Final
Site Inspection Report of Fire Fighting Foam Usage at Moody Air Force Base Lowndes County, Georgia

December 2016

Submitted to:

Air Force Civil Engineer Center
3515 General McMullen Suite 155
San Antonio, Texas 78226-2018

Submitted by:

U.S. Army Corps of Engineers
Savannah District
100 W. Oglethorpe Avenue
Savannah, Georgia 31401-3640

Prepared by:

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1006 Floyd Culler Court
Oak Ridge, Tennessee 37830-8022
under
Contract No. W912HN-15-C-0022

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Site Name/Project Name: Site Inspection of Fire Fighting Foam Usage at Various Air Force Bases in the Eastern United States
Site Location: Moody Air Force Base, Lowndes County, Georgia
Contract Number: W912HN-15-C-0022

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Acronyms and Abbreviations

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AFCEC	Air Force Civil Engineer Center
AFFF	aqueous film forming foam
amsl	above mean sea level
ASL	Aerostar SES LLC
bgs	below ground surface
CAS	Chemical Abstract Service
CDM	CDM Federal Programs Corporation
CE	civil engineering
DOT	Department of Transportation
DPT	direct push technology
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
G&M	Geraghty & Miller, Inc.
GPS	global positioning system
HA	health advisory
HI-EX	high-expansion
IDW	investigation-derived waste
J	estimated value
MAFB	Moody Air Force Base
MDL	method detection limit
mg/kg	milligrams per kilogram
mya	million years ago
NL	not listed
OWS	oil/water separator
PA	preliminary assessment
PFAS	per- and polyfluorinated alkyl substance
PFBS	perfluorobutane sulfonate
PFOA	perfluorooctanoic acid
PFOS	perfluorooctane sulfonate
pH	potential of hydrogen
PVC	polyvinyl chloride
QAPP	quality assurance project plan
RSL	Regional Screening Level
Shaw	Shaw Environmental, Inc.
SI	site inspection
TCLP	toxicity characteristic leaching procedure
TOC	total organic carbon
U	analyte not detected
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USCS	Unified Soil Classification System
USDA-NRCS	U.S. Department of Agriculture-Natural Resources Conservation Service
WWTP	wastewater treatment plant

1.0 INTRODUCTION

Aerostar SES LLC (ASL), under contract to the U.S. Army Corps of Engineers (USACE) Savannah District (Contract No. W912HN-15-C-0022), has conducted screening-level site inspections (SIs) at eight areas at Moody Air Force Base (MAFB), Lowndes County, Georgia. The purpose of the inspections was to determine the presence or absence of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) in the environment at these areas. These compounds are a class of synthetic fluorinated chemicals used in industrial and consumer products, including defense-related applications. This class of compounds are also referred to as per- and polyfluorinated alkyl substances (PFASs).

In 1970, the U.S. Air Force (USAF) began using aqueous film forming foam (AFFF), firefighting agents containing PFOS and PFOA to extinguish petroleum fires. Releases of AFFF to the environment routinely occur during fire training, equipment maintenance, storage, and use. Although manufacturers have reformulated AFFF to eliminate PFOS, the U.S. Environmental Protection Agency (EPA) continues to permit the use of PFOS-based AFFF, and the USAF maintains a significant inventory of PFOS-based AFFF. As of this report, the USAF is actively removing PFOS-based AFFF from their inventory and replacing it with more formulations based on shorter carbon chains, which may be less persistent and bioaccumulative in the environment.

The objectives of this study were to

- determine if a confirmed release of PFOS and PFOA has occurred at AFFF areas selected for inspection;
- determine if PFOS and PFOA are present in groundwater, soil, or surface water/sediments at the area in concentrations exceeding the EPA lifetime health advisory (HA); and
- identify potential receptor pathways with immediate impacts to human health.

In accordance with *Interim AF Guidance on Sampling and Response Actions for Perfluorinated Compounds at Active and BRAC Installations* (USAF, August 2012) and EPA lifetime drinking water HAs for PFOS (EPA, May 2016a) and PFOA (EPA, May 2016b), a release will be considered confirmed if exceedances of the following concentrations are identified:

PFOS:

- 0.07 micrograms per liter (µg/L) in groundwater/surface water that is used as or contributes to a drinking water source (combined with PFOA value).
- 1,260[a] micrograms per kilogram (µg/kg) in soil (calculated in the absence of Regional Screening Level [RSL] values).
- 1,260[a] µg/kg in sediment (calculated in the absence of RSL values).

PFOA:

- 0.07 µg/L in groundwater/surface water that is used as or contributes to a drinking water source (combined with PFOS value).
- 1,260[a] µg/kg in soil (calculated in the absence of RSL values).
- 1,260[a] µg/kg in sediment (calculated in the absence of RSL values).

While PFOS and PFOA are the focus of the EPA HA and provide specific targets for the USAF to address in this SI, EPA has also derived RSL values for perfluorobutane sulfonate (PFBS), for which there is a Tier 2 toxicity value (Provisional Peer Reviewed Toxicity Value) (EPA, May 2016c). The USAF will also consider a release to be confirmed if exceedances of the following concentrations are identified:

PFBS:

- 380 µg/L in groundwater/surface water.
- 1,600,000 µg/kg in soil/sediment.

Notes:
[a] Screening levels are calculated using the EPA RSL calculator (https://epaprgs.ornl.gov/cgi-bin/chemicals/csl_search). The toxicity value input for the calculator is the Tier 3 value reference dose of 0.00002 mg/kg/day derived by EPA in their drinking water health advisories for both PFOS (EPA, May 2016b) and PFOA (EPA, May 2016a).

To better facilitate reporting and discussion of the inspection, sampling, and analysis of PFOS, PFOA, and PFBS in this report, these compounds will hereafter be referred to, collectively, as "PFAS."

Table 1 presents the screening values for comparing the analytical results for each of the PFAS compounds.

Table 1 Health-Based Screening Values

Parameter	Chemical Abstract Number	EPA Regional Screening Level Table (May 2016) [a]		Air Force Guidance for Soils and Sediments [b] (µg/kg)	EPA Health Advisory Drinking Water (Surface Water or Groundwater) (µg/L) [c]
		Residential Soil (µg/kg)	Tap Water (µg/L)		
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	380	NL	NL
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260	0.07*
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260	

[a] EPA Regional Screening Levels (May 2016) [https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016]

[b] Screening levels calculated using the EPA Regional Screening Level calculator [https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search]

[c] EPA, May 2016a. *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)* and EPA, May 2016b. *Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS).*

*Note: When PFOA and PFOS are both present, the combined detected concentrations of the compounds should be compared with the 0.07 µg/L health advisory value. Only groundwater and surface water were sampled during the SI, but analytical results have been compared to the tap water screening levels.

µg/kg = micrograms per kilogram µg/L = micrograms per liter EPA = Environmental Protection Agency
NL = not listed

AFFF areas were selected for further inspection through the SI process at MAFB during the preliminary assessment (PA) phase and documented in a PA report (CH2M Hill, May 2015). The eight AFFF areas selected for SI in the PA report and the rationale for inclusion are listed in Table 2. Media evaluated at each area included surface soil (0 to 6 inches in depth), subsurface soil (in the vadose zone collected immediately above the water saturated/unsaturated soil interface); groundwater (including samples from existing monitoring wells, temporary wells, and/or direct push sampling); and surface water and sediment (if applicable).

Table 2 AFFF Areas and Selection Rationale for Site Inspections at Moody Air Force Base

AFFF Area	List of Site Inspection Areas	Associated Existing ERP Site ID	Area Selection Rationale
1	Hangar 642	None (New Site)	Two accidental releases of AFFF occurred between 2007 and 2010. Fluids containing AFFF have been released outside the hangar and may have impacted the soil and groundwater in the surrounding area.
2	Hangar 644	ST-012	Discharges of AFFF in the hangar were historically routed through floor drains to an unlined AFFF holding pond west of the hangar, which has now been filled and covered with an asphalt parking lot. An unknown quantity of AFFF was released in 2010 to the grassy area outside the door to the mechanical room on the west side of the hangar. AFFF fluids were released to the grassy area around the hangar and may have impacted the soil and groundwater in the area.
3	Hangar 646	None (New Site)	Prior to 2014, AFFF released inside the hangar would have entered the floor drains leading to an AFFF holding pond south of the hangar. In 2003, an unknown quantity of AFFF mixture was released outside the building. The AFFF fluid reportedly entered storm drains discharging into Beatty Branch. AFFF has been released to the grassy area around the hangar and may have impacted soil, groundwater, and surface water/sediments in the area.
4	Hangar 775	SS-38	Historically, releases of AFFF in the hangar would have been routed through floor drains to two AFFF holding ponds west of the south hangar bay. The AFFF holding ponds were also used by Hangars 774 and 788. An unknown quantity of AFFF was reportedly discharged in the hangar in 2005. A second release of AFFF occurred in 2010 from the mechanical room for the north and central bays. During the second incident, an unknown quantity of AFFF was released outside the mechanical room onto the grassy area behind the north hangar bay building. AFFF was released to the grassy area around the hangar and may have impacted soil and groundwater in the area.
5	Fire Station (Building 621)	SS-38	AFFF mixing and filling operations for fire trucks reportedly take place at a wash rack south of the building. Unknown quantities of AFFF are discharged regularly during equipment operational checks and certification activities at the fire station. The fire department conducts water spray testing on the apron directly outside the fire station, and sometimes firefighters reportedly see foam come out of the nozzles during testing. Releases of AFFF may also occur when there is a mechanical problem with the fire trucks. AFFF has been released to the grassy areas near the fire station and may have impacted soil and groundwater in the area.
6	T-38 Tail Fire and A-10 Crash Site	SS-38	An unknown quantity of AFFF was discharged during two emergency response actions in this area. AFFF has been released to the grassy area around the south end of Runway 18/36R may have impacted soil, groundwater, and surface water/sediment in the area.
7	Suspect Vehicle Yard	None (New Site)	The yard was used to store damaged aircraft parts, possibly coated with AFFF residue. Unknown quantities of AFFF may have been released to the grassy areas surrounding the yard through precipitation washing residual AFFF off crash debris and leaving the area in surface water runoff. AFFF has potentially been released to the grassy areas around the storage yard and may have impacted the soil and groundwater in the area.
8	Wastewater Treatment Plant	SS-39	Two drying beds are at the WWTP. The quantities of AFFF entering the WWTP is unknown, but foam has been noted at the WWTP on occasion. AFFF reaching the WWTP would be contained in the waste sludge deposited in the sludge drying beds or discharged with the treated water effluent at Outfall #5. AFFF released into the unlined western drying bed may have impacted surface water/sediments and groundwater at the area.

AFFF = aqueous film forming foam
ERP = Environmental Restoration Program
ID = identification
WWTP = wastewater treatment plant

2.0 AFFF AREA DESCRIPTIONS

MAFB is in the northeast corner of Lowndes County, approximately 8 miles northeast of Valdosta, Georgia. Figure 1 (Appendix A) shows the location of MAFB. Eight AFFF areas were selected for SI at MAFB. Table 2 presents the rationale for including the AFFF areas in the SI and Figure 2 (Appendix A) presents the relative position of the eight AFFF areas selected for SIs within MAFB.

MAFB is in a humid subtropical climate controlled by both the Atlantic Ocean to the east and the Gulf of Mexico to the southwest. The climate in the area of Valdosta, Georgia is typified by long, humid summers with thunderstorms and short, mild winters. The average annual temperature is 67 degrees Fahrenheit. The coolest month is January (50.5 degrees Fahrenheit), and the warmest months are July and August (81 degrees Fahrenheit). Mean annual precipitation is 54.09 inches per year. The wettest period of the year occurs in June and July with a moderately wet period in March. The driest period of the year occurs in April and May with a moderately dry period in October and November (YWS, November 2016). Wind direction at MAFB is variable with no prevailing direction. The average annual wind speed is 6 knots (Windfinder, 2016).

2.1 HANGAR 642 (AFFF AREA 1)

Hangar 642 is at the northernmost part of the flightline (latitude/longitude coordinates: 30°59'03.39"N/ 83°12'08.12"W), 400 feet south of Perimeter Road and 350 east of Sijan Street. The hangar was constructed in 1997 with an AFFF fire suppression system that remains in use. The system is designed to release a mix of 3 percent AFFF concentrate and 97 percent water and has a 400-gallon bladder tank of concentrated AFFF fluid. The design of the drainage system in the hangar suggests that AFFF fluid released in the hangar would pass through floor drains to an oil/water separator (OWS) on the west side of the hangar and enter the base sanitary sewer system. Two accidental releases of AFFF reportedly occurred inside the hangar between 2007 and 2010. The MAFB restoration manager stated foam from one spill exited the hangar at the mechanical room door on the southwest corner. However, the PA report indicates that foam from both spills exited the hangar through the main doors onto the aircraft apron where the wind blew it into the air. Ronald Radney from MAFB Civil Engineering (CE) office confirmed the release was at the mechanical room door. Less than 200 gallons of concentrated AFFF fluid (approximately half the capacity of the bladder tank) were estimated to have been released during each event. Surface drainage near the mechanical room door goes to a nearby storm drain west of the hangar.

2.2 HANGAR 644 (AFFF AREA 2)

Hangar 644 is at the northernmost part of the flightline (latitude/longitude coordinates: 30°58'59.82"N/ 83°12'08.45"W), south of Hangar 642 and Building 648 and 270 feet east of Sijan Street. The hangar was constructed in 1996 with an AFFF fire suppression system that remains in use. The system is designed to release a mix of 3 percent AFFF concentrate and 97 percent water and has a 900-gallon bladder tank of concentrated AFFF fluid. The design of the floor drain system in the hangar suggests that, currently, AFFF fluid released in the hangar passes through the floor drains to a holding tank and then to an OWS on the west side of the hangar, where it enters the base sanitary sewer system. Historically, discharges that entered the floor drains were discharged to an unlined foam pond approximately 160 feet west of the hangar. Aerial photographs indicate that the AFFF pond was abandoned sometime after January 2012 and is now a parking lot. The decommissioning/abandonment process for the pond was not identified during the PA interviews or record searches; however, no known discharges to this pond were identified. An unknown quantity (reportedly a “small amount”) of AFFF was released in 2010 to the grassy area outside the door to the mechanical room on the west side of the hangar. The release went onto the soil and into a drain near the door leading to the holding tank connected to the base sanitary sewer system.

2.3 HANGAR 646 (AFFF AREA 3)

Hangar 646 is at the northern end of the flightline (latitude/longitude coordinates: 30°58'48.11"N/ 83°12'01.18"W), 130 feet east of Sijan Street, and 200 feet north of the roundabout connecting Robinson Road with Hickam and Savannah Streets. The lined flightline stormwater collection pond is adjacent to the west side of the hangar, and the unlined foam pond for the hangar is adjacent to the south side of the building. Hangar 646 was constructed in 1996 with an AFFF fire suppression system that was replaced with a high-expansion (HI-EX) foam system in 2014. The HI-EX foam system has a 250-gallon bladder tank for foam concentrate. Based on the design of the floor drain system and prior to the change to HI-EX foam, any AFFF released inside the hangar would have entered the floor drains that led to a holding pond south of the hangar and then to the base sanitary sewer system. No AFFF discharges were identified to the pond in the PA. However, in 2003 a break in the water line in the mechanical room of the hangar resulted in an unknown quantity of AFFF mixture being released outside the building. The AFFF fluid reportedly went out the mechanical room door, down the driveway to Sijan Street, and into storm drains leading to Outfall #22 and discharging into Beatty Branch. It is possible that some of the AFFF also ran onto the grassy area behind the hangar.

2.4 HANGAR 775 (AFFF AREA 4)

Hangar 775 is in the southern portion of the flightline (latitude/longitude coordinates: 30°57'59.09"N/ 83°12'07.79"W), 430 feet east of Davis Street between Buildings 770 and 773. Environmental Restoration Program (ERP) site SS38 is downgradient of the hangar area. Hangar 775 was constructed in 1983 and consists of three bays. The hangar has two mechanical rooms: one for the north and central bays and one for the south bay. Each mechanical room was constructed with an AFFF fire suppression system designed to release a mix of 3 percent AFFF and 97 percent water. Both systems have 1,000-gallon bladder tanks of concentrated AFFF. Historically, floor drains in the hangar led to the AFFF holding ponds 190 feet west of the south hangar bay that discharged to the Base sanitary sewer system. The AFFF holding ponds were also used by Hangars 774 and 788. The ponds were taken out of service and filled in 2007, and the floor drains in the hangar were plugged and abandoned. Therefore, any discharge of AFFF within the hangar after that time would go out onto the aircraft apron. An unknown quantity of AFFF was reportedly discharged in the hangar in 2010. A second release of AFFF occurred in 2010 from the mechanical room for the north and central bays. During the second incident, an unknown quantity of AFFF was released outside the mechanical room onto the grassy area behind the north hangar bay building.

2.5 FIRE STATION (BUILDING 621) (AFFF AREA 5)

The MAFB Fire Station (Building 621) is in the central part of the flightline (latitude/longitude coordinates: 30°58'20.28"N/83°11'54.06"W), 250 feet east of Savannah Street and 520 feet northeast of the intersection of Dargue Boulevard and Kelly Street. The fire station was constructed in 1969 and serves all of MAFB. Floor drains inside the fire station lead to an OWS on the east side of the building that discharges to the base sanitary sewer system. Four fire trucks residing at the station carry 50 to 500 gallons of AFFF each. The fire station also houses a 1,000-gallon trailer for hauling AFFF. The AFFF trailers are stored on the south side of the fire station on a covered asphalt parking area adjacent to the aircraft parking apron. The fire station has a 1,000-gallon capacity aboveground storage tank for AFFF, but it was not in use at this writing. The trucks are filled with AFFF by transfer pumps from 55-gallon drums, by direct connection to pumps on the AFFF trailer, or by gravity-fill using 5-gallon buckets. The AFFF mixing and filling operations reportedly take place at a wash rack south of the building. Unknown quantities of AFFF are discharged regularly during equipment operational checks and certification

activities at the fire station. The fire department conducts water spray testing on the apron directly outside the fire station, and sometimes firefighters reportedly see foam come out of the nozzles during testing. It is presumed to be residue from previous use. Also, releases of AFFF may occur when there is a mechanical problem (for example, a foam valve failure or malfunction) and the AFFF tank becomes premixed (CH2M Hill, May 2015).

2.6 T-38 TAIL FIRE AND A-10 CRASH SITE (AFFF AREA 6)

Only two incidents where AFFF was discharged from the fire trucks to extinguish fires were reported in the PA: a tail fire on a T-38 Talon aircraft and the crash of an A-10 Thunderbolt aircraft (latitude/ longitude coordinates: 30°57'21.45"N/83°11'27.78"W). The two response incidents occurred on the grassy area at the south end of the east runway (Runway 18/36R). An unknown quantity of AFFF was discharged during each emergency response incident. A removal action was reportedly conducted in the area immediately following each incident to excavate potentially contaminated soil. However, the suite of analyses for the confirmation samples collected following the soil removals did not include analyses for PFASs. Surface runoff flows south to a swampy area through a drainage channel approximately 130 feet south of the end of the runway on the south side of Burma Road.

2.7 SUSPECT VEHICLE STORAGE YARD (AFFF AREA 7)

The suspect vehicle yard is in the southeast portion of MAFB east of the runway area along Burma Road (latitude/longitude coordinates: 30°57'06.20"N/83°10'50.06"W). The yard is paved with a chain-link fence surrounding the perimeter and is surrounded by undeveloped land. The yard was used to store damaged aircraft parts, possibly coated with AFFF residue. Surface water runoff discharges onto the grassy areas surrounding the lot and collects as temporary standing water in depressions to the east, south, and west of the paved area. Unknown, though likely small, quantities of AFFF have possibly been released to the grassy areas surrounding the storage yard by precipitation washing residual AFFF off crash debris and leaving the area in surface water runoff.

2.8 WASTEWATER TREATMENT PLANT (AFFF AREA 8)

The wastewater treatment plant (WWTP) is in the northwest corner of MAFB (latitude/longitude coordinates: 30°59'04.63"N/ 83°12'37.43"W) approximately 1,200 feet north and west of Bemiss Road at the end of Moody Road. ERP site SS39 is associated with the WWTP area. Wastewater from the base is treated at the plant, and the solid waste sludge is placed in the drying beds while the treated water effluent discharges through Outfall #5 to Beatty Branch. Two drying beds exist at the WWTP, but the dates of operation for the beds were not available. The eastern drying bed is in use and is lined with concrete. The drying bed to the west is unlined, but it is no longer in use. Dried sludge from the beds is reportedly hauled to the county landfill for disposal. The quantities of AFFF entering the WWTP is unknown, but foam of some type (source unknown) has been noted at the WWTP on occasion. AFFF that reached the WWTP would be contained in the waste sludge deposited in the sludge drying beds or discharged with the treated water effluent at Outfall #5. Extraction wells, installed as part of a groundwater treatment system for ERP site SS39, were at the east and west corners of the WWTP but have been plugged and abandoned.

3.0 FIELD ACTIVITIES

ASL personnel mobilized to MAFB on Monday, April 11, 2016, to perform SI sampling activities for all eight AFFF Areas. Field activities for the SI included collecting groundwater samples from existing

monitoring wells and temporary direct push technology (DPT) wells, collecting surface and subsurface soil samples from DPT soil borings, and collecting surface water and sediment samples. ASL used a focused sampling design to collect samples in locations most likely to have PFASs as a result of an AFFF release. Copies of the notes recorded in logbooks during the field activities are presented in Appendix B. Field forms generated during the sampling activities are presented in Appendix C. All field activities were completed by Wednesday, April 19, 2016. Samples were submitted via overnight courier to Maxxam Analytics International Corporation of Mississaugua, Ontario, Canada, under chain of custody procedures and analyzed by modified EPA Method 537 for 18 PFAS compounds. These 18 parameters include the following that are the only three of the 18 to have health-based screening levels associated with them.

Analyte	*CAS Number
• Perfluorooctane sulfonate (PFOS)	1763-23-1
• Perfluorooctanoic acid (PFOA)	335-67-1
• Perfluorobutane sulfonate (PFBS)	375-73-5

*CAS = Chemical Abstract Service

Third party data validation was conducted on 100 percent of the PFAS analytical data. The data validation report and laboratory data sheets are presented in Appendix D.

For each area where borings were installed, a representative composite sample was collected for the entire area evaluated for each depth sampled. The composite sample was submitted to the project laboratory for geotechnical analyses of soil physiochemical properties including soil potential of hydrogen (pH), particle size analysis, and total organic carbon (TOC) content. Borings logs are presented in Appendix E.

Field activities were conducted in accordance with the QAPP (ASL, January 2016) and the MAFB site-specific addendum to the QAPP (ASL, March 2016). Soil borings at the AFFF areas were advanced with a track-mounted DPT system. Surface soil samples were collected to a depth of 6 inches below ground surface (bgs) using a combination of stainless steel hand augers and stainless steel spoons. Subsurface soil samples were collected immediately above the water saturated/unsaturated soil interface using a DPT macro-core sampler with acetate liners. Groundwater samples were collected with peristaltic pumps through disposable polyvinyl tubing. The groundwater samples were collected from existing groundwater monitoring wells, and/or temporary wells installed using either 3/4-inch diameter prepacked screens or hydropunch samplers installed in the DPT borings. Sediment samples were collected using a combination of dip samplers and stainless steel spoons. Surface water samples were collected directly from surface water bodies into the sample containers.

The coordinates and surface elevations of the soil borings and temporary wells were established by land survey. Surface water and sediment sample locations were recorded with a Trimble GeoEx7 handheld global positioning system (GPS) unit. Northing and easting coordinates were recorded in the Georgia-West state plane coordinate system based on the North American Datum (NAD) 1983. Elevations were recorded referenced to the North American Vertical Datum (NAVD) 1988.

3.1 HANGAR 642 (AFFF AREA 1)

The media of concern at Hangar 642 are surface soil, subsurface soil, and groundwater.

3.1.1 Sample Locations

Surface/subsurface soil in the grassy area on the southwest end of the hangar, surface soil at the edge of the tarmac near the south side of the main hangar doors (where surface drainage collects), and the groundwater downgradient of the hangar area were inspected.

