	[redacted]
CW	OPS & REG	Navigation	[redacted]
CW	OPS & REG	Regulatory	[redacted]
CW	Planning	Planning	[redacted]
ERDC	All	All	[redacted]
MP	Environmental (ENV)	Air Force ENV	[redacted]
MP	ENV	Army ENV	[redacted]
MP	ENV	ENV & Munitions Center of Expertise (EM CX)	[redacted]
MP	ENV	Formerly Used Defense Sites	[redacted]
MP	ENV	Other DOD Agencies ENV	[redacted]
MP	ENV	Other Non-DOD Agencies ENV	[redacted]
MP	ENV	U.S. EPA Superfund	[redacted]
MP	Installation Readiness Division (IRD)	IRD	[redacted]
MP	interagency & International Services (IIS)	IIS	[redacted]
MP	Military Construction (MILCON)	MILCON	[redacted]

CECG (40-8B1-01)
SUBJECT: U.S. Army Corps of Engineers (USACE) Per- and Polyfluoroalkyl Substances (PFAS) Work Acceptance Requirements
APPENDIX D: Example PFAS Work Request Form

Link: https://team.usace.army.mil/sites/HQ-MP/PDT/EDDC/default.aspx