Surface soil and subsurface soil samples were collected from three DPT borings in the area. DPT boring MOODY01-001 was installed adjacent to the OWS west of the hangar. DPT boring MOODY01-002 was installed in the drainage way on the south side of the hangar near the mechanical room door. DPT boring MOODY01-004 was installed at the southwest corner of the hangar in a low-lying area near the closest storm drain to the mechanical room door. Groundwater samples were collected from temporary wells installed in the borings. The wells consisted of 3/4-inch diameter, pre-packed stainless steel screens 10 feet in length at the total depth of the boring with polyvinyl chloride (PVC) risers extending to the ground surface. An additional surface soil sample was collected from hand auger boring MOODY01-003 installed in the grassy area at the edge of the tarmac on the east side of the hangar near the stormwater drain closest to the large hangar doors.

Composite soil samples comprised of aliquots from each of the soil borings were collected for the 0 to 0.5 foot depth (MOODY01-005-SS-001) and for the 39 to 40 foot depth (MOODY01-005-SO-040). The sample locations for Hangar 642 are shown on Figure 3 (Appendix A).

3.1.2 Lithology

Subsurface soil samples were collected from three DPT borings at AFFF Area 1 and detailed boring logs are contained in Appendix D. The lithology encountered in the borings is summarized below.

DPT boring MOODY01-001 – Encountered white clayey sand with red mottling (Unified Soil Classification System [USCS] code – SC) from ground surface to 15 feet bgs, then white clayey sand grading to red clayey sand (USCS – SC) from 15 to 45 feet bgs, then yellow clayey sand from 45 feet to the total depth of the boring at 50 feet bgs.

DPT boring MOODY01-002 – Encountered dark brown organic rich sandy clay (USCS – OL) from ground surface to 0.8 feet bgs, then white clayey silt (USCS – CL) from 0.8 to 15 feet bgs, with red mottling beginning at 10 feet and interbedded pale red sandy clay from 15 feet to 40 feet bgs, then light pink sandy clay from 40 feet to 42.7 feet bgs, then white silty clay from 42.7 to the total depth of the boring at 50 feet bgs.

DPT boring MOODY01-004 – Encountered reddish yellow clayey sand (USCS – SC) from 0 to 5 feet bgs, then reddish yellow clayey sand grading to white clayey sand (USCS – SC) from 5 to 20 feet bgs, then white clayey sand grading to red clayey sand with white mottling (USCS – SC) from 20 to 35 feet bgs, then white clayey sand grading to pinkish white clayey sand (USCS – SC) from 35 to 40 feet bgs, then white clayey sand grading to yellow clayey sand (USCS – SC) from 40 feet to the total depth of the boring at 50 feet bgs.

3.1.3 Groundwater Flow

Based on the information in the PA (CH2M Hill, May 2015), groundwater in the area of Hangar 642 flows south-southwest away from the hangar. During the SI, depth to groundwater measurements were recorded in the temporary wells installed in the DPT borings and are presented in Appendix G. Figure 3 (Appendix A) shows the potentiometric surface contours developed from these measurements. The contours confirm that the groundwater flow direction in the area of Hangar 642 is to the south-southwest.

3.1.4 Analytical Results

Six surface soil samples (four primary, one duplicate, and a composite geotechnical sample), five subsurface soil samples (three primary, one duplicate, and a composite geotechnical sample), and four

groundwater samples (three primary and a duplicate sample) were submitted to the project laboratory for analyses from Area 1.

Surface Soil
All three target analytes were detected at concentrations above the method detection limits (MDLs) in one or more of the surface soil samples from AFFF Area 1. None of the detected concentrations exceeded the screening levels for soil. Table 3 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The location of the surface soil samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 4 (Appendix A).

Subsurface Soil
Two of the three target analytes (PFBS and PFOS) were detected at concentration above the MDLs in one or more of the subsurface soil samples from AFFF Area 1. None of the detected concentrations exceeded the screening levels for soil. Table 4 presents the concentrations of PFBS and PFOS detected and the screening value. The location of the subsurface soil samples and the detected concentrations of PFBS and PFOS are shown on Figure 4 (Appendix A).

Groundwater
Two of the three target analytes (PFBS and PFOS) were detected at concentration above the MDLs in one or more of the groundwater samples from AFFF Area 1. PFOS was the only compound detected at a concentration (0.59 µg/L in MOODY01-004-GW-045) that exceeded the screening levels (combined concentration of 0.07 µg/L for PFOA and PFOS) in groundwater. This sample was collected from a depth of 45 feet in boring MOODY01-004 installed at the southwest corner of the hangar in a low-lying area near the closest storm drain to the mechanical room door. Table 5 presents the concentrations of PFBS and PFOS detected and the screening values. The location of the groundwater samples and the detected concentrations of PFBS and PFOS are shown on Figure 5 (Appendix A).

Geotechnical Sample
Two composite samples for geotechnical analyses were submitted for AFFF Area 1. The surface soil sample (MOODY01-005-SS-001) was composed of aliquots of the surface soil in the borings from 0 to 6 inches bgs. The subsurface soil sample (MOODY01-005-SO-040) was composed of aliquots of the subsurface soil from the borings immediately above the water saturated/unsaturated soil interface. This depth ranged from 39 feet to 40 feet bgs. The results of the analyses of the geotechnical samples are contained in Appendix F.

Table 3 AFFF Area 1 (Hangar 642) Surface Soil Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID	MOODY01-001-SS-001		MOODY01-001-SS-901 (Field Duplicate)		MOODY01-002-SS-001		MOODY01-003-SS-001		MOODY01-004-SS-001	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)			Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL		0.24 U	0.24	0.24 U	0.24	2.5	0.25	0.25 U	0.25	0.24 U	0.24
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.19 J	0.12	0.18	0.11	0.95 J	0.12	0.25 J	0.12	0.15 J	0.12
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		1.8	0.15	1.8 J	0.15	150	1.6	3.3	0.16	2.1	0.15

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J = estimated value NL = not listed U = parameter not detected USAF = U.S. Air Force

Table 4 AFFF Area 1 (Hangar 642) Subsurface Soil Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID	MOODY01-001-SO-040		MOODY01-002-SO-037		MOODY01-004-SO-042		MOODY01-004-SO-942 (Field Duplicate)	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)			Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL		0.25 U	0.25	0.68 J	0.24	0.30 U	0.30	0.30 U	0.30
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		0.16 U	0.16	0.30 J	0.15	0.26 J	0.19	0.54 J	0.19

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J = estimated value NL = not listed U = parameter not detected
USAF = U.S. Air Force

Table 5 AFFF Area 1 (Hangar 642) Groundwater Detections

Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)	Field Sample ID	MOODY01-001-GW-945 (Field Duplicate)		MOODY01-001-GW-045		MOODY01-002-GW-045		MOODY01-004-GW-045	
					Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.0019 U	0.0019	0.0019 U	0.0019	0.0019 U	0.0019	0.036	0.0019
Perfluorooctane sulfonate (PFOS)	1763-23-1	0.07	NL		0.0033 U	0.0033	0.0037 J	0.0033	0.0070 J	0.0033	**0.59**	0.0033
PFOA + PFOS	NL	0.07	NL		N/A	N/A	0.0037 J	N/A	0.0070 J	N/A	**0.59**	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: Shaded values indicate the parameter was not detected at the method detection limit. **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency J = estimated value NL = not listed U = parameter not detected
N/A = not applicable

3.1.5 Conclusions

Two accidental releases of AFFF reportedly occurred inside Hangar 642 between 2007 and 2010. Less than 200 gallons of concentrated AFFF fluid (approximately half the capacity of the bladder tank) were estimated to have been released during each event. Therefore, a total of 400 gallons of AFFF have reportedly been released to the environment surrounding the hangar. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of PFBS, PFOA, or PFOS remain in the soils in the area in excess of the health-based screening criteria. PFOS was detected in three of the four groundwater samples, and one sample (MOODY01-004-GW-045) had a PFOS concentration (0.59 µg/L) exceeding the EPA HA health-based screening criteria (0.07 µg/L) for drinking water sources. This sample was collected in the direction of groundwater flow at the southwest corner of Hangar 642. Based on the analytical results, a release of AFFF has been confirmed at AFFF Area 1 that has impacted the groundwater in the area of Hangar 642.

3.2 HANGAR 644 (AFFF AREA 2)

The media of concern at Hangar 644 are surface soil, subsurface soil, and groundwater.

3.2.1 Sample Locations

Surface soil, subsurface soil, and groundwater in the grassy area near the mechanical room door and OWS, subsurface soil at the location of the former AFFF holding pond, and the groundwater downgradient of the hangar and former AFFF pond areas were inspected.

Subsurface soil samples were collected from DPT boring MOODY02-001 installed at the southwest corner of the former AFFF holding pond and from DPT boring MOODY02-002 installed at the northwest corner of the former AFFF holding pond. A surface and subsurface soil sample was collected from DPT boring MOODY02-003 installed adjacent to the OWS. Groundwater grab samples were collected using a hydropunch sampler from DPT boring MOODY02-004 installed in the grassy area at the southwest corner of the hangar downgradient of the OWS and from DPT boring MOODY02-005 in the grassy area downgradient (south) of the former AFFF holding pond. Surface soil, subsurface soil, and groundwater grab samples were collected using a hydropunch sampler from DPT boring MOODY02-006 installed adjacent to the mechanical room door.

Composite soil samples comprised of aliquots from each of the soil borings were collected for the 0 to 0.5 foot depth (MOODY02-007-SS-001) and for the 41 to 42 foot depth (MOODY02-007-SO-042). The composite samples were submitted to the project laboratory and analyzed for geotechnical properties of soil pH, particle size, and TOC content. The sample locations for Hangar 644 are shown on Figure 6 (Appendix A).

3.2.2 Lithology

Subsurface soil samples were collected from four DPT borings at AFFF Area 2 and detailed boring logs are contained in Appendix D. The lithology encountered in the borings is summarized below.

DPT boring MOODY02-001 – Encountered brownish yellow sandy clay (USCS – CL) from ground surface to 5 feet bgs, then white sandy clay with red mottling (USCS – CL) from 5 to 30.5 feet bgs, then white sandy clay (USCS – CL) sand from 30.5 feet to the total depth of the boring at 44 feet bgs.

DPT boring MOODY02-002 – Encountered very pale brown sandy clay with red mottling (USCS – CL) from ground surface to 20 feet bgs, then white sandy clay (USCS – CL) from 20 to 31 feet bgs, then pale red sandy clay grading to red sandy clay (USCS – CL) from 31 to 35 feet bgs, then white sandy clay (USCS – CL) from 35 to 36 feet bgs, then pinkish white sandy clay (USCS – CL) from 36 feet to the total depth of the boring at 45 feet bgs.

DPT boring MOODY02-003 – Encountered brown clayey sand (USCS – SC) from 0 to 6.2 feet bgs, then pale red sandy clay (USCS – SC) from 6.2 to 13.1 feet bgs, then pinkish white sandy clay with red mottling (USCS – CL) from 13.1 to 21.8 feet bgs, then very pale brown sandy clay (USCS – CL) from 21.8 to 31.5 feet bgs with red mottling from 23.2 to 31.5 feet bgs, then white sandy clay (USCS – CL) from 31.5 to 43 feet bgs, then light pink sandy clay (USCS – CL) from 43 to 44 feet bgs, the white sandy clay (USCS – CL) from 44 feet to the total depth of the boring at 50 feet bgs.

DPT boring MOODY02-006 – Encountered light grey clayey sand (USCS – SC) from 0 to 4.5 feet bgs, then very pale brown sandy clay (USCS – CL) from 4.5 to 5 feet bgs, then very pale brown sandy clay with pink mottling (USCS – CL) from 5 to 30 feet bgs, then pinkish grey sandy clay (USCS – CL) from 30 to 34 feet bgs, then pinkish grey sandy clay with red mottling (USCS – CL) from 34 to 35 feet bgs, then pinkish white sandy clay (USCS – CL) from 35 to 40 feet bgs, then white sandy with light red mottling (USCS – CL) from 40 to 41.5 feet bgs, then pinkish white clayey sand (USCS – SC) from 41.5 to 45 feet bgs, then white clayey sand (USCS – SC) from 45 feet to the total depth of the boring at 50 feet bgs.

3.2.3 Groundwater Flow

Based on the information in the PA (CH2M Hill, May 2015), groundwater in the area of Hangar 644 flows south-southwest away from the hangar. Depth to groundwater measurements were not available from the hydropunch samplers used at AFFF Area 2 during the SI. However, potentiometric surface contours for the area presented in *Groundwater Monitoring Annual Report, Fall 2005* (Shaw, March 2006), confirm that groundwater flow in the area is to the southwest. Figure 6 (Appendix A) shows the potentiometric surface contours from the 2005 groundwater monitoring report.

3.2.4 Analytical Results

Three surface soil samples (two primary and a composite geotechnical sample), five subsurface soil samples (four primary and a composite geotechnical sample), and three groundwater samples were submitted to the project laboratory for analyses from AFFF Area 2.

Surface Soil
All three target analytes were detected at concentrations above the MDL in one or more of the surface soil samples from AFFF Area 2. None of the detected concentrations exceeded the screening levels for soil. Table 6 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The location of the surface soil samples and the detected concentrations of PFBS, PFOS, and PFOA are shown on Figure 7 (Appendix A).

Subsurface Soil
Only one of the target analytes (PFOS) was detected at a concentration above the MDLs in the subsurface soil samples from AFFF Area 2. None of the detected concentrations exceeded the screening levels for soil. Table 7 presents the concentrations of PFOS detected and the screening value. The location of the subsurface soil samples and the detected concentrations of PFOS are shown on Figure 7 (Appendix A).

Groundwater
Only two of the target analytes (PFBS and PFOS) were detected at concentrations above the MDLs in the groundwater samples from AFFF Area 2. None of the detected concentrations exceeded the screening levels for groundwater. Table 8 presents the concentrations of PFBS and PFOS detected and the screening value. The location of the groundwater samples and the detected concentrations of PFBS and PFOS are shown on Figure 8 (Appendix A).

Geotechnical Sample
Two composite samples for geotechnical analyses were submitted for AFFF Area 2. The surface soil sample (MOODY02-007-SS-001) was composed of aliquots of the surface soil in the borings from 0 to 6 inches bgs. The subsurface soil sample (MOODY02-007-SO-042) was composed of aliquots of the subsurface soil from the borings immediately above the water saturated/unsaturated soil interface. This depth ranged from 41 feet to 42 feet bgs. The results of the analyses as contained in Appendix F.

3.2.5 Conclusions

No known discharges have occurred to the AFFF pond. The only reported discharge was an unknown but reportedly “small amount” of AFFF that was released in 2010 to the grassy area outside the mechanical room door on the west side of the hangar. The release went onto the soil and into a drain near the door leading to the holding tank connected to the base sanitary sewer system. Therefore, only a minimal quantity of AFFF has been released to the environment surrounding the hangar. Samples were collected in the most likely areas for PFAS contamination to be detected at the site based on surface drainage patterns and the groundwater flow direction. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of PFBS, PFOA, or PFOS remain in the soils or groundwater in the area in excess of the health-based screening criteria. Based on the analytical results, the release of AFFF in the area has not impacted the soils or groundwater at AFFF Area 2.

Table 6 AFFF Area 2 (Hangar 644) Surface Soil Detections

					Field Sample ID	MOODY02-003-SS-001		MOODY02-006-SS-001	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)						
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL		0.25 U	0.25	0.76 J	0.25
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.29 J	0.12	4.3	0.12
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		2.3	0.16	480	1.6

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed
U = parameter not detected USAF -= U.S. Air Force

Table 7 AFFF Area 2 (Hangar 644) Subsurface Soil Detections

					Field Sample ID	MOODY02-001-SO-042		MOODY02-002-SO-043		MOODY02-003-SO-042		MOODY02-006-SO-042	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)										
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		2.4	0.16	0.25 J	0.16	0.18 U	0.18	0.16 U	0.16

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed
U = parameter not detected USAF -= U.S. Air Force

Table 8 AFFF Area 2 (Hangar 644) Groundwater Detections

				Field Sample ID	MOODY02-004-GW-043		MOODY02-005-GW-043		MOODY02-006-GW-048	
Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)		Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.0098 J	0.0019	0.0035 J	0.0019	0.088	0.0019
Perfluorooctane sulfonate (PFOS)	1763-23-1	0.07	NL		0.046	0.0033	0.011 J	0.0033	0.013 J	0.0033
PFOA + PFOS	NL	0.07	NL		0.046	N/A	0.011 J	N/A	0.013 J	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
µg/L = micrograms per liter EPA = Environmental Protection Agency J= estimated value N/A = not applicable NL = not listed
PFOA = perfluorooctanoic acid

3.3 HANGAR 646 (AFFF AREA 3)

The media of concern at Hangar 646 are surface soil, subsurface soil, groundwater, and surface water/sediment.

3.3.1 Sample Locations

Surface/subsurface soil in the AFFF pond area, surface soil near the mechanical room door, surface water and sediment in Beatty Branch, and the groundwater downgradient of the hangar and AFFF pond areas were inspected.

A groundwater grab sample was collected with a hydropunch sampler from DPT boring MOODY03-001 installed in the grassy area west of the southwest corner of the hangar and downgradient (south) of the runway settling pond. A surface soil sample was collected from hand auger boring MOODY03-002 installed near the mechanical room door on the south side of Hangar 646. A second groundwater grab sample was collected with a hydropunch sampler from DPT boring MOODY03-003 installed at the south corner (downgradient) of the AFFF pond. A surface soil and subsurface soil sample was collected from DPT boring MOODY03-004 installed in the center of the AFFF holding pond. A third groundwater grab sample was collected with a hydropunch sampler from DPT boring MOODY03-005 installed at the east corner of the AFFF holding pond near the OWS. A set of surface water and sediment samples were collected at the headwall of the culvert discharging to Beatty Branch at Outfall 22 (sample location MOODY03-006). A second set of surface water and sediment samples (sample location MOODY03-007) were collected in Beatty Branch approximately 80 feet downstream (west) of the headwall where storm water from the runway settling pond enters Beatty Branch.

Composite soil samples comprised of aliquots from each of the soil borings were collected for the 0 to 0.5 foot depth (MOODY03-008-SS-001) and for the 41 to 42 foot depth (MOODY03-008-SO-042). The composite samples were submitted to the project laboratory and analyzed for geotechnical properties of soil pH, particle size, and TOC content. The sample locations for Hangar 646 are shown on Figure 9 (Appendix A).

3.3.2 Lithology

Subsurface soil samples were collected from a DPT boring (MOODY03-004) at AFFF Area 3. The detailed boring log for MOODY03-004 is contained in Appendix D. The lithology encountered in the boring is summarized below

DPT boring MOODY03-004 – Encountered brownish yellow sandy clay (USCS – CL) from ground surface to 0.5 feet bgs, dark grey silty sand (USCS – SM) from 0.5 to 1 foot bgs, then light brown grey silty sand (USCS – SM) from1 to 1.5 feet bgs, then strong brown and brownish grey silty sand (USCS – SM) from 1.5 to 3.5 feet bgs, then strong brown sandy clay (USCS – CL) from 3.5 to 5 feet bgs, then white sandy clay with reddish yellow and red mottling (USCS – CL) from 5 to 11.5 feet bgs, then white sandy clay (USCS – CL) from 11.5 to 24 feet bgs, then pale brown sandy clay (USCS – CL) from 24 to 27.5 feet bgs, then white sandy clay (USCS – CL) from 27.5 to 31 feet bgs, then white sandy clay with brownish yellow and yellowish red mottling (USCS – CL) from 31 to 31.5 feet bgs, then brownish yellow sandy clay with white and yellowish red mottling (USCS – CL) from 31.5 feet to the total depth of the boring at 45 feet bgs.

3.3.3 Groundwater Flow

Based on the information in the PA (CH2M Hill, May 2015), groundwater in the area of Hangar 646 flows south away from the hangar. Depth to groundwater measurements were not available from the hydropunch samplers used at AFFF Area 3 during the SI. However, potentiometric surface contours for the area presented in *Groundwater Monitoring Annual Report, Fall 2005* (Shaw, 2006), indicate that groundwater flow in the aquifer in this area is to the west-southwest. Figure 9 (Appendix A) shows the potentiometric surface contours for the area from the 2005 groundwater monitoring report.

3.3.4 Analytical Results

Three surface soil samples (two primary and a composite geotechnical sample), two subsurface soil samples (one primary and a composite geotechnical sample), three groundwater samples, three sediment samples (two primary and a field duplicate sample), and three surface water samples (two primary and a field duplicate sample) were submitted to the project laboratory for analyses from AFFF Area 3.

Surface Soil
All three target analytes were detected at concentrations above the MDL in one or more of the surface soil samples from AFFF Area 3. None of the detected concentrations exceeded the screening levels for soil. Table 9 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The location of the surface soil samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 10 (Appendix A).

Subsurface Soil
Only one of the target analytes (PFOA) was detected at a concentration above the MDLs in the subsurface soil sample from Site 3. PFOA was not detected at a concentration exceeding the screening levels for soil. Table 10 presents the concentrations of PFOA detected and the screening value. The location of the subsurface soil sample and the detected concentration of PFOA are shown on Figure 10 (Appendix A).

Groundwater
All three of the target analytes were detected at concentrations above the MDLs in the groundwater samples from AFFF Area 3. The combined value of the detected concentrations of PFOS and PFOA in all three groundwater samples (MOODY03-001-GW-042 at 2.9 µg/L, MOODY03-003-GW-054 at 0.33 µg/L, and MOODY03-005-GW-053 at 0.852 µg/L) exceeded the EPA HA for drinking water (combined PFOS and PFOA value of 0.07 µg/L). Table 11 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The location of the groundwater samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 11 (Appendix A).

Sediment
Two of the target analytes (PFOA and PFOS) were detected at concentrations above the MDLs in the sediment samples from AFFF Area 3. None of the detected concentrations exceeded the screening levels for soil. Table 12 presents the concentrations of PFOA and PFOS detected and the screening values. The location of the sediment samples and the detected concentrations of PFOA and PFOS are shown on Figure 10 (Appendix A).

Surface Water
All three target analytes were detected at concentrations above the MDLs in the surface water samples from AFFF Area 3. Table 13 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The combined value of the detected concentrations of PFOS and PFOA in all three samples (MOODY03-006-SW-001 at 2.99 µg/L, the associated field duplicate MOODY03-006-SW-901

at 2.86 µg/L, and MOODY03-007-SW-001 at 1.6 µg/L) exceeded the EPA HA for drinking water (combined PFOS and PFOA value of 0.07 µg/L). The location of the surface water samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 11 (Appendix A).

Table 9 AFFF Area 3 (Hangar 646) Surface Soil Detections

					Field Sample ID	MOODY03-002-SS-001		MOODY03-004-SS-001	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)						
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL		0.28 U	0.28	1.7 J	0.28
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.19 J	0.13	38	0.13
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		1.7	0.18	72	1.8

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed
U = parameter not detected USAF = U.S. Air Force

Table 10 AFFF Area 3 (Hangar 646) Subsurface Soil Detections

					Field Sample ID	MOODY03-004-SO-042	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)				
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.12 U	0.19

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency NL = not listed U = parameter not detected USAF = U.S. Air Force

Table 11 AFFF Area 3 (Hangar 646) Groundwater Detections

				Field Sample ID	MOODY03-001-GW-042		MOODY03-003-GW-054		MOODY03-005-GW-053	
Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)		Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.10	0.0019	0.061	0.0019	0.046	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL		**1.2**	0.027	0.060	0.0053	0.052	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL		**1.7**	0.017	**0.27**	0.0033	**0.80**	0.0033
PFOA + PFOS	NL	0.07	NL		**2.9**	N/A	**0.33**	N/A	**0.852**	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency N/A = not applicable NL = not listed

Table 12 AFFF Area 3 (Hangar 646) Sediment Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID		MOODY03-006-SD-901 (Field Duplicate)		MOODY03-006-SD-001		MOODY03-007-SD-001	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)		Concentration (µg/kg)		Method Detection Limit		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260	0.25	J	0.12		0.31 J	0.14	0.39 J	0.12
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260	3.0	J	0.16		5.3 J	0.19	6.0	0.16

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 13 AFFF Area 3 (Hangar 646) Surface Water Detections

Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)	Field Sample ID	MOODY03-006-SW-901 (Field Duplicate)		MOODY03-006-SW-001		MOODY03-007-SW-001	
				Concentration (µg/L)	Method Detection Limit		Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380	0.23	0.0019		0.25	0.0019	0.22	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL	**0.66**	0.0053		**0.59**	0.053	**0.30**	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL	**2.2**	0.017		**2.4**	0.033	**1.3**	0.017
PFOA + PFOS	NL	0.07	NL	**2.86**	N/A		**2.99**	N/A	**1.6**	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency N/A = not applicable NL = not listed

Geotechnical Sample
Two composite samples for geotechnical analyses were submitted for AFFF Area 3. The surface soil sample (MOODY03-008-SS-001) was composed of aliquots of the surface soil in the borings from 0 to 6 inches bgs. The subsurface soil sample (MOODY03-008-SO-042) was composed of aliquots of the subsurface soil from the borings immediately above the water saturated/unsaturated soil interface. This depth ranged from 41 feet to 42 feet bgs. The results of the analyses were contained in Appendix F.

3.3.5 Conclusions

In 2003, a break in the water line in the mechanical room of Hangar 646 resulted in an unknown quantity of AFFF mixture being released to the environment surrounding the hangar. The AFFF fluid reportedly went out the mechanical room door, down the driveway to Sijan Street, and into storm drains leading to Outfall #22 and discharging to Beatty Branch. It is possible that some of the AFFF also ran onto the grassy area behind the hangar. An unknown quantity of AFFF was released to the environment surrounding the hangar, some of which discharged to Beatty Branch. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of PFAS remain in the soils in the area or the sediment in Beatty Branch at concentrations exceeding the health-based screening criteria. However, based on the analytical results, the groundwater and surface water at AFFF Area 3 have been impacted by the release of AFFF and concentrations of PFAS compounds exceed the screening levels for drinking water sources.

3.4 HANGAR 775 (AFFF AREA 4)

The media of concern at Hangar 775 are surface soils, subsurface soils, and groundwater.

3.4.1 Sample Locations

Surface soil, subsurface soil, and groundwater in the area of the former AFFF holding ponds and the area adjacent to the mechanical room at the northern hangar building of the Hangar 775 complex were inspected.

A groundwater grab sample was collected using a hydropunch sampler from DPT boring MOODY04-001 installed in the former west AFFF holding pond. A subsurface soil sample and groundwater grab sample (using a hydropunch sampler) were collected from DPT boring MOODY04-002 installed in the former east AFFF holding pond. Surface soil, subsurface soil, and groundwater grab samples (using a hydropunch sampler) were collected from DPT boring MOODY04-003 installed at the southwest corner of Hangar 775 near the mechanical room door to the fire suppression system. A groundwater grab sample was collected using a hydropunch sampler from DPT boring MOODY04-004 installed near the OWS at the northwest corner of Hangar 775. Groundwater samples were also collected from each of the three existing groundwater monitoring wells: two east of the hangar (SS38-MW090 and SS38-MW091) and one south of the hangar (SS38-MW094).

Composite soil samples comprised of aliquots from each of the soil borings were collected for the 0 to 0.5 foot depth (MOODY04-005-SS-001) and for the 31 to 32 foot depth (MOODY04-005-SO-032). The composite samples were submitted to the project laboratory and analyzed for geotechnical properties of soil pH, particle size, and TOC content. The sample locations for Hangar 775 are shown on Figure 13 (Appendix A).

3.4.2 Lithology

Subsurface soil samples were collected from two DPT borings at AFFF Area 4. The detailed boring logs are contained in Appendix D. The lithology encountered in the borings is summarized below.

DPT boring MOODY04-002 – Encountered yellowish brown clayey sand (USCS – SC) from ground surface to 7.8 feet bgs, then white clayey sand (USCS – SC) from 7.8 to 11 foot bgs, then mottled light red to white clayey sand (USCS – SC) from11 to 28.7 feet bgs, then white clayey sand (USCS – SC) from 28.7 to 30 feet bgs with light red mottles from 29 to 30 feet bgs, then pinkish grey silty sand (USCS – SM) from 30 feet to the total depth of the boring at 32 feet bgs.

DPT boring MOODY04-003 – Encountered very dark grey silty sand (USCS – SM) from ground surface to 5 feet bgs, then white sandy clay (USCS – CL) with dark red mottling from 5 to 15 feet bgs, then white sandy clay (USCS – CL) with reddish brown mottling from15 to 23 feet bgs, then white sandy clay (USCS – CL) from 23 to 30 feet bgs, then white sandy clay (USCS – CL) with light reddish brown mottling from 30 to 33 feet bgs, then light reddish brown sandy clay (USCS – CL) from 33 feet to the total depth of the boring at 35 feet bgs.

3.4.3 Groundwater Flow

Based on the information in the PA (CH2M Hill, May 2015), groundwater in the area of Hangar 775 flows south away from the hangar. Depth to groundwater was measured in the three existing wells in the area prior to sampling. The depth to groundwater measurements are contained in Appendix G. Figure 12 (Appendix A) shows the potentiometric surface contours developed from these measurements. The contours confirm that the groundwater flow direction in the area of Hangar 775 is to the south.

3.4.4 Analytical Results

Two surface soil samples (a primary and a composite geotechnical sample), three subsurface soil samples (two primary and a composite geotechnical sample), and eight groundwater samples (seven primary and one field duplicate sample) were submitted to the project laboratory for analyses from AFFF Area 4.

Surface Soil
All three of the target analytes were detected at concentrations above the MDLs in the surface soil sample from AFFF Area 4. The detected concentrations of both PFOA (2,100 µg/kg) and PFOS (100,000 µg/kg) exceeded the USAF screening level for PFOA and PFOS in soils and sediments (1,260 µg/kg). Table 14 presents the concentrations of PFBS, PFOA, and PFOS detected in the surface soil sample and the screening values. The location of the surface soil sample and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 13 (Appendix A).

Subsurface Soil
All three of the target analytes were detected at concentrations above the MDLs in the subsurface soil samples from AFFF Area 4. None of the compounds were detected at concentrations exceeding the screening levels for soil. Table 15 presents the concentrations of PFBS, PFAS, and PFOS detected in the subsurface soil and the screening values. The location of the subsurface soil samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 13 (Appendix A).

Groundwater
All three of the target analytes were detected at concentrations above the MDLs in the groundwater samples from AFFF Area 4. The combined value of the detected concentrations of PFOS and PFOA in all

eight groundwater samples (MOODY04-001-GW-032 at 12.35 µg/L, MOODY04-002-GW-030 at 1.894 µg/L, MOODY04-003-GW-034 at 354 µg/L, field duplicate MOODY04-003-GW-934 at 375 µg/L, MOODY04-004-GW-034 at 7.48 µg/L, MOODY04-SS38-MW090-061 at 6.27 µg/L, MOODY04-SS38-MW091-061 at 0.375 µg/L, and MOODY04-SS38-MW094-062 at 0.324 µg/L) exceeded the EPA HA for drinking water (combined PFOS and PFOA value of 0.07 µg/L). Table 16 presents the concentrations of PFBS, PFOA, and PFOS detected in the groundwater samples and the screening values. The location of the groundwater samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 14 (Appendix A).

Geotechnical Sample

Two composite samples for geotechnical analyses were submitted for AFFF Area 4. The surface soil sample (MOODY04-005-SS-001) was composed of aliquots of the surface soil in the borings from 0 to 6 inches bgs. The subsurface soil sample (MOODY04-005-SO-032) was composed of aliquots of the subsurface soil from the borings immediately above the water saturated/unsaturated soil interface. This depth ranged from 31 feet to 32 feet bgs. The results of the analyses are contained in Appendix F.

Table 14 AFFF Area 4 (Hangar 775) Surface Soil Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID: MOODY04-003-SS-001	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)		Concentration (µg/kg)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL	360	23
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260	**2,100**	11
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260	**100,000**	1,400

Note: **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency NL = not listed USAF = U.S. Air Force

Table 15 AFFF Area 4 (Hangar 775) Subsurface Soil Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID: MOODY04-002-SO-028		MOODY04-003-SO-032	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL	0.28 J	0.23	23	0.22
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260	0.21 J	0.11	5.6	0.11
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260	3.4	0.14	110	1.4

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 16 AFFF Area 4 (Hangar 775) Groundwater Detections

Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)	Field Sample ID: MOODY04-001-GW-032		MOODY04-002-GW-030		MOODY04-003-GW-932 (Field Duplicate)		MOODY04-003-GW-034		MOODY04-004-GW-034		MOODY04-SS38-MW090-061		MOODY04-SS38-MW091-061		MOODY04-SS38-MW094-062	
				Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380	0.61	0.0019	0.12	0.0019	290	2.3	290	2.3	2.7	0.019	0.29	0.0019	0.022	0.0019	0.026	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL	**0.35**	0.0053	**0.094**	0.0053	**55**	2.0	**54**	2.0	**0.58**	0.0053	**0.17**	0.0053	0.025	0.0053	0.024	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL	**12**	0.066	**1.8**	0.017	**320**	1.4	**300**	1.4	**6.9**	0.033	**6.1**	0.033	**0.35**	0.0033	**0.30**	0.0033
PFOA + PFOS	NL	0.07	NL	**12.35**	N/A	**1.894**	N/A	**375**	N/A	**354**	N/A	**7.48**	N/A	**6.27**	N/A	**0.375**	N/A	**0.324**	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency J= estimated value N/A = not applicable NL = not listed

3.4.5 Conclusions

Unknown quantities of AFFF were released to the environment around Hangar 775 in two incidents in 2010. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. The analytical results of the subsurface soil samples do not indicate concentrations of PFAS remaining in the soils at depths exceeding the health-based screening criteria. However, the analytical results for the surface soil sample indicates that the surface soil near the mechanical room door has been impacted by the release of AFFF and concentrations remain that exceed the screening criteria. The analytical results of the groundwater samples also show that the groundwater at AFFF Area 4 has been impacted by the release of AFFF and that concentrations of PFOA and PFOS in the groundwater exceed the EPA HAs screening values for drinking water sources.

3.5 FIRE STATION (BUILDING 621) (AFFF AREA 5)

The media of concern at the Fire Station (Building 621) are surface soil, subsurface soil, and groundwater.

3.5.1 Sample Locations

Surface soil and subsurface soil in the grassy areas south of the fire station and groundwater in the area were inspected. Surface soil, subsurface soil, and groundwater grab samples (using a hydropunch sampler) were collected from three DPT borings. DPT borings MOODY05-001 and MOODY05-002 were installed in the grassy area near the covered shed and wash rack where AFFF trucks are filled. DPT boring MOODY05-003 was installed at the southwest corner of Building 621 in the AFFF trailer parking area. A subsurface soil and groundwater grab sample were collected from DPT boring MOODY05-004 installed at the southeast corner of Building 621 between the OWS and the paved tarmac. Groundwater samples were also collected from existing groundwater monitoring wells SS38-MW134 and SS38-MW135 downgradient (south) of the building.

Composite soil samples comprised of aliquots from each of the soil borings were collected for the 0 to 0.5 foot depth (MOODY05-005-SS-001) and for the 42 to 43 foot depth (MOODY05-005-SO-043). The composite samples were submitted to the project laboratory and analyzed for geotechnical properties of soil pH, particle size, and TOC content. The sample locations for the Fire Station are shown on Figure 15 (Appendix A).

3.5.2 Lithology

Subsurface soil samples were collected from four DPT borings at AFFF Area 5. The detailed boring logs are contained in Appendix D. The lithology encountered in the borings is summarized below.

DPT boring MOODY05-001 – Encountered yellowish brown sandy clay (USCS – CL) from ground surface to 6 feet bgs, then white sandy clay (USCS – CL) from 6 to 15 foot bgs, then white sandy clay (USCS – CL) with red mottling from 15 to 25 feet bgs, then white sandy clay (USCS – CL) with red and yellowish brown mottling from 25 to 27.5 feet bgs, then white sandy clay (USCS – CL) with pale red and yellowish brown mottling from 27.5 to 40.5 feet bgs, then brownish yellow sandy clay (USCS – CS) from 40.5 to 41.5 feet bgs, then pale red sandy clay (USCS – CL) with slight red mottling from 41.5 to 43 feet bgs, then white sandy clay (USCS – CL) with brownish yellow mottling from 43 feet to the total depth of the boring at 48 feet bgs.

DPT boring MOODY05-002 – Encountered bluish black silty sand (USCS – SM) from ground surface to 2.5 feet bgs, then strong brown clayey sand (USCS – SC) from 2.5 to 5 feet bgs, then light pink clayey sand (USCS – SC) with dark red mottles from 5 to 13 feet bgs, then white clayey sand (USCS – SC) from 13 to 20 feet bgs, then white clayey sand (USCS – SC) with light pink mottling from 20 to 28 feet bgs, then light pink clayey sand (USCS – SC) from 28 to 32.5 feet bgs, then white clayey sand (USCS – SC) from 32.5 to 35 feet bgs, then white clayey sand (USCS – SC) with dark red mottles from 35 to 37.5 feet bgs, then yellow clayey sand (USCS – SC) from 37.5 to 42 feet bgs, then yellow sand (USCS – SC) from 42 feet to the total depth of the boring at 42.5 feet bgs.

DPT boring MOODY05-003 – Encountered bluish black silty sand (USCS – SM) from ground surface to 0.9 feet bgs, then strong black clayey sand (USCS – SC) from 0.9 to 6 feet bgs, then light pink clayey sand (USCS – SC) from 6 to 8 feet bgs, then white clayey sand (USCS – SC) from 8 to 24.5 feet bgs, then white clayey sand (USCS – SC) with dark red mottles from 24.5 to 26 feet bgs, then pale red clayey sand (USCS – SC) from 26 to 32.5 feet bgs, then white clayey sand (USCS – SC) from 32.5 to 37.5 feet bgs, then pale red clayey sand (USCS – SC) from 37.5 to 42.5 feet bgs, then pale red clayey sand (USCS – SC) from 42.5 feet to the total depth of the boring at 45 feet bgs.

DPT boring MOODY05-004 – Encountered brown silty sand (USCS – SM) from ground surface to 1 foot bgs, then yellowish brown sandy clay (USCS – CL) from 1 to 5 feet bgs, then very pale brown sandy clay (USCS – SC) with yellowish brown and red mottling from 5 to 9 feet bgs, then very pale brown sandy clay (USCS – CL) with light red mottling from 9 to 14 feet bgs, then very pale brown sandy clay (USCS – CL) with yellow and dark red mottling 14 to 21 feet bgs, then very pale brown sandy clay (USCS – CL) with light reddish brown and yellow mottling from 21 to 25.5 feet bgs, then very pale brown sandy clay (USCS – CL) with light reddish brown and dark red mottling from 25.5 feet to the total depth of the boring at 40 feet bgs.

3.5.3 Groundwater Flow

Based on the information in the PA (CH2M Hill, May 2015), groundwater in the area of the Fire Station flows to the southeast away from Building 621. Depth to groundwater was measured in the two existing wells and two of the DPT borings in the area prior to collecting groundwater samples. The groundwater measurements are contained in Appendix G. Figure 15 (Appendix A) shows the potentiometric surface contours developed from these measurements. The contours confirm that the groundwater flow direction in the area of the Fire Station (Building 621) is to the south-southeast.

3.5.4 Analytical Results

Four surface soil samples (three primary samples, a field duplicate sample, and a composite geotechnical sample), six subsurface soil samples (four primary samples, a field duplicate sample, and a composite geotechnical sample), and seven groundwater samples (six primary samples and one field duplicate sample) were submitted to the project laboratory for analyses from AFFF Area 5.

Surface Soil
All three target analytes were detected at concentrations above the MDLs in the surface soil samples from AFFF Area 5. Two surface soil samples (MOODY05-002-SS-001 at 4,700 µg/kg and field duplicate MOODY05-002-SS-901 at 3,600 µg/kg) had detected concentrations of PFOS exceeding the USAF screening value of 1,260 µg/kg for PFOS in soils and sediments. Table 17 presents the concentrations of PFBS, PFOA, and PFOS detected in the surface soil samples and the screening values. The location of the surface soil samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 16 (Appendix A).

Subsurface Soil
All three target analytes were detected at concentrations above the MDLs in the subsurface soil samples from AFFF Area 5. None of the compounds were detected at concentrations exceeding the screening levels for soil. Table 18 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The location of the subsurface soil samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 16 (Appendix A).

Groundwater
All three of the target analytes were detected at concentrations above the MDLs in the groundwater samples from AFFF Area 5. The combined value of the detected concentrations of PFOS and PFOA in all seven groundwater samples (MOODY05-001-GW-046 at 22.9 µg/L, MOODY05-002-GW-042 at 48 µg/L, MOODY05-003-GW-044 at 3.7 µg/L, MOODY05-004-GW-038 at 38 J µg/L, MOODY05-SS38-MW134-079 at 0.24 µg/L, MOODY05-SS38-MW135-080 at 0.731 µg/L, and field duplicate MOODY05-SS38-MW135-980 at 0.674 µg/L) exceeded the EPA HA for drinking water (combined PFOS and PFOA value of 0.07 µg/L). Table 19 presents the concentrations of PFBS, PFOA, and PFOS detected in the groundwater samples and the screening values. The location of the groundwater samples and the detected concentrations of PFBS, PFOA and PFOS are shown on Figure 17 (Appendix A).

Table 17 AFFF Area 5 (Fire Station, Building 621) Surface Soil Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID	MOODY05-001-SS-001		MOODY05-002-SS-001		MOODY05-002-SS-901 (Field Duplicate)		MOODY05-003-SS-001	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)			Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL		0.32 J	0.22	0.72 J	0.25	2.2 J	0.24	1.1	0.21
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.80 J	0.10	4.6 J	0.12	8.9 J	0.11	21	0.10
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		84	1.5	**4,700**	16	**3,600**	15	57	1.3

Note: **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 18 AFFF Area 5 (Fire Station, Building 621) Subsurface Soil Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID	MOODY05-001-SO-043		MOODY05-001-SO-943 (Field Duplicate)		MOODY05-002-SO-041		MOODY05-003-SO-043		MOODY05-004-SO-037	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)			Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	1,600,000	23,000,000	NL		45 J	0.28	33 J	0.25	0.74 J	0.23	0.28 J	0.23	1.1	0.25
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		25	0.13	32	0.12	3.3	0.11	0.30 J	0.11	16	0.12
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		74 J	1.8	120 J	1.6	2.9	0.15	0.72 J	0.15	6.8	0.16

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 19 AFFF Area 5 (Fire Station, Building 621) Groundwater Detections

Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)	Field Sample ID	MOODY05-001-GW-046		MOODY05-002-GW-042		MOODY05-003-GW-044		MOODY05-004-GW-038		MOODY05-SS38-MW134-079		MOODY05-SS38-MW135-980 (Field Duplicate)		MOODY05-SS38-MW135-080	
					Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		3.7	0.019	3.8	0.019	0.52	0.0019	3.2	0.0095	0.0095 J	0.0019	0.020 J	0.0019	0.020	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL		**4.9**	0.053	**16**	0.27	**1.1**	0.053	**26**	0.20	0.010 J	0.0053	0.014 J	0.0053	0.011 J	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL		**18**	0.17	**32**	0.17	**2.6**	0.033	**12 J**	0.066	**0.23**	0.0033	**0.66**	0.0033	**0.72**	0.0033
PFOA + PFOS	NL	0.07	NL		**22.9**	N/A	**48**	N/A	**3.7**	N/A	**38 J**	N/A	**0.24**	N/A	0.674	N/A	**0.731**	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency J= estimated value N/A = not applicable NL = not listed

Geotechnical Sample
Two composite samples for geotechnical analyses were submitted for AFFF Area 5. The surface soil sample (MOODY05-005-SS-001) was composed of aliquots of the surface soil in the borings from 0 to 6 inches bgs. The subsurface soil sample (MOODY05-005-SO-043) was composed of aliquots of the subsurface soil from the borings immediately above the water saturated/unsaturated soil interface. This depth ranged from 42 feet to 43 feet bgs. The results of the analyses are contained in Appendix F.

3.5.5 Conclusions

Unknown quantities of AFFF have been discharged in the past and are discharged regularly during equipment operational checks and certification activities at the fire station. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. The analytical results of the subsurface soil samples do not indicate concentrations of PFBS, PFOA, or PFOS remaining in the soils at depth exceeding the health-based screening criteria. However, the analytical results for the surface soil samples indicate that the surface soil in the area where AFFF is mixed and trucks are filled has been impacted by the release of AFFF and concentrations remain in the surface soil that exceed the USAF calculated RSL screening criteria of 1,260 µg/kg for PFOS in soils and sediments. The analytical results of the groundwater samples also show that the groundwater in at AFFF Area 5 has been impacted by the release of AFFF and that concentrations of PFOA and PFOS in the groundwater exceed the EPA HA of 0.07 µg/L for drinking water sources.

3.6 T-38 TAIL FIRE AND A-10 CRASH SITE (AFFF AREA 6)

The media of concern in the grassy area at the south end of Runway 18/36R where two emergency response incidents occurred are subsurface soil, groundwater, and surface water/sediments.

3.6.1 Sample Locations

Subsurface soil and the groundwater along the sides of the south end of Runway 18/36R were inspected. Subsurface soil samples and groundwater grab samples (using a hydropunch sampler) were collected from DPT soil borings MOODY06-001, MOODY06-002, and MOODY06-003 on the west side of the paved runway. Groundwater grab samples were also collected using a hydropunch sampler from DPT borings MOODY06-004 and MOODY06-005 on the east side of the paved runway. Surface water and sediment samples were collected at MOODY06-006 in the drainage channel south of Burma Road where surface water from the area discharges.

A composite soil sample comprised of aliquots from each of the soil borings were collected for the 27 to 28 foot depth (MOODY06-007-SO-028). The composite sample was submitted to the project laboratory and analyzed for geotechnical properties of soil pH, particle size, and TOC content. The sample locations for the area of the emergency response incidents are shown on Figure 18 (Appendix A).

3.6.2 Lithology

Subsurface soil samples were collected from three DPT borings at AFFF Area 6. The detailed boring logs are contained in Appendix D. The lithology encountered in the borings is summarized below.

DPT boring MOODY06-001 – Encountered dark reddish grey silty sand (USCS – SM) from ground surface to 0.5 feet bgs, then dark yellowish brown sandy clay (USCS – CS) from 0.5 to 1.5 feet bgs, then white sandy clay (USCS – CL) with red and brownish yellow mottling from 1.5 to 10 feet bgs, then very pale brown sandy clay (USCS – CL) with pale and dark mottling from 10 to 13.5 feet bgs, then very pale

brown sandy clay (USCS – CL) with slight dark red mottling from 13.5 to 23.5 feet bgs, then white sandy clay (USCS – CL) with very pale brown mottling from 23.5 to 26 feet bgs, then white sandy clay (USCS – CL) with slight brownish yellow and red mottling from 26 to 27.5 feet bgs, then yellow sandy clay (USCS – CL) from 27.5 to 30.5 feet bgs, then white clay (USCS – CH) with yellow mottling from 30.5 to 31.5 bgs, then white clay (USCS – CH) from 31.5 to 33 feet bgs, then white clay (USCS – CH) with yellow mottling from 33 feet to the total depth of the boring at 35 feet bgs.

DPT boring MOODY06-002 – Encountered dark grey silty sand (USCS – SM) from ground surface to 0.5 feet bgs, then yellowish brown sandy clay (USCS – CL) from 0.5 to 2.5 feet bgs, then white sandy clay (USCS – CL) with dark red mottling from 2.5 to 8 feet bgs, then white sandy clay (USCS – CL)from 8 to 14 feet bgs, then white sandy clay (USCS – CL) with light reddish brown mottling from 14 to 17.5 feet bgs, then white sandy clay (USCS – CL) with light reddish brown and red mottling from 17.5 to 19 feet bgs, then white sandy clay (USCS – CL) from 19 to 22.5 feet bgs, then white sandy clay (USCS – CL) with reddish brown and red mottling from 22.5 to 25.5 feet bgs, then white sand clay (USCS – CL) 25.5 to 26.5 feet bgs, then white sandy clay (USCS – CL) with light reddish brown and red mottling from 26.5 to 27.5 feet bgs, then very pale brown sandy clay (USCS – CL) with brownish yellow mottling from 27.5 to 28.5 feet bgs, then white sandy clay (USCS – CL) from 28.5 to 29 feet bgs, then light reddish brown sand clay (USCS – CL) from 29 to 29.5 feet bgs, then white sandy clay (USCS – CL) from 29.5 to 30 feet bgs, then very pale brown sandy clay (USCS – CL) from 30 feet to the total depth of the boring at 35 feet bgs.

DPT boring MOODY06-003 – Encountered very dark grey silty sand (USCS – SM) from ground surface to 0.5 feet bgs, then yellowish brown clayey sand (USCS – SC) from 0.5 to 4 feet bgs, then yellowish brown clay (USCS – CM) 4 to 6 feet bgs, then white clayey sand (USCS – SC) with red mottles from 6 to 9 feet bgs, then white clayey sand (USCS – SC) from 9 to 20.8 feet bgs grading to weak red clayey sand at 19 to 20.8 feet bgs, then white to light brown clayey sand (USCS – SC) from 20.8 to 24 feet bgs, then strong brown clayey sand (USCS – SC) from 24 to 26 feet bgs, then strong brown clayey sand (USCS – SC) with light red mottles from 26 to 29 feet bgs, then yellow silty sand (USCS – SC) from 29 feet to the total depth of the boring at 33 feet bgs.

3.6.3 Groundwater Flow

Based on the information in the PA (CH2M Hill, May 2015), groundwater in the area of the emergency response incidents flows to the east-southeast away from the runway. Depth to groundwater measurements were not available from the hydropunch samplers used at AFFF Area 6 during the SI. However, potentiometric surface contours for the area presented in *Groundwater Monitoring Annual Report, Fall 2005* (Shaw, 2006), indicate that groundwater flow in the surficial aquifer in this area is to the east and south. Figure 18 (Appendix A) shows the potentiometric surface contours for the area from the 2005 groundwater monitoring report.

3.6.4 Analytical Results

Surface soils were reportedly removed following the emergency response incidents, so no surface soil samples were collected in the SI. Four subsurface soil samples (three primary samples and a composite geotechnical sample), five groundwater samples, a sediment sample, and a surface water sample were submitted to the project laboratory for analyses from AFFF Area 6.

Subsurface Soil
PFOS was the only one of the target analytes detected at concentrations above the MDLs in the subsurface soil samples from AFFF Area 6. The detected concentrations of PFOS did not exceed the

screening levels for soil. Table 20 presents the concentrations of PFOS detected and the screening value. The location of the subsurface soil samples and the detected concentrations of PFOS are shown on Figure 19 (Appendix A).

Groundwater
All three target analytes were detected at concentrations above the MDLs in one or more of the groundwater samples from AFFF Area 6. The combined value of the detected concentrations of PFOS and PFOA in three groundwater samples (MOODY06-001-GW-030 at 0.65 µg/L, MOODY06-002-GW-033 at 0.99 µg/L, and MOODY06-003-GW-030 at 0.075 µg/L) exceeded the EPA HA for drinking water (combined PFOS and PFOA value of 0.07 µg/L). Table 21 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening value. The location of the groundwater samples and the detected concentrations of PFBS, PFOS and PFOA are shown on Figure 20 (Appendix A).

Sediment
PFOS was the only target analyte detected at a concentration above the MDL in the sediment sample from AFFF Area 6. The detected concentration of PFOS did not exceed the screening levels for soil and sediment. Table 22 presents the concentrations of PFOS detected and the screening values. The location of the sediment sample and the detected concentration of PFOS is shown on Figure 19 (Appendix A).

Surface Water
All three target analytes were detected at concentrations above the MDLs in the surface water sample from AFFF Area 6. None of the detected concentrations exceeded the screening levels for drinking water sources. Table 23 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The location of the surface water sample and the detected concentrations of PFBS, PFOS, and PFOA are shown on Figure 20 (Appendix A).

Geotechnical Sample
A composite soil sample for geotechnical analyses was submitted for AFFF Area 6. The subsurface soil sample (MOODY06-007-SO-028) was composed of aliquots of the subsurface soil from the borings immediately above the water saturated/unsaturated soil interface. This depth ranged from 27 feet to 28 feet bgs. The results of the analyses are contained in Appendix F.

3.6.5 Conclusions

Unknown quantities of AFFF were discharged in the area during two emergency response incidents. Samples were collected during the SI in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. The analytical results of the subsurface soil samples do not indicate concentrations of PFBS, PFOA, or PFOS remain in the soils at depth exceeding the health-based screening criteria. The analytical results of the surface water and sediment sample collected in the surface drainage channel leaving the area do not indicate that the surface water and sediment have been impacted by the release of AFFF in the area. However, the analytical results of the groundwater samples show that the groundwater at AFFF Area 6 has been impacted by the release of AFFF and that concentrations of PFOA and PFOS in the groundwater, especially on the west side of the runway, exceed the EPA HA screening value of 0.07 µg/L for drinking water sources.

Table 20 AFFF Area 6 (T-38 Tail Fire & A-10 Crash Site) Subsurface Soil Detections

					Field Sample ID	MOODY06-001-SO-029		MOODY06-002-SO-032		MOODY06-003-SO-028	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)								
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		0.32 J	0.15	0.27 J	0.14	0.24 J	0.15

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 21 AFFF Area 6 (T-38 Tail Fire and A-10 Crash Site) Groundwater Detections

				Field Sample ID	MOODY06-001-GW-030		MOODY06-002-GW-033		MOODY06-003-GW-030		MOODY06-004-GW-030		MOODY06-005-GW-030	
Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)		Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.12	0.0019	0.13	0.0019	0.011 J	0.0019	0.0062 J	0.0019	0.011 J	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL		**0.19**	0.0053	**0.12**	0.0053	0.0060 J	0.0053	0.0053 U	0.0053	0.0053 U	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL		**0.46**	0.0033	**0.87**	0.017	0.069	0.0033	0.0058 J	0.0033	0.035	0.0033
PFOA + PFOS	NL	0.07	NL		**0.65**	N/A	**0.99**	N/A	**0.075**	N/A	0.0058	N/A	0.035	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: Shaded values indicate the parameter was not detected at the method detection limit. **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency J= estimated value N/A = not applicable NL = not listed U = parameter not detected

Table 22 AFFF Area 6 (T-38 Tail Fire and A-10 Crash Site) Sediment Detections

					Field Sample ID	MOODY06-006-SD-001	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)				
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		0.43 J	0.18

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 23 AFFF Area 6 (T-38 Tail Fire and A-10 Crash Site) Surface Water Detections

				Field Sample ID	MOODY06-006-SW-001	
Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)		Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.012 J	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL		0.011 J	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL		0.049	0.0033
PFOA + PFOS	NL	0.07	NL		0.060	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
µg/L = micrograms per liter EPA = Environmental Protection Agency J= estimated value N/A = not applicable NL = not listed

3.7 SUSPECT VEHICLE YARD (AFFF AREA 7)

The media of concern at the suspect vehicle storage yard are surface soil, subsurface soil, and groundwater.

3.7.1 Sample Locations

Surface, subsurface soil, and the groundwater in and around the yard were inspected. Surface soil, subsurface soil, and groundwater samples were collected from each of the three DPT borings installed in the depressions where surface water collects after rain events. DPT boring MOODY07-001 was installed on the west side of the fenced area, DPT boring MOODY07-002 was installed on the south side of the fenced area, and DPT boring MOODY07-003 was installed on the east side of the fenced area. Groundwater samples were collected from temporary wells installed in the borings. The wells consisted of 3/4-inch diameter, pre-packed stainless steel screens 10-feet in length at 15 to 25 feet in depth in the borings with PVC risers extending to the ground surface.

Composite soil samples comprised of aliquots from each of the soil borings were collected for the 0 to 0.5 foot depth (MOODY07-004-SS-001) and for the 14 to 15 foot depth (MOODY07-004-SO-015). The composite samples were submitted to the project laboratory and analyzed for geotechnical properties of soil pH, particle size, and TOC content. The sample locations for the Suspect Vehicle Storage Yard are shown on Figure 21 (Appendix A).

3.7.2 Lithology

Subsurface soil samples were collected from three DPT borings at AFFF Area 7. The detailed boring logs are contained in Appendix D. The lithology encountered in the borings is summarized below.

DPT boring MOODY07-001 – Encountered brown clayey sand (USCS – SM) grading to grey sandy clay (USCS – CL) from ground surface to 5 feet bgs, then white sandy clay (USCS – CL) with red mottles from 5 to 14.3 feet bgs, then very pale brown clayey sand (USCS – SC) from 14.3 to 16.2 feet bgs, then white sandy clay (USCS – CL) from 16.2 to 17.9 feet bgs, then very pale brown clayey sand (USCS – SC) from 17.9 to 20 feet bgs, then reddish yellow clayey sand (USCS – SC) from 20 to 20.3 feet bgs, then white clayey sand (USCS – SC) from 20.3 feet to the total depth of the boring at 25 feet bgs.

DPT boring MOODY07-002 – Encountered black clayey sand (USCS – SC) from ground surface to 5 feet bgs, then grey (first 10 inches) to strong brown silty clay (USCS – CL) mottled from 5 to 10 feet bgs, then light grey silty clay (USCS – CL) mottled from 10 to 15 feet bgs, then pale yellow clayey sand (USCS – SC) from 15 to 20 feet bgs, then white clayey sand (USCS – SC) grading to light grey silty clay (USCS – CL) from 20 feet to the total depth of the boring at 25 feet bgs.

DPT boring MOODY07-003 – Encountered greenish black to green sand (USCS – SC) from ground surface to 2.8 feet bgs, then red clayey sand (USCS – SC) from 2.8 to 5 feet bgs, then light grey clayey sand (USCS – SC) with red mottles from 5 to 10 feet bgs, then light grey clayey sand (USCS – SC) with strong brown mottles from 10 to 15 feet bgs, then very pale brown clayey sand (USCS – SC) from 15 to 20 feet bgs, then very pale brown clayey sand (USCS – SC) from 20 feet to the total depth of the boring at 25 feet bgs.

3.7.3 Groundwater Flow

The PA (CH2M Hill, May 2015) did not identify the groundwater flow direction in the area of the Suspect Vehicle Yard. During the SI, depth to groundwater measurements were recorded in the temporary wells installed in the DPT borings. The groundwater measurements are contained in Appendix G. Figure 21 (Appendix A) shows the potentiometric surface contours developed from these measurements. The contours indicate that the groundwater flow direction at the time of measurement in the area of the Suspect Vehicle Yard was to the north. However, the very small differences in groundwater surface elevation measurements indicate that the groundwater surface in this area is nearly flat-lying, and flow direction may vary significantly from season to season or during precipitation events.

3.7.4 Analytical Results

Four surface soil samples (three primary samples and a composite geotechnical sample), four subsurface soil samples (three primary samples and a composite geotechnical sample), and three groundwater samples were submitted to the project laboratory for analyses from AFFF Area 7.

Surface Soil
Two of the target analytes (PFOA and PFOS) were detected in one or more of the samples at concentrations above the MDLs in the surface soil samples from AFFF Area 7. Neither PFOA nor PFOS were detected at concentrations exceeding the screening levels for soil. Table 24 presents the concentrations of PFOA and PFOS detected and the screening values. The location of the surface soil samples and the detected concentrations of PFOS and PFOA are shown on Figure 22 (Appendix A).

Subsurface Soil
PFOS was the only target analyte detected in at concentrations above the MDLs in the subsurface soil samples from AFFF Area 7. PFOS was not detected in any of the samples at a concentration exceeding the screening level for soil. Table 25 presents the concentrations of PFOS detected and the screening value. The location of the subsurface soil samples and the detected concentrations of PFOS are shown on Figure 22 (Appendix A).

Groundwater
Two of the target analytes (PFBS and PFOA) were detected at concentrations above the MDLs in the groundwater samples from AFFF Area 7. Neither of the target analytes were detected at concentrations exceeding the screening levels. Table 26 presents the concentrations of PFBS and PFOS detected and the screening values. The location of the groundwater samples and the detected concentrations of PFBS and PFOS are shown on Figure 23 (Appendix A).

Geotechnical Sample
Two composite samples for geotechnical analyses were submitted for Site 7. The surface soil sample (MOODY07-004-SS-001) was composed of aliquots of the surface soil in the borings from 0 to 6 inches bgs. The subsurface soil sample (MOODY07-004-SO-015) was composed of aliquots of the subsurface soil from the borings immediately above the water saturated/unsaturated soil interface. This depth ranged from 14 feet to 15 feet bgs. The results of the analyses are contained in Appendix F.

Table 24 AFFF Area 7 (Suspect Vehicle Storage Yard) Surface Soil Detections

					Field Sample ID	MOODY7-001-SS-001		MOODY07-002-SS-001		MOODY07-003-SS-001	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)								
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.13 U	0.13	0.13 U	0.13	0.18 J	0.12
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		0.23 J	0.18	0.33 J	0.18	0.47 J	0.16

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed U = parameter not detected USAF = U.S. Air Force

Table 25 AFFF Area 7 (Suspect Vehicle Storage Yard) Subsurface Soil Detections

					Field Sample ID	MOODY07-001-SO-014		MOODY07-002-SO-015		MOODY07-003-SO-014	
Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)		Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)								
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		0.21 J	0.16	0.23 J	0.19	0.27 J	0.16

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 26 AFFF Area 7 (Suspect Vehicle Storage Yard) Groundwater Detections

				Field Sample ID	MOODY07-001-GW-020		MOODY07-002-GW-020		MOODY07-003-GW-020	
Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)		Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.0042 J	0.0019	0.0032 J	0.0019	0.024	0.0019
Perfluorooctane sulfonate (PFOS)	1763-23-1	0.07	NL		0.016 J	0.0033	0.011 J	0.0033	0.015 J	0.0033
PFOA + PFOS	NL	0.07	NL		0.016 J	N/A	0.011 J	N/A	0.015 J	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
µg/L = micrograms per liter EPA = Environmental Protection Agency J= estimated value N/A = not applicable NL = not listed PFOA = perfluorooctanoic acid

3.7.5 Conclusions

The only potential releases of AFFF in the Suspect Vehicle Yard area were from small quantities of AFFF residue remaining on the damaged aircraft pieces stored in the fenced compound. The release scenario was for the AFFF residue to wash off of the equipment pieces and be carried by the surface run-off to the low-lying areas adjacent to the asphalt-paved compound. During the SI, samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of the target analytes remain in the soils or groundwater in the area in excess of the health-based screening criteria. Based on the analytical results, any releases of AFFF in the area have not impacted the soils or groundwater in AFFF Area 7.

3.8 WASTEWATER TREATMENT PLANT (AFFF AREA 8)

The media of concern at the WWTP are subsurface soil, groundwater, and surface water/sediment.

3.8.1 Sample Locations

Subsurface soil and the groundwater at the WWTP drying beds were inspected. Subsurface soil and groundwater samples (using a hydropunch sampler) were collected from DPT boring MOODY08-001 installed at the south end of the west (unlined) drying bed. In addition, surface water and sediment samples were collected at two locations. MOODY08-002 at Outfall 5 from the WWTP into Beatty Branch and at MOODY08-003 in Beatty Branch upstream of the WWTP on the east side of Bemiss Road where surface water from the hangar area discharges.

A soil sample was collected at the 17 to 18 foot depth (MOODY08-001-SO-018) and submitted to the project laboratory to be analyzed for geotechnical properties of soil pH, particle size, and TOC content. The sample locations for the WWTP are shown on Figure 24 (Appendix A).

3.8.2 Lithology

Subsurface soil samples were collected from one DPT boring at AFFF Area 8. The detailed boring log is contained in Appendix D. The lithology encountered in the boring is summarized below.

DPT boring MOODY08-001 – Encountered dark greyish brown silty sand (USCS – SM) from ground surface to 4.5 feet bgs, then yellowish brown sandy clay (USCS – CS) from 4.5 to 6 feet bgs, then white sandy clay (USCS – CL) with red mottling from 6 to 14 feet bgs, then white sandy clay (USCS – CL) with brownish yellow mottling from 14 feet to the total depth of the boring at 24 feet bgs.

3.8.3 Groundwater Flow

The PA (CH2M Hill, May 2015) did not identify the groundwater flow direction in the area of the WWTP and depth to groundwater measurements were not available from the hydropunch sampler used at AFFF Area 8 during the SI. However, potentiometric surface contours for the area presented in *Groundwater Monitoring Annual Report, Fall 2005* (Shaw, 2006), indicate that groundwater flow in the surficial aquifer in this area is to the west-southwest. Figure 24 (Appendix A) shows the potentiometric surface contours for the area from the 2005 groundwater monitoring report.

3.8.4 Analytical Results

Three subsurface soil samples (one primary sample, one field duplicate sample, and a composite geotechnical sample), one groundwater sample, two sediment samples, two surface water samples were submitted to the project laboratory for analyses from AFFF Area 8.

Subsurface Soil
Two of the target analytes (PFOA and PFOS) were detected at concentrations above the MDLs in the subsurface soil samples from AFFF Area 8. Neither of the target analytes were detected at concentrations exceeding the screening levels for soil. Table 27 presents the concentrations of PFOA and PFOS detected and the screening value. The location of the subsurface soil samples and the detected concentrations of PFOS and PFOA are shown on Figure 25 (Appendix A).

Groundwater
All three target analytes were detected at concentrations above the MDLs in the groundwater sample from AFFF Area 8. The combined value of the detected concentrations of PFOS and PFOA in the groundwater sample (MOODY08-001-GW-017 at 3.22 µg/L) exceeded the EPA HA for drinking water (combined PFOS and PFOA value of 0.07 µg/L). Table 28 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The location of the groundwater samples and the detected concentrations of PFBS, PFOA and PFOS are shown on Figure 26 (Appendix A).

Sediment
Two of the target analytes (PFOA and PFOS) were detected in the sediment samples from AFFF Area 8 at concentrations above the MDLs. None of the detected concentrations exceeded the screening levels for soil and sediments. Table 29 presents the concentrations of PFOA and PFOS detected and the screening values. The location of the sediment samples and the detected concentrations of PFOA and PFOS are shown on Figure 25 (Appendix A).

Surface Water
All three of the target analytes were detected at concentrations above the MDLs in the surface water samples from AFFF Area 8. Table 30 presents the concentrations of PFBS, PFOA, and PFOS detected and the screening values. The combined value of the detected concentrations of PFOS and PFOA in both surface water samples (MOODY08-002-SW-001 at 1.08 µg/L and MOODY08-003-SW-001 at 1.29 µg/L) exceeded the EPA HA for drinking water (combined PFOS and PFOA value of 0.07 µg/L). The location of the surface water samples and the detected concentrations of PFBS, PFOA, and PFOS are shown on Figure 26 (Appendix A).

Table 27 AFFF Area 8 (Wastewater Treatment Plant) Subsurface Soil Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID	MOODY08-001-SO-018		MOODY08-001-SO-918 (Field Duplicate)	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)			Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.27 J	0.12	0.26 J	0.11
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		8.2 J	0.16	2.1 J	0.15

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J = estimated value NL = not listed USAF = U.S. Air Force

Table 28 AFFF Area 8 (Wastewater Treatment Plant) Groundwater Detections

Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)	Field Sample ID	MOODY08-001-GW-017	
					Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.39	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL		**0.62**	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL		**2.6**	0.033
PFOA + PFOS	NL	0.07	NL		**3.22**	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency N/A = not applicable NL = not listed

Table 29 AFFF Area 8 (Wastewater Treatment Plant) Sediment Detections

Parameter	Chemical Abstract Number	EPA Regional Screening Level		USAF Guidance for Soils and Sediments (µg/kg)	Field Sample ID	MOODY08-002-SD-001		MOODY08-003-SD-001	
		Residential Soil (µg/kg)	Industrial Soil (µg/kg)			Concentration (µg/kg)	Method Detection Limit	Concentration (µg/kg)	Method Detection Limit
Perfluorooctanoic acid (PFOA)	335-67-1	NL	NL	1,260		0.12 J	0.11	0.13 J	0.12
Perfluorooctane sulfonate (PFOS)	1763-23-1	NL	NL	1,260		0.99	0.15	1.4	0.16

µg/kg = micrograms per kilogram EPA = Environmental Protection Agency J= estimated value NL = not listed USAF = U.S. Air Force

Table 30 AFFF Area 8 (Wastewater Treatment Plant) Surface Water Detections

Parameter	Chemical Abstract Number	EPA Health Advisory for Drinking Water (µg/L)*	EPA Regional Screening Level, Tap Water (µg/L)	Field Sample ID	MOODY08-002-SW-001		MOODY08-003-SW-001	
					Concentration (µg/L)	Method Detection Limit	Concentration (µg/L)	Method Detection Limit
Perfluorobutane sulfonate (PFBS)	375-73-5	NL	380		0.057	0.0019	0.12	0.0019
Perfluorooctanoic acid (PFOA)	335-67-1	0.07	NL		**0.14**	0.0053	**0.29**	0.0053
Perfluorooctane sulfonate (PFOS)	1763-23-1		NL		**0.94**	0.0033	**1.0**	0.017
PFOA + PFOS	NL	0.07	NL		**1.08**	N/A	**1.29**	N/A

*The lifetime health advisory value for drinking water is the combined values of PFOS and PFOA compared to 0.07 µg/L.
Note: **Bold** values exceeded the screening levels.
µg/L = micrograms per liter EPA = Environmental Protection Agency N/A = not applicable NL = not listed U = parameter not detected

Geotechnical Sample
A soil sample for geotechnical analyses was submitted for AFFF Area 8 composed of subsurface soil immediately above the water saturated/unsaturated soil interface at 14 feet to 15 feet bgs. The results of the analyses are contained in Appendix F.

3.8.5 Conclusions

Unknown quantities of AFFF have been discharged to the settling ponds at the WWTP. Samples were collected during the SI in the most likely areas for PFAS contamination to be detected in the areas based on surface drainage patterns and the groundwater flow direction. The analytical results of the subsurface soil samples do not indicate concentrations of the target analytes remaining in the soils at depth exceeding the health-based screening criteria. The analytical results of the sediment samples collected in Beatty Branch do not indicate that the sediment has been impacted by the release of AFFF in the area. However, the analytical results of the groundwater samples show that the groundwater at AFFF Area 8 has been impacted by the release of AFFF. The results of the surface water samples in Beatty Branch also indicate that the surface water has been impacted either by the release of AFFF or by an ongoing and as yet unidentified continuing source. The results of the analyses of the groundwater and surface water samples indicate that concentrations of PFOA and PFOS in the groundwater and surface water at the WWTP exceed the EPA HAs for both individual and combined concentrations of 0.07 µg/L.

3.9 INVESTIGATION-DERIVED WASTE

All investigation-derived waste (IDW) was managed in accordance with the specific waste management guidance provided by MAFB. IDW generated during the SI field effort consisted of soil and wastewater potentially impacted with PFAS, and construction waste (such as used personal protective equipment, paper, rags, plastic sheeting, etc.).

Waste Soil
Waste soil generated during the installation of soil borings was placed in Department of Transportation (DOT)-approved steel drums and staged to a secure location for waste sampling and proper disposal. A representative sample was collected from the waste soil and submitted to the project laboratory to be analyzed for the full toxicity characteristic leaching procedure (TCLP) list (volatile organic compounds, semivolatile organic compounds, pesticides, herbicides, and metals), polychlorinated biphenyls, total petroleum hydrocarbons, flashpoint, reactivity, ignitability, corrosivity, pH, sulfide, and cyanide. Based on the analytical results of the TCLP sample, a nonhazardous waste manifest (Appendix E) was generated for the soil and the drums were transported to Southern Recycling Industries of Ray City, Georgia, for disposal.

Wastewater
Waste fluids generated during groundwater sampling and decontamination activities were placed in DOT-approved steel drums and staged to a secure location for waste sampling and proper disposal. A representative sample was collected from the waste fluids and submitted to the project laboratory to be analyzed for the full TCLP list. Based on the analytical results of the TCLP sample, a nonhazardous waste manifest (Appendix E) was generated for the waste fluids and the drums were transported to Southern Recycling Industries of Ray City, Georgia, for disposal.

Construction Waste
Construction waste was placed in plastic garbage bags and put in on-site dumpsters for disposal at an off-site Resource Conservation and Recovery Act Subtitle D industrial landfill.

4.0 GROUNDWATER PATHWAY

MAFB is within the Georgia Coastal Plain province on the summit to northeastern edge of the Valdosta Ridge. The surface topography of MAFB is relatively flat with rolling hills, grading generally downward to the east toward Grand Bay Swamp. Elevations range from approximately 200 to 260 feet above mean sea level. MAFB is underlain by more than 2,000 feet of Cenozoic Age (present day to 65 million years ago [mya]) marine sediments. The consolidated and unconsolidated formations consist of limestone, dolostone, clay, sand, and unconsolidated sediment. The geologic units in the area of MAFB from oldest to youngest are the Ocala Limestone (Eocene Age, 33 to 55 mya), Suwannee Limestone (Oligocene Age, 23 to 33 mya), the Hawthorn Group (Miocene Age, 5 to 23 mya), the Miccosukee Formation (Pliocene Age, 2.6 to 5.3 mya), and the undifferentiated sediments of the Quaternary Age (11,700 years to 2.6 mya). The undifferentiated Quaternary Age surface deposits at MAFB consist of clayey sand and silty-sand to silty-clay lenses of varying thickness and depths. A laterally continuous basal clay unit was identified during previous subsurface investigations at depths ranging from 60 feet bgs to the east near North Perimeter Road to 110 feet bgs to the northwest area of the Base. Geophysical surveys conducted at MAFB indicate a possible clay to limestone unit at approximately 85 to 95 feet bgs with a thickness of 20 to 80 feet (CDM Federal Programs Corporation [CDM], August 2004).

Groundwater occurs within two major water-bearing zones at MAFB: the surficial aquifer of Quaternary to Miocene Age (present to 23 mya) and the formations comprising the Floridan aquifer system of Oligocene to Paleocene Age (23 to 65 mya). The surficial aquifer is composed of undifferentiated sand, clay, and silts underlain by impermeable clayey material. These sediments are exposed at the surface in much of the MAFB area and may reach a thickness of about 100 feet. The soils observed at MAFB appear to be saprolitic soils weathered from underlying Pliocene and Miocene Age (2.6 to 23 mya) sediments. Wells that penetrate the surficial aquifer system are unconfined and yield small to moderate amounts of water. These quantities are generally sufficient for domestic and small farm water supply. However, no potable water wells on MAFB use water from the surficial aquifer. At the base of the surficial aquifer system are the clays and low-permeability sediments of the upper Hawthorn Group. Two water-bearing zones are within the surficial aquifer system. The intermediate and deep water-bearing zones are hydrologically connected from the surface to the basal clay with interfingering silt/clay lenses throughout the aquifer. Monitoring well data indicate that these two water-bearing zones are under confined to semiconfined conditions with the intermediate water-bearing zone between 22 to 34 feet bgs and the deep water-bearing zone beginning at approximately 60 feet bgs and extending to the basal clay unit (CDM, August 2004). Hydraulic conductivity analysis on soil samples from the basal clay unit shows a permeability coefficient of less than or equal to 1.5E-08 centimeters per second (CDM, August 2004), indicating that the clay unit is an effective aquitard separating the surficial aquifer system from the Floridan system below.

The Floridan aquifer system is the primary water-bearing unit in the area and is composed of carbonate rocks from the Claiborne Group, Ocala limestone, Suwannee limestone, and limestones of the lower units in the Hawthorn Group. The high porosity and hydraulic conductivity of the Floridan aquifer system enables wells penetrating the aquifer system to yield copious amounts of water. The majority of withdrawals from the aquifer are from the upper portion of the Floridan aquifer system correlating to the Suwannee limestone. Withdrawals from the Suwannee furnish almost all the water for commercial, industrial, domestic, irrigation, and municipal use in the area. The Floridan aquifer system is generally

under artisan conditions and two distinct water-bearing zones (the upper and lower zones). Both zones consist of porous limestone separated by approximately 50 feet of less porous dolostone of Eocene Age (34 to 56 mya). The Upper Floridan aquifer is the water supply source for the city of Valdosta and MAFB (CDM, August 2004). Water from the upper unit of the Floridan aquifer system is usually of good quality with total dissolved solids generally less than 250 milligrams per liter. Lower portions of the Floridan aquifer system contain more mineralized water that often does not meet potable standards. A generalized stratigraphic column illustrating the relative relationships of the geologic units is in Figure 27 (Appendix A).

4.1 HANGAR 642 (AFFF AREA 1)

One groundwater sample collected from the surficial aquifer at a depth of 45 feet bgs during the SI had a PFOS concentration that exceeded the EPA HA for drinking water sources. This indicates that the groundwater in the area has been impacted by the release of AFFF. The primary drinking water source for MAFB, the City of Valdosta, and Lowndes County residents is the Upper Floridan aquifer. MAFB drinking water comes from three on-base water supply wells screened between 440 and 457 feet deep in the Upper Floridan aquifer. The nearest water supply well to Hangar 642 is MAFB Water Supply Well 3, approximately 2,950 feet southwest of the area. The MAFB drinking water wells supply an on-base population of approximately 4,650 people within 4 miles of AFFF Area 1 (CH2M Hill, 2015). The off-base population within a 4-mile radius of Hangar 642 is approximately 8,140 people (CH2M Hill, 2015). The surrounding residential areas use the surficial aquifer for domestic and agricultural purposes, but it is unlikely for the groundwater beneath Hangar 642 to migrate off-base given that the groundwater flow direction is to the south and west, parallel to the MAFB boundary.

4.2 HANGAR 644 (AFFF AREA 2)

The analytical results for the groundwater samples collected in the area during the SI showed no concentrations of PFAS compounds exceeding the health-based screening levels. Therefore, it is unlikely that the groundwater in the area has been impacted to an extent that would create a potential hazard to human health.

4.3 HANGAR 646 (AFFF AREA 3)

The analytical results of the three groundwater samples collected during the SI at Hangar 646 indicate that the groundwater in the area contains concentrations of PFOA and PFOS exceeding the EPA HA screening value. This indicates that the groundwater in the area has been impacted the release of AFFF. The primary drinking water source for MAFB, the City of Valdosta, and Lowndes County residents is the Upper Floridan aquifer. MAFB drinking water comes from three on-base water supply wells screened between 440 and 457 feet deep in the Upper Floridan aquifer. The nearest water supply well to Hangar 646 is MAFB Water Supply Well 3, approximately 2,600 feet southwest of the area. The MAFB drinking water wells supply an on-base population of approximately 4,650 people within 4 miles of AFFF Area 3 (CH2M Hill, 2015). The off-base population within a 4-mile radius of Hangar 646 is approximately 8,690 people (CH2M Hill, 2015). The surrounding residential areas use the surficial aquifer for domestic and agricultural purposes. It is likely that the groundwater beneath Hangar 642 would migrate off-base given that the groundwater flow direction is toward the base boundary, approximately 2,300 feet to the west.

4.4 HANGAR 775 (AFFF AREA 4)

The analytical results of the seven groundwater samples collected during the SI at Hangar 775 indicate that the groundwater in the area contains concentrations of PFOA and PFOS exceeding the EPA HA screening values. This indicates that the groundwater in the area has been impacted by the release of AFFF. The primary drinking water source for MAFB, the City of Valdosta, and Lowndes County residents is the Upper Floridan aquifer. MAFB drinking water comes from three on-base water supply wells screened between 440 and 457 feet deep in the Upper Floridan aquifer. The nearest water supply well to Hangar 775 is MAFB Water Supply Well 17, approximately 4,500 feet northwest (upgradient) of the area. The MAFB drinking water wells supply an on-base population of approximately 4,650 people within 4 miles of AFFF Area 4 (CH2M Hill, 2015). The off-base population within a 4-mile radius of Hangar 646 is approximately 9,360 people (CH2M Hill, 2015). The surrounding residential areas use the surficial aquifer for domestic and agricultural purposes. It is unlikely that the groundwater beneath Hangar 775 would migrate off-base given that the groundwater flow direction is to the south, parallel to the base boundary.

4.5 FIRE STATION (BUILDING 621) (AFFF AREA 5)

The analytical results of the seven groundwater samples collected during the SI at the Fire Station (Building 621) indicate that the groundwater in the area contains concentrations of PFOA and PFOS exceeding the EPA HA screening values. This indicates that the groundwater in the area has been impacted by the release of AFFF. The primary drinking water source for MAFB, the City of Valdosta, and Lowndes County residents is the Upper Floridan aquifer. MAFB drinking water comes from three on-base water supply wells screened between 440 and 457 feet deep in the Upper Floridan aquifer. The nearest water supply wells are the cluster of three MAFB water supply wells located approximately 2,600 feet southwest of the fire station. The MAFB drinking water wells supply an on-base population of approximately 4,650 people within 4 miles of AFFF Area 5 (CH2M Hill, 2015). The off-base population within a 4-mile radius of the fire station is approximately 9,870 people (CH2M Hill, 2015). The surrounding residential areas use the surficial aquifer for domestic and agricultural purposes. It is unlikely that the groundwater beneath the fire station would migrate off-base given that the groundwater flow direction is to the south and east, away from the base boundary.

4.6 T-38 TAIL FIRE AND A-10 CRASH SITE (AFFF AREA 6)

The analytical results of the five groundwater samples collected during the SI in the area of the T-38 Tail Fire and A-10 Crash (south end of Runway 18/36R) indicate that the groundwater on the west side of the area contains concentrations of PFOA and PFOS exceeding the EPA HA screening values. This indicates that the groundwater in the area has been impacted by the release of AFFF. The primary drinking water source for MAFB, the City of Valdosta, and Lowndes County residents is the Upper Floridan aquifer. MAFB drinking water comes from three on-base water supply wells screened between 440 and 457 feet deep in the Upper Floridan aquifer. The nearest water supply well is MAFB Well 17, approximately 9,300 feet northwest (upgradient) of the area. The MAFB drinking water wells supply an on-base population of approximately 4,650 people within 4 miles of AFFF Area 6 (CH2M Hill, 2015). The off-base population within a 4-mile radius of AFFF Area 6 is approximately 8,640 people (CH2M Hill, 2015). The surrounding residential areas use the surficial aquifer for domestic and agricultural purposes.

4.7 SUSPECT VEHICLE STORAGE YARD (AFFF AREA 7)

The analytical results for the groundwater samples collected at the Suspect Vehicle Yard during the SI showed no concentrations of PFAS compounds exceeding the health-based screening levels. Therefore, it is unlikely that the groundwater in AFFF Area 7 has been impacted to an extent that would create a potential hazard to human health.

4.8 WASTEWATER TREATMENT PLANT (AFFF AREA 8)

The groundwater sample collected at the WWTP during the SI had a PFOA and PFOS concentrations exceeding the EPA HA screening values. This indicates that the groundwater in the area has been impacted due to the release of AFFF. The primary drinking water source for MAFB, the City of Valdosta, and Lowndes County residents is the Upper Floridan aquifer. MAFB drinking water comes from three on-base water supply wells screened between 440 and 457 feet deep in the Upper Floridan aquifer. The nearest water supply well to the WWTP is MAFB Water Supply Well 3, approximately 2,600 feet southwest of the area. The MAFB drinking water wells supply an on-base population of approximately 4,650 people within 4 miles of AFFF Area 8 (CH2M Hill, 2015). The off-base population within a 4-mile radius of the WWTP is approximately 8,420 people (CH2M Hill, 2015). The surrounding residential areas use the surficial aquifer for domestic and agricultural purposes. It is unlikely that the groundwater beneath the WWTP migrate off-base given that the groundwater flow direction is to the south and west toward Beatty Branch.

5.0 SURFACE WATER PATHWAY

Surface water bodies at MAFB include Mission Lake and Grand Bay Swamp. Mission Lake is a 12-foot-deep, manmade, freshwater recreational lake adjacent to the southwestern perimeter of MAFB. Grand Bay Swamp is an approximately 8-square-mile marshy area, roughly 2 miles north and east of the flightline. Seasonal fluctuations in the surface water levels within the Grand Bay Swamp result in an eastwardly receding perimeter during periods of low recharge. Groundwater level measurements indicate an upward groundwater gradient from the unconfined surficial aquifer into Grand Bay Swamp (CDM, August 2004). Surface water drainage from the western part of MAFB, including the treated water effluent from the WWTP, flows into Beatty Branch, which discharges into Cat Creek and ultimately to the Withlacoochee River. Surface water drainage from the eastern part of MAFB flows into Grand Bay Creek, which discharges into the Alapaha River in northern Florida. Both the Withlacoochee and Alapaha Rivers join the Suwannee River in Florida. The Suwannee River discharges to the Gulf of Mexico at Suwannee, Florida (CDM, August 2004).

5.1 HANGAR 642 (AFFF AREA 1)

There were no surface water bodies in the immediate vicinity of Hangar 642 and the analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination that could negatively impact surface water in the area.

5.2 HANGAR 644 (AFFF AREA 2)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination in the area that could negatively impact surface water in the area.

5.3 HANGAR 646 (AFFF AREA 3)

Both surface water samples collected in Beatty Branch during the SI indicate that the surface water in Beatty Creek contain PFAS compounds at concentrations exceeding the EPA HA screening values for drinking water sources. Therefore, the surface waters have been impacted by the release of AFFF in the area, or an as yet unidentified continuing source of PFAS compounds. Although the waters of Beatty Branch are not reportedly used for human consumption or recreational uses, the waters flow into Cat Creek 3.5 miles downstream, which enters the Withlacoochee River. Recreational activities (including fishing and swimming) of these waterways could provide an exposure pathway to humans through dermal contact, ingestion of impacted water, and ingestion of fish.

5.4 HANGAR 775 (AFFF AREA 4)

There are no surface water bodies in the immediate vicinity of Hangar 775. However, the surface soil sample collected on the west side of the hangar had a detected concentration of PFOA and PFOS exceeding the calculated RSL of 1,260 µg/kg, indicating a potential ongoing source of PFAS compounds to be carried into surface water from the area in stormwater runoff.. The nearest wetland and associated 100-year flood zone is approximately 1,200 feet south (downgradient) of Hangar 775. Recreational activities on Mission Lake (including fishing and boating) could provide an exposure pathway to humans through dermal contact, ingestion of water, and ingestion of fish.

5.5 FIRE STATION (BUILDING 621) (AFFF AREA 5)

There are no surface water bodies in the immediate vicinity of Building 621. However, concentrations of PFOS exceeded the calculated RSL of 1,260 µg/kg in surface soil samples collected in the grassy area near the covered shed and wash rack where AFFF trucks are filled, indicate that the surface soils could provide an ongoing source of PFAS compounds to dissolve into stormwater runoff leaving the area. Stormwater in this area discharges into the wetlands area near Mission Lake, 4,500 feet south of the Fire Station. Recreational activities on Mission Lake (including fishing and boating) could provide an exposure pathway to humans through dermal contact, ingestion of water, and ingestion of fish.

5.6 T-38 TAIL FIRE AND A-10 CRASH SITE (AFFF AREA 6)

The analytical results of the surface water sample collected from the drainage channel south of Burma Road, where surface water from AFFF Area 6 discharges, indicate that the surface water runoff has not been directly impacted by the release of AFFF in this area.

5.7 SUSPECT VEHICLE STORAGE YARD (AFFF AREA 7)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination that could negatively impact surface water in the area.

5.8 WASTEWATER TREATMENT PLANT (AFFF AREA 8)

The analytical results for both surface water samples collected in Beatty Branch during the SI indicate that the surface water in Beatty Creek contain PFAS compounds at concentrations exceeding the EPA HA screening values for drinking water sources. Surface water sample MOODY08-002-SW-001 was collected at Outfall 5 where surface water from the WWTP enters Beatty Branch and indicate that the WWTP may be a source of PFAS compounds to the surface waters. However, surface water sample

MOODY08-003-SW-001 was collected upstream of the WWTP, on the east side of Bemiss Road, where surface water from the hangar area discharges, indicating that PFAS compounds are also entering Beatty Creek from the hangar area. Although the waters of Beatty Branch are not reportedly used for human consumption or recreational uses, the waters flow into Cat Creek 3.5 miles downstream, which enters the Withlacoochee River. Recreational activities (including fishing and swimming) of these waterways could provide an exposure pathway to humans through dermal contact, ingestion of impacted water, and ingestion of fish.

6.0 SOIL EXPOSURE AND AIR PATHWAYS

The objective of soil sampling during the SI was to determine if soils at the individual AFFF areas had been impacted by the release of AFFF and whether concentrations of PFAS remained in the soils that exceeded the human health-based screening levels.

Soils on uplands in the region of Lowndes County, Georgia, were generally formed in deep sedimentary sands and clays. Alluvial soils near streams and tributaries generally originated from material eroded from the uplands. The U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) (USDA-NRCS, 2014) soil surveys describe the predominant soil associations in the MAFB area as follows.

Tifton-Pelham-Fuquay. This association consists of nearly level and gently sloping soils on ridge tops, hillsides, and in drainage ways that dissect the ridges. The ridges are typically less than 1 mile wide, and the drainage ways range from about 50 to 250 feet wide. This association makes up about 36 percent of the soils in Lowndes County. Tifton soils make up about 49 percent of the association, Pelham soils about 16 percent, the Fuquay soils about 8 percent, and the minor soils about 27 percent. Tifton and Fuquay soils are generally located along the ridges, and Pelham soils are in drainage ways and intermittently ponded depressions.

- Tifton soils are well drained and nearly level or very gently sloping. Typically, the surface layer is brown loamy sand about 8 inches thick. The subsoil is sandy-clay loam and extends to a depth of 60 inches or more.
- Pelham soils are poorly drained and nearly level. Typically, the surface layer is black loamy sand about 8 inches thick. The subsurface layer is gray loamy sand about 17 inches thick. The subsoil extends to a depth of 65 inches or more.
- Fuquay soils are well drained and nearly level or very gently sloping. Typically, the surface layer is dark grayish-brown loamy sand about 7 inches thick. The subsurface layer is light yellowish-brown loamy sand about 14 inches thick. The subsoil is dominantly sandy-clay loam and extends to a depth of 60 inches or more.

Minor soils in this association are the well-drained Dothan, Nankin, and Sunsweet soils and the moderately well-drained Stilson soils. Dothan, Nankin, and Sunsweet soils are on ridges and hillsides, as are Tifton and Fuquay soils, and the more sloping Sunsweet soils are on short hillsides. Stilson soils occur on low uplands. Most of the cultivated land in Lowndes County is on Tifton and Fuquay soils. Corn, tobacco, soybeans, cotton, and peanuts are the major agricultural crops. Also, some areas are used for permanent pasture. The main concern of management is control of erosion on the gently sloping soils. Pelham soils are used mainly for producing timber, but some areas are in pasture land. This association generally has slight limitations for most non-farm uses, but because of wetness and flooding, Pelham soils are severely limited for crop production.

Dasher or Swamp-Istokpoga. These soils are characteristic of swampy areas and level, very poorly drained organic soils in flooded areas.

Mascotte-Albany-Pelham. These soils have a sandy surface layer and loamy or sandy subsoil and are found on flats and in depressions and drainages.

Leefield-Pelham-Clarendon. These soils have a sandy surface layer and loamy subsoil and are found on low uplands and in depressions.

6.1 HANGAR 642 (AFFF AREA 1)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination in the soils in the area that could impact human health. The soils surrounding the hangar area have generally been disturbed during construction and have turf grass planted on them. Outside of the turfed areas, the soils are identified as Tifton loamy sands. The geotechnical sample of the surface soils at AFFF Area 1 indicated a neutral acidity of soil (soil pH of 7.01) and low organic content (an estimated TOC value of 1,290 J mg/kg).

6.2 HANGAR 644 (AFFF AREA 2)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination in the soils in the area that could impact human health. The soils surrounding the hangar area have generally been disturbed during construction and have turf grass planted on them. Outside of the turfed areas, the soils are identified as Tifton loamy sands. The geotechnical sample of the surface soils at AFFF Area 2 indicated a neutral acidity of soil (soil pH of 6.65) and relatively high organic content (a TOC value of 7,440 mg/kg).

6.3 HANGAR 646 (AFFF AREA 3)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination in the soils in the area that could impact human health. The soils surrounding the hangar area have generally been disturbed during construction and have turf grass planted on them. Outside of the turfed areas, the soils are identified as Tifton loamy sands. The geotechnical sample of the surface soils at AFFF Area 3 indicated a neutral acidity (soil pH of 6.53) and a high organic content (a TOC value of 20,700 mg/kg).

6.4 HANGAR 775 (AFFF AREA 4)

The analytical results of the environmental samples collected during the SI show PFAS concentrations exceeding health-based screening levels in the surface soil at the southwest corner of Hangar 775 near the mechanical room door to the fire suppression system. This area of the flightline has residents and workers within 1 mile and wetlands within 4 miles of the location. The soils surrounding the hangar area have generally been disturbed during construction and have turf grass planted on them. Outside of the turfed areas, the soils are identified as Tifton loamy sands. The geotechnical sample of the surface soils at AFFF Area 4 indicated a slightly acidic soil (soil pH of 5.99) and relatively high organic content (a TOC value of 5,240 mg/kg). The well-vegetated area inhibits fugitive dust emissions. However, underground utilities are present in the area that could allow for dermal and soil ingestion exposures to facility personnel and

utility workers should the ground be disturbed (such as during utility construction). No schools or day care facilities are within 200 feet of the location.

6.5 FIRE STATION (BUILDING 621) (AFFF AREA 5)

The analytical results of the environmental samples collected during the SI show PFAS concentrations exceeding health-based screening levels in the surface soil from the grassy area near the covered shed and wash rack where AFFF trucks are filled. This area of the flightline has residents and workers within 1 mile and wetlands within 4 miles of the location. The soils surrounding the fire station area have generally been disturbed during construction and have turf grass planted on them. Outside of the turfed areas, the soils are identified as Tifton loamy sands. The geotechnical sample of the surface soils at AFFF Area 5 indicated a neutral acidity of soil (soil pH of 6.56) and relatively high organic content (a TOC value of 9,470 mg/kg). The well-vegetated area inhibits fugitive dust emissions. However, underground utilities are present in the area that could allow for dermal and soil ingestion exposures to facility personnel and utility workers should the ground be disturbed (such as during utility construction). No schools or day care facilities are within a 200-foot radius of the location. The nearest school is Pine Grove Elementary School, approximately 20,100 feet to the west of the area. The nearest day care facility is the Moody Child Care Center, approximately 3,900 feet to the northwest.

6.6 T-38 TAIL FIRE AND A-10 CRASH SITE (AFFF AREA 6)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination in the soils in the area that could impact human health. The soils surrounding the runway area have generally been disturbed during construction and have turf grass planted on them. Outside of the turfed areas and south of AFFF Area 6, the soils are identified as Pelham loamy sands. The geotechnical sample of the subsurface (27 to 28 feet bgs) soils at AFFF Area 6 indicated a slightly acidic soil (soil pH of 5.09) and no organic content (TOC not detected at detection limit of 1,100 U mg/kg).

6.7 SUSPECT VEHICLE STORAGE YARD (AFFF AREA 7)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination in the soils in the area that could impact human health. The soils surrounding the Vehicle Storage Yard are identified as Stilson loamy sands. The geotechnical sample of the surface soils at AFFF Area 7 indicated a slightly acidic soil (soil pH of 5.31) and a low organic content (a TOC value of 2,760 mg/kg).

6.8 WASTEWATER TREATMENT PLANT (AFFF AREA 8)

The analytical results of the environmental samples collected during the SI indicate that there is no source of PFAS contamination in the soils in the area that could impact human health. The soils surrounding the WWTP have generally been disturbed during construction and have turf grass planted on them. Outside of the turfed areas, the soils are identified as Tifton loamy sands and Pelham loamy sand. The geotechnical sample of the subsurface (17 to 18 feet bgs) soils at AFFF Area 8 indicated an acidic soil (soil pH of 4.66) and no organic content (TOC not detected at detection limit of 1,000 U mg/kg).

7.0 SUMMARY AND CONCLUSIONS

The PA (CH2M Hill, May 2015) identified eight AFFF areas at MAFB requiring additional evaluation through the SI process based on the reported or suspected release of AFFF material containing PFAS compounds. Media evaluated in each area included surface soil; subsurface soil (vadose zone in the source area); groundwater (including samples from existing monitoring wells, temporary wells, and/or direct push sampling); and surface water/sediment (if applicable). The objectives of this study were to

- determine if a confirmed release of PFOS and PFOA has occurred at AFFF areas selected for inspection;
- determine if PFOS and PFOA are present in groundwater, soil, or surface water/sediments at the site in concentrations exceeding the EPA lifetime health advisory (HA); and
- identify potential receptor pathways with immediate impacts to human health.

A release was considered confirmed if exceedances of the following concentrations were identified:

PFOS:

- 0.07 micrograms per liter (µg/L) in groundwater/surface water that is used as or contributes to a drinking water source (combined with PFOA value).
- 1,260[a] micrograms per kilogram (µg/kg) in soil (calculated in the absence of RSL values).
- 1,260[a] µg/kg in sediment (calculated, in the absence of RSL values).

PFOA:

- 0.07 µg/L in groundwater/surface water in groundwater/surface water that is used as or contributes to a drinking water source (combined with PFOS value).
- 1,260[a] µg/kg in soil (calculated, in the absence of RSL values).
- 1,260[a] µg/kg in sediment (calculated in the absence of RSL values).

PFBS:

- 380 µg/L in groundwater/surface water.
- 1,600,000 µg/kg in soil/sediment.

PFBS was not detected in any of the areas in any media at a concentration exceeding the health-based screening criteria. However, six of the eight AFFF areas had concentrations of PFOA or PFOS in one or more media that exceeded the corresponding screening levels. Table 31 presents a summary of the maximum detected concentrations of PFBS, PFOA, and PFOS for each media in the eight AFFF areas and indicates where those concentrations exceeded the corresponding screening levels.

Table 31 Summary of Detections and Screening Level Exceedances

AFFF Area	Associated Existing ERP Site ID	Parameter	Maximum Detected Concentration	Screening Value	Number of Samples/ Number of Exceedances	Exceeds Screening Value	Units
AFFF Area 1 Hangar 642	None (New Site)	**Surface Soil (0 to 6 inches)**					
		PFBS	2.5	1,600,000	3/0	N	µg/kg
		PFOA	0.95	1,260	5/0	N	µg/kg
		PFOS	150	1,260	5/0	N	µg/kg
		Subsurface Soil					
		PFBS	0.68 J	1,600,000	4/0	N	µg/kg
		PFOA	ND	1,260	4/0	N	µg/kg
		PFOS	0.54	1,260	4/0	N	µg/kg
		Groundwater					
		PFBS	0.036	380	4/0	N	µg/L
		PFOA	ND	0.07	4/0	N	µg/L
		PFOS	**0.59**	0.07	4/1	**Y**	µg/L
		Combined PFOA + PFOS	**0.59**	0.07	4/1	**Y**	µg/L
AFFF Area 2 Hangar 644	ST-012	**Surface Soil (0 to 6 inches)**					
		PFBS	0.760	1,600,000	2/0	N	µg/kg
		PFOA	4.3	1,260	2/0	N	µg/kg
		PFOS	480	1,260	2/0	N	µg/kg
		Subsurface Soil					
		PFBS	ND	1,600,000	4/0	N	µg/kg
		PFOA	ND	1,260	4/0	N	µg/kg
		PFOS	2.4	1,260	4/0	N	µg/kg
		Groundwater					
		PFBS	0.088	380	3/0	N	µg/L
		PFOA	ND	0.07	3/0	N	µg/L
		PFOS	0.046	0.07	3/0	N	µg/L
		Combined PFOA + PFOS	0.046	0.07	3/0	N	µg/L
AFFF Area 3 Hangar 646	None (New Site)	**Surface Soil (0 to 6 inches)**					
		PFBS	0.830 J	1,600,000	2/0	N	µg/kg
		PFOA	38	1,260	2/0	N	µg/kg
		PFOS	72	1,260	2/0	N	µg/kg
		Subsurface Soil					
		PFBS	0.20 J	1,600,000	1/0	N	µg/kg
		PFOA	ND	1,260	1/0	N	µg/kg
		PFOS	ND	1,260	1/0	N	µg/kg
		Groundwater					
		PFBS	0.10	380	3/0	N	µg/L
		PFOA	1.2	0.07	**3/1**	**Y**	µg/L
		PFOS	1.7	0.07	**3/3**	**Y**	µg/L
		Combined PFOA + PFOS	2.9	0.07	**3/3**	**Y**	µg/L
		Sediment					
		PFBS	ND	1,600,000	3/0	N	µg/kg
		PFOA	0.39	1,260	3/0	N	µg/kg
		PFOS	6.0	1,260	3/0	N	µg/kg
		Surface Water					
		PFBS	0.250	380	3/0	N	µg/L
		PFOA	**0.66**	0.07	**3/3**	**Y**	µg/L
		PFOS	**2.4**	0.07	**3/3**	**Y**	µg/L
		Combined PFOA + PFOS	**2.99**	0.07	**3/3**	**Y**	µg/L

AFFF Area	Associated Existing ERP Site ID	Parameter	Maximum Detected Concentration	Screening Value	Number of Samples/ Number of Exceedances	Exceeds Screening Value	Units
AFFF Area 4 Hangar 775	SS-38	**Surface Soil (0 to 6 inches)**					
		PFBS	360	1,600,000	1/0	N	µg/kg
		PFOA	**2,100**	1,260	**1/1**	**Y**	µg/kg
		PFOS	**100,000**	1,260	**1/1**	**Y**	µg/kg
		Subsurface Soil					
		PFBS	23.0	1,600,000	2/0	N	µg/kg
		PFOA	5.6	1,260	2/0	N	µg/kg
		PFOS	110	1,260	2/0	N	µg/kg
		Groundwater					
		PFBS	290	380	8/0	N	µg/L
		PFOA	**55**	0.07	**8/6**	**Y**	µg/L
		PFOS	**320**	0.07	**8/8**	**Y**	µg/L
		Combined PFOA + PFOS	**375**	0.07	**8/8**	**Y**	µg/L
AFFF Area 5 Fire Station	SS-38	**Surface Soil (0 to 6 inches)**					
		PFBS	2.2 J	1,600,000	4/0	N	µg/kg
		PFOA	21	1,260	4/0	N	µg/kg
		PFOS	**4,700**	1,260	**4/2**	**Y**	µg/kg
		Subsurface Soil					
		PFBS	45.0 J	1,600,000	5/0	N	µg/kg
		PFOA	32	1,260	5/0	N	µg/kg
		PFOS	120	1,260	5/0	N	µg/kg
		Groundwater					
		PFBS	3.8	380	7/0	N	µg/L
		PFOA	**26**	0.07	**7/4**	**Y**	µg/L
		PFOS	**32**	0.07	**7/7**	**Y**	µg/L
		Combined PFOA + PFOS	**48**	0.07	**7/7**	**Y**	µg/L
AFFF Area 6 T-38 Tail Fire & A-10 Crash Site	SS-38	**Surface Soil (0 to 6 inches)**					
		PFBS	0.320 J	1,600,000	3/0	N	µg/kg
		PFOA	ND	1,260	3/0	N	µg/kg
		PFOS	0.32	1,260	3/0	N	µg/kg
		Groundwater					
		PFBS	0.130	380	5/0	N	µg/L
		PFOA	**0.19**	0.07	**5/2**	**Y**	µg/L
		PFOS	**0.87**	0.07	**5/2**	**Y**	µg/L
		Combined PFOA + PFOS	**0.99**	0.07	**5/2**	**Y**	µg/L
		Sediment					
		PFBS	ND	1,600,000	1/0	N	µg/kg
		PFOA	ND	1,260	1/0	N	µg/kg
		PFOS	0.43 J	1,260	1/0	N	µg/kg
		Surface Water					
		PFBS	0.012 J	380	1/0	N	µg/L
		PFOA	0.011J	0.07	1/0	N	µg/L
		PFOS	0.049	0.07	1/0	N	µg/L
		Combined PFOA + PFOS	0.060	0.07	1/0	N	µg/L

AFFF Area	Associated Existing ERP Site ID	Parameter	Maximum Detected Concentration	Screening Value	Number of Samples/ Number of Exceedances	Exceeds Screening Value	Units
AFFF Area 7 Suspect Vehicle Yard	None (New Site)	**Surface Soil (0 to 6 inches)**					
		PFBS	ND	1,600,000	3/0	N	µg/kg
		PFOA	0.18 J	1,260	3/0	N	µg/kg
		PFOS	0.47 J	1,260	3/0	N	µg/kg
		Subsurface Soil					
		PFBS	ND	1,600,000	3/0	N	µg/kg
		PFOA	ND	1,260	3/0	N	µg/kg
		PFOS	0.27 J	1,260	3/0	N	µg/kg
		Groundwater					
		PFBS	0.024	380	3/0	N	µg/L
		PFOA	ND	0.07	3/0	N	µg/L
		PFOS	0.016 J	0.07	3/0	N	µg/L
		Combined PFOA + PFOS	0.016	0.07	3/0	N	µg/L
AFFF Area 8 Wastewater Treatment Plant	SS-39	**Subsurface Soil**					
		PFBS	ND	1,600,000	2/0	N	µg/kg
		PFOA	0.27 J	1,260	2/0	N	µg/kg
		PFOS	8.2	1,260	2/0	N	µg/kg
		Groundwater					
		PFBS	0.39	380	1/0	N	µg/L
		PFOA	**0.62**	0.07	**1/1**	**Y**	µg/L
		PFOS	**2.6**	0.07	**1/1**	**Y**	µg/L
		Combined PFOA + PFOS	**3.22**	0.07	**1/1**	**Y**	µg/L
		Sediment					
		PFBS	ND	1,600,000	2/0	N	µg/kg
		PFOA	0.13 J	1,260	2/0	N	µg/kg
		PFOS	1.4	1,260	2/0	N	µg/kg
		Surface Water					
		PFBS	0.12	380	2/0	N	µg/L
		PFOA	**0.29**	0.07	**2/2**	**Y**	µg/L
		PFOS	**1.0**	0.07	**2/2**	**Y**	µg/L
		Combined PFOA + PFOS	**1.29**	0.07	**2/2**	**Y**	µg/L

Note: **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram µg/L = micrograms per liter ND = not detected at the Method Detection Limit
PFBS = perfluorobutane sulfonate PFOA = perfluorooctanoic acid PFOS = perfluorooctane sulfonate

7.1 HANGAR 642 (AFFF AREA 1)

Two accidental releases of AFFF reportedly occurred inside Hangar 642 between 2007 and 2010. A total of 400 gallons of AFFF have reportedly been released to the environment surrounding the hangar. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Six surface soil samples (four primary, one duplicate, and a composite geotechnical sample), five subsurface soil samples (three primary, one duplicate, and a composite geotechnical sample), and four groundwater samples (three primary and a duplicate sample) were submitted to the project laboratory for analyses from AFFF Area 1. Table 31 contains a summary of the concentration of PFBS, PFOA and PFOS detected in the samples at AFFF Area 1. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of PFAS remain in the soils in the area in excess of the health-based screening criteria. However, PFOS was detected in three of the four groundwater samples, and one sample had a PFOS concentration that exceeded the health-based screening criteria. Based on the analytical results, a release of AFFF has been confirmed at AFFF Area 1 and the groundwater has been impacted.

7.2 HANGAR 644 (AFFF AREA 2)

The only reported discharge at AFFF Area 2 was an unknown but reportedly "small amount" of AFFF that was released in 2010 to the grassy area outside the mechanical room door on the west side of the hangar. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Three surface soil samples (two primary and a composite geotechnical sample), five subsurface soil samples (four primary and a composite geotechnical sample), and three groundwater samples were submitted to the project laboratory for analyses from AFFF Area 2. Table 32 contains a summary of the concentration of PFBS, PFOA, and PFOS detected in the samples at AFFF Area 2. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of PFAS remain in the soils or groundwater in the area in excess of the health-based screening criteria. Based on the analytical results, the release of AFFF in the area has not impacted the soils or groundwater at AFFF Area 2.

7.3 HANGAR 646 (AFFF AREA 3)

In 2003, a break in the water line in the mechanical room of Hangar 646 resulted in an unknown quantity of AFFF mixture being released to the environment surrounding the hangar, some of which discharged to Beatty Branch. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Three surface soil samples (two primary and a composite geotechnical sample), two subsurface soil samples (one primary and a composite geotechnical sample), three groundwater samples, three sediment samples (two primary and a field duplicate sample), and three surface water samples (two primary and a field duplicate sample) were submitted to the project laboratory for analyses from AFFF Area 3. Table 33 contains a summary of the concentration of PFBS, PFOA, and PFOS detected in the samples at AFFF Area 3. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of PFAS remain in the soils in the area or the sediment in Beatty Branch at concentrations exceeding the health-based screening criteria. However, based on the analytical results, the groundwater and surface water at AFFF Area 3 have been impacted by the release of AFFF and concentrations of PFAS compounds exceed the screening levels for drinking water sources.

Table 32 AFFF Area 1 (Hangar 642) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 1 Surface Soil					
MOODY01-001-SS-001	Perfluorobutane sulfonate (PFBS)	0.24 U	0.24	N	µg/kg
MOODY01-001-SS-001	Perfluorooctanoic acid (PFOA)	0.19 J	0.12	N	µg/kg
MOODY01-001-SS-001	Perfluorooctane sulfonate (PFOS)	1.8	0.15	N	µg/kg
MOODY01-001-SS-901 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	0.24 U	0.24	N	µg/kg
MOODY01-001-SS-901 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	0.18 J	0.11	N	µg/kg
MOODY01-001-SS-901 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	1.8	0.15	N	µg/kg
MOODY01-002-SS-001	Perfluorobutane sulfonate (PFBS)	2.5	0.25	N	µg/kg
MOODY01-002-SS-001	Perfluorooctanoic acid (PFOA)	0.95 J	0.12	N	µg/kg
MOODY01-002-SS-001	Perfluorooctane sulfonate (PFOS)	150	1.6	N	µg/kg
MOODY01-003-SS-001	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY01-003-SS-001	Perfluorooctanoic acid (PFOA)	0.25 J	0.12	N	µg/kg
MOODY01-003-SS-001	Perfluorooctane sulfonate (PFOS)	3.3	0.16	N	µg/kg
MOODY01-004-SS-001	Perfluorobutane sulfonate (PFBS)	0.24 U	0.24	N	µg/kg
MOODY01-004-SS-001	Perfluorooctanoic acid (PFOA)	0.15 J	0.12	N	µg/kg
MOODY01-004-SS-001	Perfluorooctane sulfonate (PFOS)	2.1	0.15	N	µg/kg
AFFF Area 1 Subsurface Soil					
MOODY01-001-SO-040	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY01-001-SO-040	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY01-001-SO-040	Perfluorooctane sulfonate (PFOS)	0.16 U	0.16	N	µg/kg
MOODY01-002-SO-037	Perfluorobutane sulfonate (PFBS)	0..68 J	0.24	N	µg/kg
MOODY01-002-SO-037	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY01-002-SO-037	Perfluorooctane sulfonate (PFOS)	0.30 J	0.15	N	µg/kg
MOODY01-004-SO-042	Perfluorobutane sulfonate (PFBS)	0.30 U	0.30	N	µg/kg
MOODY01-004-SO-042	Perfluorooctanoic acid (PFOA)	0.14 U	0.14	N	µg/kg
MOODY01-004-SO-042	Perfluorooctane sulfonate (PFOS)	0.26 J	0.19	N	µg/kg
MOODY01-004-SO-942 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	0.30 U	0.30	N	µg/kg
MOODY01-004-SO-942 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	0.14 U	0.14	N	µg/kg
MOODY01-004-SO-942 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	0.54 J	0.19	N	µg/kg

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 1 Groundwater					
MOODY01-001-GW-045	Perfluorobutane sulfonate (PFBS)	0.0019 U	0.0019	N	µg/L
MOODY01-001-GW-045	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY01-001-GW-045	Perfluorooctane sulfonate (PFOS)	0.0037 J	0.0033	N	µg/L
MOODY01-001-GW-045	PFOA + PFOS	0.0037 J	N/A	N	µg/L
MOODY01-001-GW-945 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	0.0019 U	0.0019	N	µg/L
MOODY01-001-GW-945 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY01-001-GW-945 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	0.0033 U	0.0033	N	µg/L
MOODY01-001-GW-945 (Field Duplicate)	PFOA + PFOS	ND	N/A	N	µg/L
MOODY01-002-GW-045	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY01-002-GW-045	Perfluorooctane sulfonate (PFOS)	0.0070 J	0.0033	N	µg/L
MOODY01-004-GW-045	Perfluorobutane sulfonate (PFBS)	0.036	0.0019	N	µg/L
MOODY01-004-GW-045	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY01-004-GW-045	Perfluorooctane sulfonate (PFOS)	**0.59**	0.0033	**Y**	µg/L
MOODY01-004-GW-045	PFOA + PFOS	**0.59**	N/A	**Y**	µg/L

Note: Shaded values indicate the parameter was not detected at the method detection limit. **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J= estimated value U = parameter not detected
ND = not detected at the method detection Limit N/A = not applicable

Table 33 AFFF Area 2 (Hangar 644) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 2 Surface Soil					
MOODY02-003-SS-001	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY02-003-SS-001	Perfluorooctanoic acid (PFOA)	0.29 J	0.12	N	µg/kg
MOODY02-003-SS-001	Perfluorooctane sulfonate (PFOS)	2.3	0.16	N	µg/kg
MOODY02-006-SS-001	Perfluorobutane sulfonate (PFBS)	0.76 J	0.25	N	µg/kg
MOODY02-006-SS-001	Perfluorooctanoic acid (PFOA)	4.3	0.12	N	µg/kg
MOODY02-006-SS-001	Perfluorooctane sulfonate (PFOS)	480	1.6	N	µg/kg
AFFF Area 2 Subsurface Soil					
MOODY02-001-SO-042	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY02-001-SO-042	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY02-001-SO-042	Perfluorooctane sulfonate (PFOS)	2.4	0.16	N	µg/kg
MOODY02-002-SO-043	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY02-002-SO-043	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY02-002-SO-043	Perfluorooctane sulfonate (PFOS)	0.25 J	0.16	N	µg/kg
MOODY02-003-SO-042	Perfluorobutane sulfonate (PFBS)	0.28 U	0.28	N	µg/kg
MOODY02-003-SO-042	Perfluorooctanoic acid (PFOA)	0.13 U	0.13	N	µg/kg
MOODY02-003-SO-042	Perfluorooctane sulfonate (PFOS)	0.18 U	0.18	N	µg/kg
MOODY02-006-SO-042	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY02-006-SO-042	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY02-006-SO-042	Perfluorooctane sulfonate (PFOS)	0.16 U	0.16	N	µg/kg

AFFF Area 2 Groundwater						
MOODY02-004-GW-043	Perfluorobutane sulfonate (PFBS)	0.0098	J	0.0019	N	µg/L
MOODY02-004-GW-043	Perfluorooctanoic acid (PFOA)	0.0053	U	0.0053	N	µg/L
MOODY02-004-GW-043	Perfluorooctane sulfonate (PFOS)	0.046		0.0033	N	µg/L
MOODY02-004-GW-043	PFOA +PFOS	0.046		N/A	N	µg/L
MOODY02-005-GW-043	Perfluorobutane sulfonate (PFBS)	0.0035	J	0.0019	N	µg/L
MOODY02-005-GW-043	Perfluorooctanoic acid (PFOA)	0.0053	U	0.0053	N	µg/L
MOODY02-005-GW-043	Perfluorooctane sulfonate (PFOS)	0.011	J	0.0033	N	µg/L
MOODY02-005-GW-043	PFOA +PFOS	0.011	J	N/A	N	µg/L
MOODY02-006-GW-048	Perfluorobutane sulfonate (PFBS)	0.0880		0.0019	N	µg/L
MOODY02-006-GW-048	Perfluorooctanoic acid (PFOA)	0.0053	U	0.0053	N	µg/L
MOODY02-006-GW-048	Perfluorooctane sulfonate (PFOS)	0.013	J	0.0033	N	µg/L
MOODY02-006-GW-048	PFOA + PFOS	0.013	J	N/A	N	µg/L

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J= estimated value U = parameter not detected
N/A = not applicable

Table 34 AFFF Area 3 (Hangar 646) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 3 Surface Soil					
MOODY03-002-SS-001	Perfluorobutane sulfonate (PFBS)	0.19 U	0.19	N	µg/kg
MOODY03-002-SS-001	Perfluorooctanoic acid (PFOA)	0.19 J	0.13	N	µg/kg
MOODY03-002-SS-001	Perfluorooctane sulfonate (PFOS)	1.7	0.18	N	µg/kg
MOODY03-004-SS-001	Perfluorobutane sulfonate (PFBS)	0.83 J	0.19	N	µg/kg
MOODY03-004-SS-001	Perfluorooctanoic acid (PFOA)	38	0.13	N	µg/kg
MOODY03-004-SS-001	Perfluorooctane sulfonate (PFOS)	72	1.8	N	µg/kg
AFFF Area 3 Subsurface Soil					
MOODY03-003-SO-042	Perfluorobutane sulfonate (PFBS)	0.17 U	0.17	N	µg/kg
MOODY03-003-SO-042	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY03-003-SO-042	Perfluorooctane sulfonate (PFOS)	0.19 U	0.19	N	µg/kg
AFFF Area 3 Groundwater					
MOODY03-001-GW-042	Perfluorobutane sulfonate (PFBS)	0.1	0.061	N	µg/L
MOODY03-001-GW-042	Perfluorooctanoic acid (PFOA)	**1.2**	0.027	**Y**	µg/L
MOODY03-001-GW-042	Perfluorooctane sulfonate (PFOS)	**1.7**	0.017	**Y**	µg/L
MOODY03-001-GW-042	PFOA + PFOS	**2.9**	N/A	**Y**	µg/L
MOODY03-003-GW-054	Perfluorobutane sulfonate (PFBS)	0.061	0.0019	N	µg/L
MOODY03-003-GW-054	Perfluorooctanoic acid (PFOA)	0.060	0.0053	N	µg/L
MOODY03-003-GW-054	Perfluorooctane sulfonate (PFOS)	**0.27**	0.0033	**Y**	µg/L
MOODY03-003-GW-054	PFOA + PFOS	**0.33**	N/A	**Y**	µg/L
MOODY03-005-GW-053	Perfluorobutane sulfonate (PFBS)	0.046	0.0019	N	µg/L
MOODY03-005-GW-053	Perfluorooctanoic acid (PFOA)	**0.052**	0.0053	**Y**	µg/L
MOODY03-005-GW-053	Perfluorooctane sulfonate (PFOS)	**0.80**	0.0033	**Y**	µg/L
MOODY03-005-GW-053	PFOA +PFOS	**0.852**	N/A	**Y**	µg/L
AFFF Area 3 Sediment					
MOODY03-006-SD-001	Perfluorobutane sulfonate (PFBS)	0.30 U	0.30	N	µg/kg
MOODY03-006-SD-001	Perfluorooctanoic acid (PFOA)	0.31 J	0.14	N	µg/kg
MOODY03-006-SD-001	Perfluorooctane sulfonate (PFOS)	5.3	0.19	N	µg/kg
MOODY03-006-SD-901 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY03-006-SD-901 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	0.25 J	0.12	N	µg/kg
MOODY03-006-SD-901 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	3.0 J	0.16	N	µg/kg
MOODY03-007-SD-001	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY03-007-SD-001	Perfluorooctanoic acid (PFOA)	0.39 J	0.12	N	µg/kg
MOODY03-007-SD-001	Perfluorooctane sulfonate (PFOS)	6.0	0.16	N	µg/kg

AFFF Area 3 Surface Water					
MOODY03-006-SW-001	Perfluorobutane sulfonate (PFBS)	0.25	0.0019	N	µg/L
MOODY03-006-SW-001	Perfluorooctanoic acid (PFOA)	**0.59**	0.053	**Y**	µg/L
MOODY03-006-SW-001	Perfluorooctane sulfonate (PFOS)	**2.4**	0.033	**Y**	µg/L
MOODY03-006-SW-001	PFOA + PFOS	**2.99**	N/A	**Y**	µg/L
MOODY03-006-SW-901 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	0.23	0.0019	N	µg/L
MOODY03-006-SW-901 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	**0.66**	0.0053	**Y**	µg/L
MOODY03-006-SW-901 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	**2.2**	0.017	**Y**	µg/L
MOODY03-006-SW-901 (Field Duplicate)	PFOA +PFOS	**2.86**	N/A	**Y**	µg/L
MOODY03-007-SW-001	Perfluorobutane sulfonate (PFBS)	0.22	0.0019	N	µg/L
MOODY03-007-SW-001	Perfluorooctanoic acid (PFOA)	**0.30**	0.0053	**Y**	µg/L
MOODY03-007-SW-001	Perfluorooctane sulfonate (PFOS)	**1.3**	0.017	**Y**	µg/L
MOODY03-007-SW-001	PFOA +PFOS	**1.60**	N/A	**Y**	µg/L

Note: Shaded values indicate the parameter was not detected at the method detection limit. **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J= estimated value N/A = not applicable
U = parameter not detected

7.4 HANGAR 775 (AFFF AREA 4)

Unknown quantities of AFFF were released to the environment around Hangar 775 in two incidents in 2010. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Two surface soil samples (a primary and a composite geotechnical sample), three subsurface soil samples (two primary and a composite geotechnical sample), and eight groundwater samples (seven primary and one field duplicate sample) were submitted to the project laboratory for analyses from AFFF Area 4. Table 34 contains a summary of the concentration of PFOA and PFOS detected in the samples at AFFF Area 4. The analytical results of the subsurface soil samples do not indicate concentrations of PFAS remaining in the soils at depths exceeding the health-based screening criteria. However, the analytical results for the surface soil sample indicate that the surface soil near the mechanical room door has been impacted by the release of AFFF and concentrations remain that exceed the screening criteria. The analytical results of the groundwater samples also show that the groundwater at AFFF Area 4 has been impacted by the release of AFFF and that concentrations of PFAS compounds in the groundwater exceed the screening values for drinking water sources.

7.5 FIRE STATION (BUILDING 621) (AFFF AREA 5)

Unknown quantities of AFFF have been discharged in the past and are discharged regularly during equipment operational checks and certification activities at the fire station. Samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Four surface soil samples (three primary samples, a field duplicate sample, and a composite geotechnical sample), six subsurface soil samples (four primary samples, a field duplicate sample, and a composite geotechnical sample), and seven groundwater samples (six primary samples and one field duplicate sample) were submitted to the project laboratory for analyses from AFFF Area 5. Table 35 contains a summary of the concentration of PFOA and PFOS detected in the samples at AFFF Area 5. The analytical results for the surface soil samples indicate that concentrations of PFAS are present in the surface soil in the area where AFFF is mixed and trucks are filled with AFFF. Although the detected concentrations do not exceed the screening criteria for PFOS, the concentrations of PFAS remaining in the surface soils do indicate potential impacts to the soils. The analytical results of the groundwater samples show that the groundwater at AFFF Area 5 has been impacted by the release of AFFF and that concentrations of PFAS compounds in the groundwater exceed the screening values for drinking water sources.

Table 35 AFFF Area 4 (Hangar 775) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 4 Surface Soil					
MOODY04-003-SS-001	Perfluorobutane sulfonate (PFBS)	360	23	N	µg/kg
MOODY04-003-SS-001	Perfluorooctanoic acid (PFOA)	**2,100**	11	**Y**	µg/kg
MOODY04-003-SS-001	Perfluorooctane sulfonate (PFOS)	**100,000**	1400	**Y**	µg/kg
AFFF Area 4 Subsurface Soil					
MOODY04-002-SO-028	Perfluorobutane sulfonate (PFBS)	0.28 J	0.23	N	µg/kg
MOODY04-002-SO-028	Perfluorooctanoic acid (PFOA)	0.21 J	0.11	N	µg/kg
MOODY04-002-SO-028	Perfluorooctane sulfonate (PFOS)	3.4	0.14	N	µg/kg
MOODY04-003-SO-032	Perfluorobutane sulfonate (PFBS)	23.0	0.22	N	µg/kg
MOODY04-003-SO-032	Perfluorooctanoic acid (PFOA)	5.6	0.11	N	µg/kg
MOODY04-003-SO-032	Perfluorooctane sulfonate (PFOS)	110	1.4	N	µg/kg
AFFF Area 4 Groundwater					
MOODY04-001-GW-032	Perfluorobutane sulfonate (PFBS)	0.61	0.0019	N	µg/L
MOODY04-001-GW-032	Perfluorooctanoic acid (PFOA)	**0.35**	0.0053	**Y**	µg/L
MOODY04-001-GW-032	Perfluorooctane sulfonate (PFOS)	**12.0**	0.066	**Y**	µg/L
MOODY04-001-GW-032	PFOA + PFOS	**12.35**	N/A	**Y**	µg/L
MOODY04-002-GW-030	Perfluorobutane sulfonate (PFBS)	0.12	0.0019	N	µg/L
MOODY04-002-GW-030	Perfluorooctanoic acid (PFOA)	**0.094**	0.0053	**Y**	µg/L
MOODY04-002-GW-030	Perfluorooctane sulfonate (PFOS)	**1.8**	0.017	**Y**	µg/L
MOODY04-002-GW-030	PFOA + PFOS	**1.894**	N/A	**Y**	µg/L
MOODY04-003-GW-032	Perfluorobutane sulfonate (PFBS)	290	2.3	N	µg/L
MOODY04-003-GW-032	Perfluorooctanoic acid (PFOA)	**54**	2.0	**Y**	µg/L
MOODY04-003-GW-032	Perfluorooctane sulfonate (PFOS)	**300**	1.4	**Y**	µg/L
MOODY04-003-GW-032	PFOA + PFOS	**354**	N/A	**Y**	µg/L
MOODY04-003-GW-932 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	290	2.3	N	µg/L
MOODY04-003-GW-932 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	**55**	2.0	**Y**	µg/L
MOODY04-003-GW-932 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	**320**	1.4	**Y**	µg/L
MOODY04-003-GW-932 (Field Duplicate)	PFOA + PFOS	**375**	N/A	**Y**	µg/L
MOODY04-004-GW-034	Perfluorobutane sulfonate (PFBS)	2.7	0.0019	N	µg/L
MOODY04-004-GW-034	Perfluorooctanoic acid (PFOA)	**0.58**	0.0053	**Y**	µg/L
MOODY04-004-GW-034	Perfluorooctane sulfonate (PFOS)	**6.9**	0.033	**Y**	µg/L
MOODY04-004-GW-034	PFOA + PFOS	**7.48**	N/A	**Y**	µg/L

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 4 Groundwater (continued)					
MOODY04-SS38-MW090-061	Perfluorobutane sulfonate (PFBS)	0.29	0.0019	N	µg/L
MOODY04-SS38-MW090-061	Perfluorooctanoic acid (PFOA)	**0.17**	0.0053	**Y**	µg/L
MOODY04-SS38-MW090-061	Perfluorooctane sulfonate (PFOS)	**6.10**	0.033	**Y**	µg/L
MOODY04-SS38-MW090-061	PFOA + PFOS	**6.27**	N/A	**Y**	µg/L
MOODY04-SS38-MW091-061	Perfluorobutane sulfonate (PFBS)	0.022	0.0019	N	µg/L
MOODY04-SS38-MW091-061	Perfluorooctanoic acid (PFOA)	0.025	0.0053	N	µg/L
MOODY04-SS38-MW091-061	Perfluorooctane sulfonate (PFOS)	**0.35**	0.0033	**Y**	µg/L
MOODY04-SS38-MW091-061	PFOA + PFOS	**0.375**	N/A	**Y**	µg/L
MOODY04-SS38-MW094-062	Perfluorobutane sulfonate (PFBS)	0.026	0.0019	N	µg/L
MOODY04-SS38-MW094-062	Perfluorooctanoic acid (PFOA)	0.024	0.0053	N	µg/L
MOODY04-SS38-MW094-062	Perfluorooctane sulfonate (PFOS)	**0.30**	0.0033	**Y**	µg/L
MOODY04-SS38-MW094-062	PFOA + PFOS	**0.324**	N/A	**Y**	µg/L

Note: **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J= estimated value N/A = not applicable

Table 36 AFFF Area 5 (Fire Station, Building 621) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 5 Surface Soil					
MOODY05-001-SS-001	Perfluorobutane sulfonate (PFBS)	0.32 J	0.22	N	µg/kg
MOODY05-001-SS-001	Perfluorooctanoic acid (PFOA)	0.80 J	0.10	N	µg/kg
MOODY05-001-SS-001	Perfluorooctane sulfonate (PFOS)	84.0	1.50	N	µg/kg
MOODY05-002-SS-001	Perfluorobutane sulfonate (PFBS)	0.72 J	0.25	N	µg/kg
MOODY05-002-SS-001	Perfluorooctanoic acid (PFOA)	4.60	0.12	N	µg/kg
MOODY05-002-SS-001	Perfluorooctane sulfonate (PFOS)	**4,700**	16.0	**Y**	µg/kg
MOODY05-002-SS-901 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	2.2 J	0.24	N	µg/kg
MOODY05-002-SS-901 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	8.9	0.11	N	µg/kg
MOODY05-002-SS-901 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	**3,600**	15.0	**Y**	µg/kg
MOODY05-003-SS-001	Perfluorobutane sulfonate (PFBS)	1.10	0.21	N	µg/kg
MOODY05-003-SS-001	Perfluorooctanoic acid (PFOA)	21.0	0.10	N	µg/kg
MOODY05-003-SS-001	Perfluorooctane sulfonate (PFOS)	57.0	1.30	N	µg/kg
AFFF Area 5 Subsurface Soil					
MOODY05-001-SO-043	Perfluorobutane sulfonate (PFBS)	45.0 J	0.28	N	µg/kg
MOODY05-001-SO-043	Perfluorooctanoic acid (PFOA)	25.0	0.13	N	µg/kg
MOODY05-001-SO-043	Perfluorooctane sulfonate (PFOS)	74.0	1.80	N	µg/kg
MOODY05-001-SO-943 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	33.0 J	0.25	N	µg/kg
MOODY05-001-SO-943 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	32.0	0.12	N	µg/kg
MOODY05-001-SO-943 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	120	1.60	N	µg/kg
MOODY05-002-SO-041	Perfluorobutane sulfonate (PFBS)	0.74 J	0.23	N	µg/kg
MOODY05-002-SO-041	Perfluorooctanoic acid (PFOA)	3.30	0.11	N	µg/kg
MOODY05-002-SO-041	Perfluorooctane sulfonate (PFOS)	2.90	0.15	N	µg/kg
MOODY05-003-SO-043	Perfluorobutane sulfonate (PFBS)	0.28 J	0.23	N	µg/kg
MOODY05-003-SO-043	Perfluorooctanoic acid (PFOA)	0.30 J	0.11	N	µg/kg
MOODY05-003-SO-043	Perfluorooctane sulfonate (PFOS)	0.72 J	0.15	N	µg/kg
MOODY05-004-SO-037	Perfluorobutane sulfonate (PFBS)	1.10	0.25	N	µg/kg
MOODY05-004-SO-037	Perfluorooctanoic acid (PFOA)	16.0	0.12	N	µg/kg
MOODY05-004-SO-037	Perfluorooctane sulfonate (PFOS)	6.80	0.16	N	µg/kg
AFFF Area 5 Groundwater					
MOODY05-001-GW-046	Perfluorobutane sulfonate (PFBS)	3.70	0.019	N	µg/L
MOODY05-001-GW-046	Perfluorooctanoic acid (PFOA)	**4.90**	0.053	**Y**	µg/L
MOODY05-001-GW-046	Perfluorooctane sulfonate (PFOS)	**18.0**	0.170	**Y**	µg/L

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
MOODY05-001-GW-046	PFOA + PFOS	**22.90**	N/A	**Y**	µg/L
MOODY05-002-GW-046	Perfluorobutane sulfonate (PFBS)	3.80	0.019	N	µg/L
MOODY05-002-GW-046	Perfluorooctanoic acid (PFOA)	**4.90**	0.053	**Y**	µg/L
MOODY05-002-GW-046	Perfluorooctane sulfonate (PFOS)	**32.0**	0.17	**Y**	µg/L
MOODY05-002-GW-046	PFOA + PFOS	**36.90**	N/A	**Y**	µg/L
MOODY05-003-GW-044	Perfluorobutane sulfonate (PFBS)	0.52	0.0019	N	µg/L
MOODY05-003-GW-044	Perfluorooctanoic acid (PFOA)	**1.10**	0.053	**Y**	µg/L
MOODY05-003-GW-044	Perfluorooctane sulfonate (PFOS)	**2.60**	0.033	**Y**	µg/L
MOODY05-003-GW-044	PFOA + PFOS	**3.70**	N/A	**Y**	µg/L
MOODY05-004-GW-038	Perfluorobutane sulfonate (PFBS)	3.20	0.0095	N	µg/L
MOODY05-004-GW-038	Perfluorooctanoic acid (PFOA)	**26.0**	0.20	**Y**	µg/L
MOODY05-004-GW-038	Perfluorooctane sulfonate (PFOS)	**12.0**	0.066	**Y**	µg/L
MOODY05-004-GW-038	PFOA + PFOS	**38.0**	N/A	**Y**	µg/L
AFFF Area 5 Groundwater					
MOODY05-SS38-MW134-079	Perfluorobutane sulfonate (PFBS)	0.0095 J	0.0019	N	µg/L
MOODY05-SS38-MW134-079	Perfluorooctanoic acid (PFOA)	0.010 J	0.0053	N	µg/L
MOODY05-SS38-MW134-079	Perfluorooctane sulfonate (PFOS)	**0.23**	0.0033	**Y**	µg/L
MOODY05-SS38-MW134-079	PFOA + PFOS	**0.24**	N/A	**Y**	µg/L
MOODY05-SS38-MW135-080	Perfluorobutane sulfonate (PFBS)	0.020	0.0019	N	µg/L
MOODY05-SS38-MW135-080	Perfluorooctanoic acid (PFOA)	0.011 J	0.0053	N	µg/L
MOODY05-SS38-MW135-080	Perfluorooctane sulfonate (PFOS)	**0.72 J**	0.0033	**Y**	µg/L
MOODY05-SS38-MW135-080	PFOA + PFOS	**0.731**	N/A	**Y**	µg/L
MOODY05-SS38-MW135-980 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	0.020 J	0.0019	N	µg/L
MOODY05-SS38-MW135-980 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	0.014 J	0.0053	N	µg/L
MOODY05-SS38-MW135-980 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	**0.66**	0.0033	**Y**	µg/L
MOODY05-SS38-MW135-980 (Field Duplicate)	PFOA + PFOS	**0.674 J**	N/A	**Y**	µg/L

Note: **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J=estimated N/A = not applicable

7.6 T-38 TAIL FIRE AND A-10 CRASH SITE (AFFF AREA 6)

Unknown quantities of AFFF were discharged in the area during two emergency response incidents. Samples were collected during the SI in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Surface soils were reportedly removed following the emergency response incidents so no surface soil samples were collected in the SI. Four subsurface soil samples (three primary samples and a composite geotechnical sample), four groundwater samples, a sediment sample, and a surface water sample were submitted to the project laboratory for analyses from AFFF Area 6. Table 36 contains a summary of the concentration of PFOA and PFOS detected in the samples at AFFF Area 6. The analytical results of the groundwater samples show that the groundwater at AFFF Area 6 has been impacted by the release of AFFF and that concentrations of PFAS compounds in the groundwater, especially on the west side of the runway, exceed the screening values for drinking water sources.

7.7 SUSPECT VEHICLE STORAGE YARD (AFFF AREA 7)

The only potential releases of AFFF in the Suspect Vehicle Yard area were from small quantities of AFFF residue remaining on the damaged aircraft pieces stored in the fenced compound. The release scenario was for the AFFF residue to wash off of the equipment pieces and be carried by the surface run-off to the low-lying areas adjacent to the asphalt-paved compound. During the SI, samples were collected in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Four surface soil samples (three primary samples and a composite geotechnical sample), four subsurface soil samples (three primary samples and a composite geotechnical sample), and three groundwater samples were submitted to the project laboratory for analyses from AFFF Area 7. Table 37 contains a summary of the concentration of PFOA and PFOS detected in the samples at AFFF Area 7. The results for the analyses of the surface and subsurface soil samples do not indicate concentrations of PFAS remain in the soils or groundwater in the area in excess of the health-based screening criteria. Based on the analytical results, any releases of AFFF in the area have not impacted the soils or groundwater at AFFF Area 7.

7.8 WASTEWATER TREATMENT PLANT (AFFF AREA 8)

Unknown quantities of AFFF have been discharged to the settling ponds at the WWTP. Samples were collected during the SI in the most likely areas for PFAS contamination to be detected in the area based on surface drainage patterns and the groundwater flow direction. Three subsurface soil samples (one primary sample, one field duplicate sample, and a composite geotechnical sample), one groundwater sample, two sediment samples, and two surface water samples were submitted to the project laboratory for analyses from AFFF Area 8. Table 38 contains a summary of the concentration of PFOA and PFOS detected in the samples at AFFF Area 8. The analytical results of the groundwater and surface water samples show that the groundwater at AFFF Area 8 and the surface water in Beatty Branch have been impacted by the release of AFFF and that concentrations of PFAS compounds in the groundwater and surface water exceed the screening values for drinking water sources.

Table 37 AFFF Area 6 (T-38 Tail Fire and A-10 Crash Site) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 6 Subsurface Soil					
MOODY06-001-SO-029	Perfluorobutane sulfonate (PFBS)	0.23 U	0.23	N	µg/kg
MOODY06-001-SO-029	Perfluorooctanoic acid (PFOA)	0.11 U	0.11	N	µg/kg
MOODY06-001-SO-029	Perfluorooctane sulfonate (PFOS)	0.32 J	0.15	N	µg/kg
MOODY06-002-SO-032	Perfluorobutane sulfonate (PFBS)	0.23 U	0.23	N	µg/kg
MOODY06-002-SO-032	Perfluorooctanoic acid (PFOA)	0.11 U	0.11	N	µg/kg
MOODY06-002-SO-032	Perfluorooctane sulfonate (PFOS)	0.27 J	0.14	N	µg/kg
MOODY06-003-SO-028	Perfluorobutane sulfonate (PFBS)	0.23 U	0.23	N	µg/kg
MOODY06-003-SO-028	Perfluorooctanoic acid (PFOA)	0.11 U	0.11	N	µg/kg
MOODY06-003-SO-028	Perfluorooctane sulfonate (PFOS)	0.24 J	0.15	N	µg/kg
AFFF Area 6 Groundwater					
MOODY06-001-GW-030	Perfluorobutane sulfonate (PFBS)	0.12	0.0019	N	µg/L
MOODY06-001-GW-030	Perfluorooctanoic acid (PFOA)	**0.19**	0.0053	**Y**	µg/L
MOODY06-001-GW-030	Perfluorooctane sulfonate (PFOS)	**0.46**	0.0033	**Y**	µg/L
MOODY06-001-GW-030	PFOA + PFOS	**0.65**	N/A	**Y**	µg/L
MOODY06-002-GW-033	Perfluorobutane sulfonate (PFBS)	0.13	0.0019	N	µg/L
MOODY06-002-GW-033	Perfluorooctanoic acid (PFOA)	**0.12**	0.0053	**Y**	µg/L
MOODY06-002-GW-033	Perfluorooctane sulfonate (PFOS)	**0.87**	0.017	**Y**	µg/L
MOODY06-002-GW-033	PFOA + PFOS	**0.99**	N/A	**Y**	µg/L
MOODY06-003-GW-030	Perfluorobutane sulfonate (PFBS)	0.011 J	0.0019	N	µg/L
MOODY06-003-GW-030	Perfluorooctanoic acid (PFOA)	0.0060 J	0.0053	N	µg/L
MOODY06-003-GW-030	Perfluorooctane sulfonate (PFOS)	0.069	0.0033	N	µg/L
MOODY06-003-GW-030	PFOA + PFOS	**0.075 J**	**N/A**	**Y**	µg/L
MOODY06-004-GW-030	Perfluorobutane sulfonate (PFBS)	0.0062 J	0.0019	N	µg/L
MOODY06-004-GW-030	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY06-004-GW-030	Perfluorooctane sulfonate (PFOS)	0.0058 J	0.0033	N	µg/L
MOODY06-004-GW-030	PFOA + PFOS	0.0058 J	N/A	N	µg/L
MOODY06-005-GW-030	Perfluorobutane sulfonate (PFBS)	0.011 J	0.0019	N	µg/L
MOODY06-005-GW-030	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY06-005-GW-030	Perfluorooctane sulfonate (PFOS)	0.035	0.0033	N	µg/L
MOODY06-005-GW-030	PFOA + PFOS	0.035	N/A	N	µg/L

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 6 Sediment					
MOODY06-006-SD-001	Perfluorobutane sulfonate (PFBS)	0.28 U	0.28	N	µg/kg
MOODY06-006-SD-001	Perfluorooctanoic acid (PFOA)	0.13 U	0.13	N	µg/kg
MOODY06-006-SD-001	Perfluorooctane sulfonate (PFOS)	0.43 J	0.18	N	µg/kg
AFFF Area 6 Surface Water					
MOODY06-006-SW-001	Perfluorobutane sulfonate (PFBS)	0.012 J	0.0019	N	µg/L
MOODY06-006-SW-001	Perfluorooctanoic acid (PFOA)	0.011 J	0.0053	N	µg/L
MOODY06-006-SW-001	Perfluorooctane sulfonate (PFOS)	0.049	0.0033	N	µg/L
MOODY06-006-SW-001	PFOA + PFOS	0.060 J	N/A	N	µg/L

Note: Shaded values indicate the parameter was not detected at the method detection limit. **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J= estimated value N/A = not applicable
U = parameter not detected

Table 38 AFFF Area 7 (Suspect Vehicle Storage Yard) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 7 Surface Soil					
MOODY07-001-SS-001	Perfluorobutane sulfonate (PFBS)	0.28 U	0.28	N	µg/kg
MOODY07-001-SS-001	Perfluorooctanoic acid (PFOA)	0.13 U	0.13	N	µg/kg
MOODY07-001-SS-001	Perfluorooctane sulfonate (PFOS)	0.23 J	0.18	N	µg/kg
MOODY07-002-SS-001	Perfluorobutane sulfonate (PFBS)	0.28 U	0.28	N	µg/kg
MOODY07-002-SS-001	Perfluorooctanoic acid (PFOA)	0.13 U	0.13	N	µg/kg
MOODY07-002-SS-001	Perfluorooctane sulfonate (PFOS)	0.33 J	0.18	N	µg/kg
MOODY07-003-SS-001	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY07-003-SS-001	Perfluorooctanoic acid (PFOA)	0.18 J	0.12	N	µg/kg
MOODY07-003-SS-001	Perfluorooctane sulfonate (PFOS)	0.47 J	0.16	N	µg/kg
AFFF Area 7 Subsurface Soil					
MOODY07-001-SO-014	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY07-001-SO-014	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY07-001-SO-014	Perfluorooctane sulfonate (PFOS)	0.21 J	0.16	N	µg/kg
MOODY07-002-SO-015	Perfluorobutane sulfonate (PFBS)	0.30 U	0.30	N	µg/kg
MOODY07-002-SO-015	Perfluorooctanoic acid (PFOA)	0.14 U	0.14	N	µg/kg
MOODY07-002-SO-015	Perfluorooctane sulfonate (PFOS)	0.23 J	0.19	N	µg/kg
MOODY07-003-SO-014	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY07-003-SO-014	Perfluorooctanoic acid (PFOA)	0.12 U	0.12	N	µg/kg
MOODY07-003-SO-014	Perfluorooctane sulfonate (PFOS)	0.27 J	0.16	N	µg/kg
AFFF Area 7 Groundwater					
MOODY07-001-GW-020	Perfluorobutane sulfonate (PFBS)	0.0042 J	0.0019	N	µg/L
MOODY07-001-GW-020	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY07-001-GW-020	Perfluorooctane sulfonate (PFOS)	0.016 J	0.0033	N	µg/L
MOODY07-001-GW-020	PFOA + PFOS	0.016 J	N/A	N	µg/L
MOODY07-002-GW-020	Perfluorobutane sulfonate (PFBS)	0.0032 J	0.0019	N	µg/L
MOODY07-002-GW-020	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY07-002-GW-020	Perfluorooctane sulfonate (PFOS)	0.011 J	0.0033	N	µg/L
MOODY07-002-GW-020	PFOA + PFOS	0.011 J	N/A	N	µg/L
MOODY07-003-GW-020	Perfluorobutane sulfonate (PFBS)	0.024	0.0019	N	µg/L
MOODY07-003-GW-020	Perfluorooctanoic acid (PFOA)	0.0053 U	0.0053	N	µg/L
MOODY07-003-GW-020	Perfluorooctane sulfonate (PFOS)	0.015 J	0.0033	N	µg/L
MOODY07-003-GW-020	PFOA + PFOS	0.015 J	N/A	N	µg/L

Note: Shaded values indicate the parameter was not detected at the method detection limit.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J= estimated value U = parameter not detected N/A = not applicable

Table 39 AFFF Area 8 (Wastewater Treatment Plant) Sample Summary

Sample ID	Parameter	Concentration	Method Detection Limit	Exceeds Screening Value	Units
AFFF Area 8 Subsurface Soil					
MOODY08-001-SO-018	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY08-001-SO-018	Perfluorooctanoic acid (PFOA)	0.27 J	0.12	N	µg/kg
MOODY08-001-SO-018	Perfluorooctane sulfonate (PFOS)	8.2	0.16	N	µg/kg
MOODY08-001-SO-918 (Field Duplicate)	Perfluorobutane sulfonate (PFBS)	0.23 U	0.23	N	µg/kg
MOODY08-001-SO-918 (Field Duplicate)	Perfluorooctanoic acid (PFOA)	0.26 J	0.11	N	µg/kg
MOODY08-001-SO-918 (Field Duplicate)	Perfluorooctane sulfonate (PFOS)	2.1	0.15	N	µg/kg
AFFF Area 8 Groundwater					
MOODY08-001-GW-017	Perfluorobutane sulfonate (PFBS)	0.39	0.0019	N	µg/L
MOODY08-001-GW-017	Perfluorooctanoic acid (PFOA)	**0.62**	0.0053	**Y**	µg/L
MOODY08-001-GW-017	Perfluorooctane sulfonate (PFOS)	**2.60**	0.033	**Y**	µg/L
MOODY08-001-GW-017	PFOA + PFOS	**3.22**	N/A	**Y**	µg/L
AFFF Area 8 Sediment					
MOODY08-002-SD-001	Perfluorobutane sulfonate (PFBS)	0.23 U	0.23	N	µg/kg
MOODY08-002-SD-001	Perfluorooctanoic acid (PFOA)	0.12 J	0.11	N	µg/kg
MOODY08-002-SD-001	Perfluorooctane sulfonate (PFOS)	0.99	0.15	N	µg/kg
MOODY08-003-SD-001	Perfluorobutane sulfonate (PFBS)	0.25 U	0.25	N	µg/kg
MOODY08-003-SD-001	Perfluorooctanoic acid (PFOA)	0.13 J	0.12	N	µg/kg
MOODY08-003-SD-001	Perfluorooctane sulfonate (PFOS)	1.40	0.16	N	µg/kg
AFFF Area 8 Surface Water					
MOODY08-002-SW-001	Perfluorobutane sulfonate (PFBS)	0.057	0.0019	N	µg/L
MOODY08-002-SW-001	Perfluorooctanoic acid (PFOA)	**0.14**	0.0053	**Y**	µg/L
MOODY08-002-SW-001	Perfluorooctane sulfonate (PFOS)	**0.94**	0.0033	**Y**	µg/L
MOODY08-002-SW-001	PFOA + PFOS	**1.08**	N/A	**Y**	µg/L
MOODY08-003-SW-001	Perfluorobutane sulfonate (PFBS)	0.12	0.0019	N	µg/L
MOODY08-003-SW-001	Perfluorooctanoic acid (PFOA)	**0.29**	0.0053	**Y**	µg/L
MOODY08-003-SW-001	Perfluorooctane sulfonate (PFOS)	**1.0**	0.017	**Y**	µg/L
MOODY08-003-SW-001	PFOA + PFOS	**1.29**	N/A	**Y**	µg/L

Note: Shaded values indicate the parameter was not detected at the method detection limit. **Bold** values exceeded the screening levels.
µg/kg = micrograms per kilogram µg/L = micrograms per liter J= estimated value N/A = not applicable
U = parameter not detected

8.0 REFERENCES

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Appendix A

AFFF Area-Specific Figures

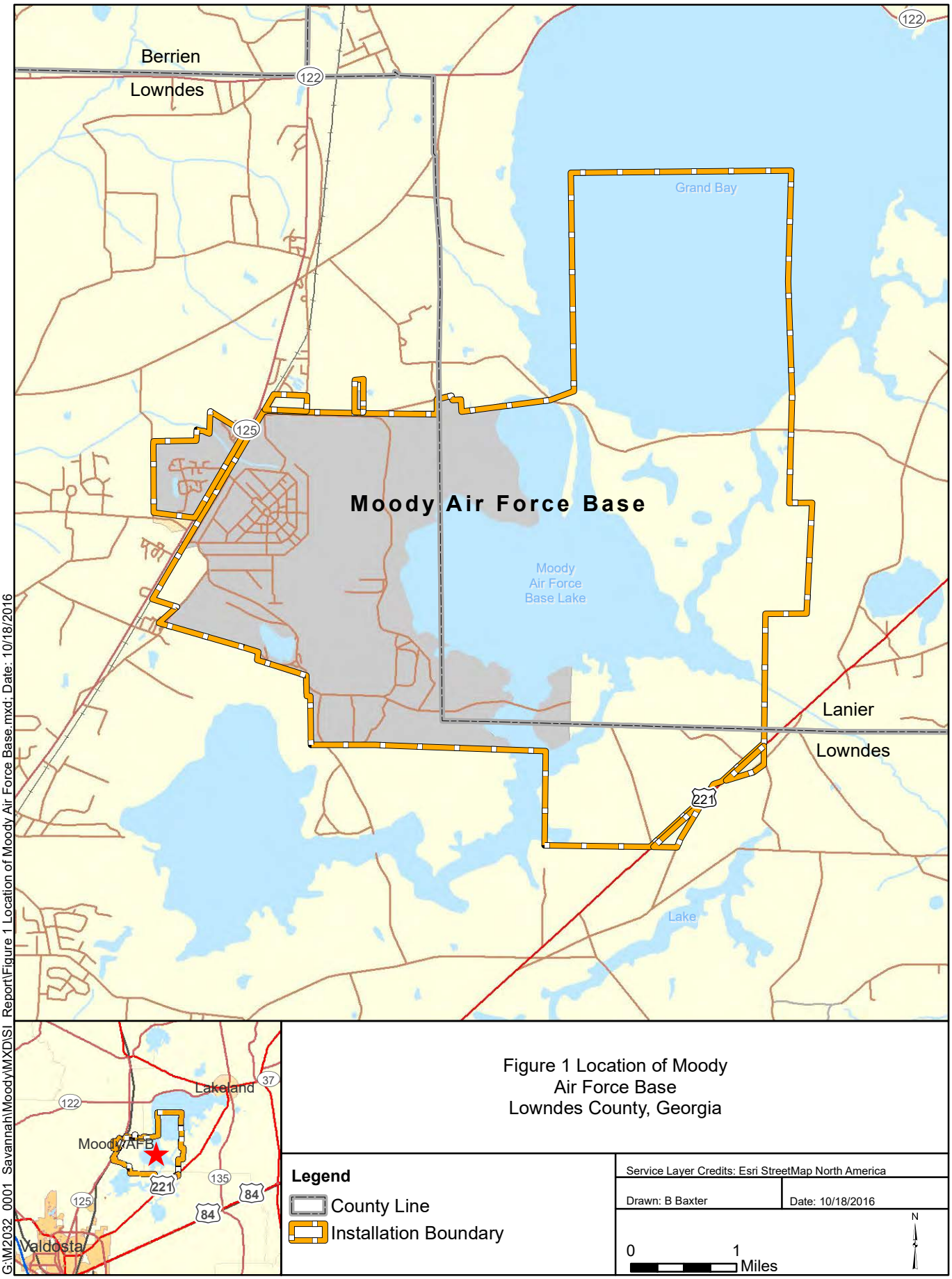


Figure 1 Location of Moody
Air Force Base
Lowndes County, Georgia

Wastewater Treatment Plant (AFFF Area 8)

Hangar 642 (AFFF Area 1)

Hangar 644 (AFFF Area 2)

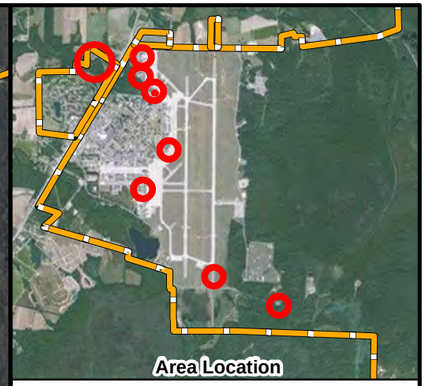
Hangar 646 (AFFF Area 3)

Fire Station (Building 621) (AFFF Area 5)

Hangar 775 (AFFF Area 4)

T-38 Tail Fire & A-10 Crash Site (AFFF Area 6)

Suspect Vehicle Yard (AFFF Area 7)



Legend

AFFF Inspection Areas

Installation Boundary

N

0 0.5

Miles

Moody Air Force Base, Georgia

Figure 2 AFFF Area Locations

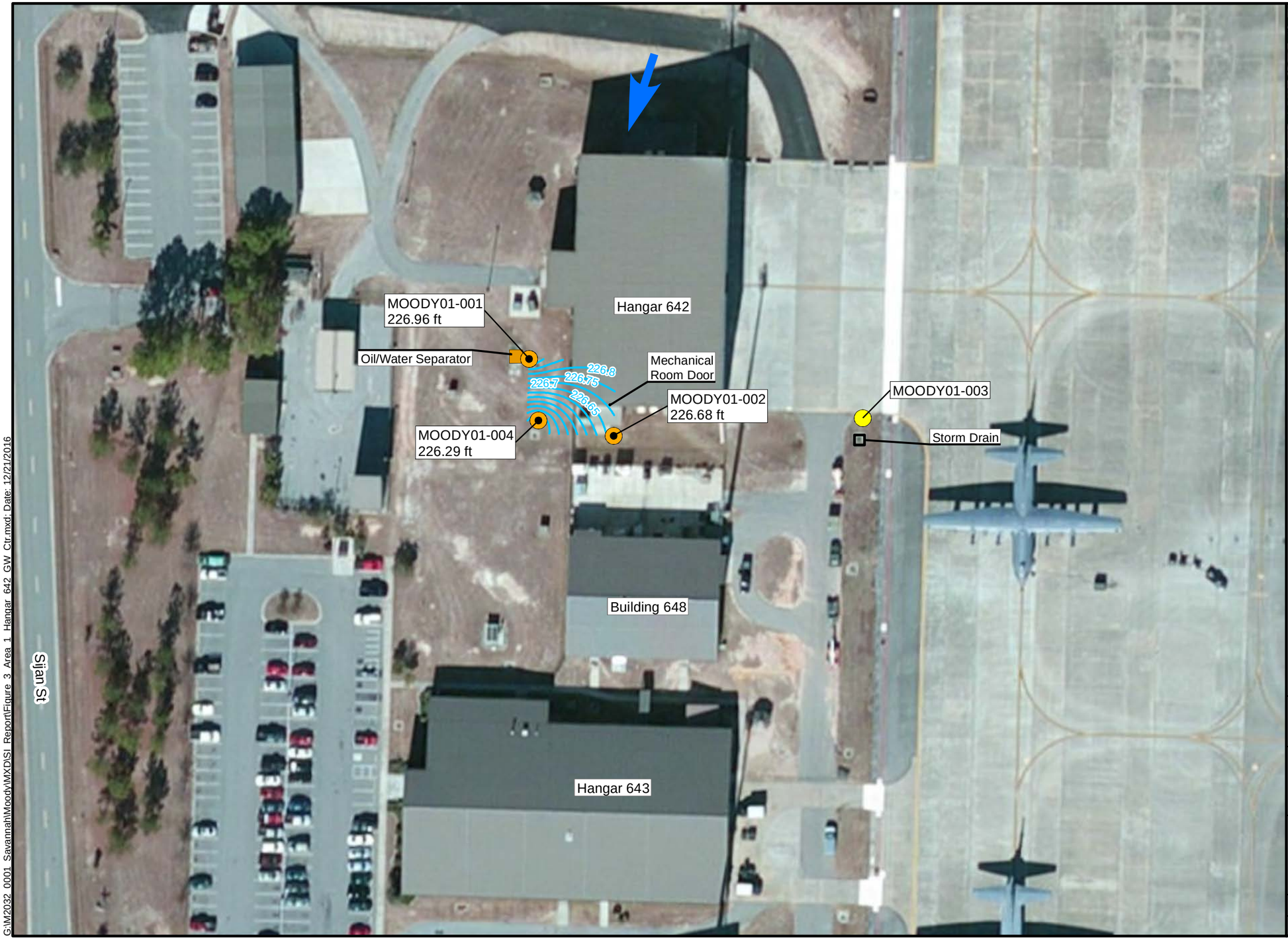
Aerostar SES LLC

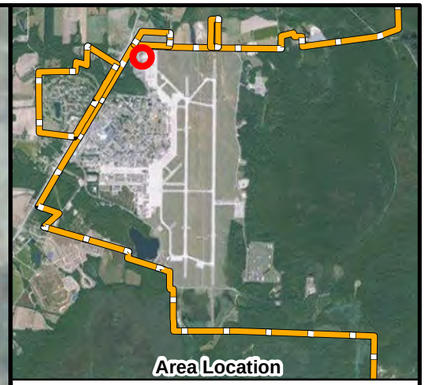
Drawn: B Baxter

Date: 12/20/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI Report\Figure 2 Site Locations for AFFF Investigations.mxd; Date: 12/20/2016





Legend

- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Surface Soil Sample
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 3 Hangar 642 (AFFF Area 1) Sample Locations and Potentiometric Surface Contours

Aerostar SES LLC

Drawn: B Baxter

Date: 12/21/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_3_Area_1_Hangar_642_GW_Ctr.mxd Date: 12/21/2016

Moody01-001-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.24 U	1,600,000
PFOA	**0.19 J**	1,260
PFOS	**1.8**	1,260

Moody01-001-SS-901 (dup)		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.24 U	1,600,000
PFOA	**0.18 J**	1,260
PFOS	**1.8**	1,260

Moody01-001-SO-040		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	0.12 U	1,260
PFOS	0.16 U	1,260

Moody01-004-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.24 U	1,600,000
PFOA	**0.15 J**	1,260
PFOS	**2.1**	1,260

Moody01-004-SO-042		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.30 U	1,600,000
PFOA	0.14 U	1,260
PFOS	**0.26 J**	1,260

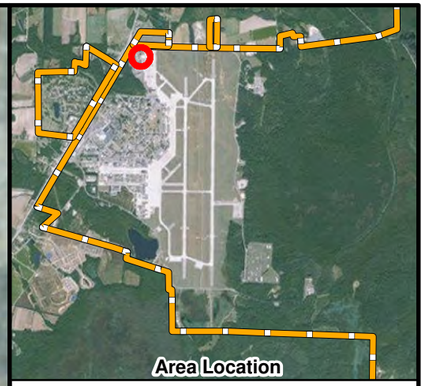
Moody01-004-SO-942 (dup)		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.30 U	1,600,000
PFOA	0.14 U	1,260
PFOS	**0.54 J**	1,260

Moody01-003-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	**0.25 J**	1,260
PFOS	**3.3**	1,260

Moody01-002-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	**2.5**	1,600,000
PFOA	**0.95 J**	1,260
PFOS	**150**	1,260

Moody01-002-SO-037		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	**0.68 J**	1,600,000
PFOA	0.12 U	1,260
PFOS	**0.30 J**	1,260

Hangar 642
MOODY01-001
Oil/Water Separator
Mechanical Room Door
MOODY01-002
MOODY01-003
MOODY01-004
Storm Drain
Building 648
Hangar 643
Sijan St



Legend

- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Surface Soil Sample
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

SS = Surface Soil
SO = Subsurface Soil

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 4 Hangar 642 (AFFF Area 1) PFBS, PFOA, and PFOS in Soil and Sediment

Aerostar SES LLC

Drawn: B Baxter

Date: 1/16/2017

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_4_Area_1_Hangar_642_PFOS_PFOA_Soil.mxd; Date: 1/16/2017

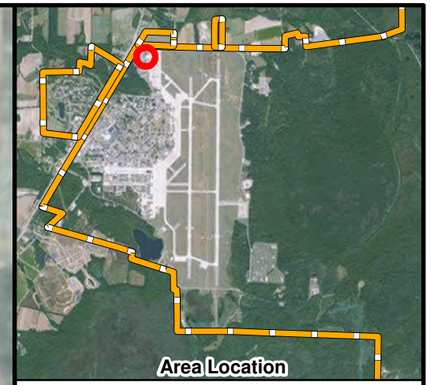
Moody01-001-GW-045		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.0019 U	380
PFOA	0.0053 U	0.07
PFOS	**0.0037 J**	0.07
Combined PFOA/PFOS	**0.0037 J**	0.07

Moody01-001-GW-945 (dup)		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.0019 U	380
PFOA	0.0053 U	0.07
PFOS	0.0033 U	0.07
Combined PFOA/PFOS	ND	0.07

Moody01-004-GW-045		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.036**	380
PFOA	0.0053 U	0.07
PFOS	**0.59**	0.07
Combined PFOA/PFOS	**0.59**	0.07

Moody01-002-GW-045		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.0019 U	380
PFOA	0.0053 U	0.07
PFOS	**0.0070 J**	0.07
Combined PFOA/PFOS	**0.0070 J**	0.07

Hangar 642
MOODY01-001
Oil/Water Separator
Mechanical Room Door
MOODY01-002
MOODY01-003
MOODY01-004
Storm Drain
Building 648
Hangar 643
Sijan St



Legend

- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Surface Soil Sample
- AFFF Inspection
- Installation Boundary
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 5 Hangar 642 (AFFF Area 1) PFBS, PFOA, and PFOS in Groundwater

Aerostar SES LLC

Drawn: B Baxter

Date: 12/27/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_5_Area_1_Hangar_642_PFOS_PFOA_Water.mxd; Date: 12/27/2016

Source: Groundwater contours based on "Groundwater Monitoring Annual Report, Fall 2005" (Shaw Environmental, Inc.)

Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil Sample
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- DPT Boring Surface and Subsurface Soil Samples
- Former AFFF Pond
- AFFF Inpection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 6 Hangar 644 (AFFF Area 2) Sample Locations and Potentiometric Surface Contours

Aerostar SES LLC

Drawn: B Baxter

Date: 12/21/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_6_Area_2_GW_Ctr.mxd; Date: 12/21/2016

Moody02-002-SO-043		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	0.12 U	1,260
PFOS	**0.25 J**	1,260

Moody02-006-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	**0.76 J**	1,600,000
PFOA	**4.3**	1,260
PFOS	**480**	1,260

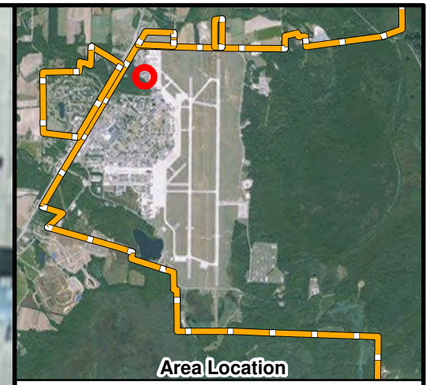
Moody02-006-SO-042		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	0.12 U	1,260
PFOS	0.16 U	1,260

Moody02-003-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	**0.29 J**	1,260
PFOS	**2.3**	1,260

Moody02-003-SO-042		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.28 U	1,600,000
PFOA	0.13 U	1,260
PFOS	0.18 U	1,260

Moody02-001-SO-042		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	0.12 U	1,260
PFOS	**2.4**	1,260

MOODY02-002
MOODY02-001
MOODY02-003
MOODY02-004
MOODY02-005
MOODY02-006
Sijan St
Hangar 644
Mechanical Room Door
Oil/Water Separator



Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil Sample
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- DPT Boring Surface and Subsurface Soil Samples
- Former AFFF Pond
- AFFF Inpection Areas
- Installation Boundary
- Groundwater Flow Direction

SS = Surface Soil
SO = Subsurface Soil

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 7 Hangar 644 (AFFF Area 2) PFBS, PFOA, and PFOS in Soil

Aerostar SES LLC

Drawn: B Baxter

Date: 1/16/2017

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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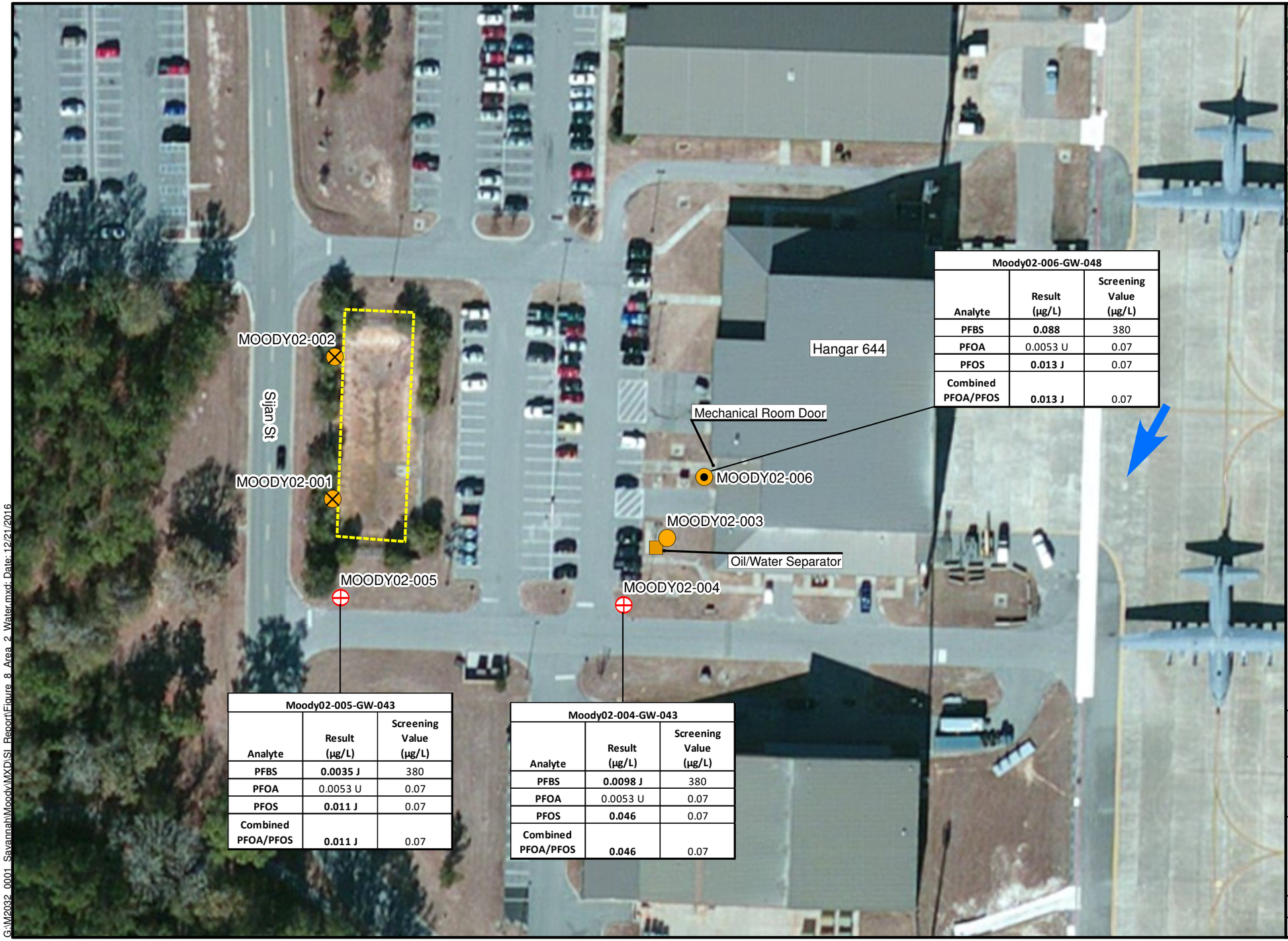
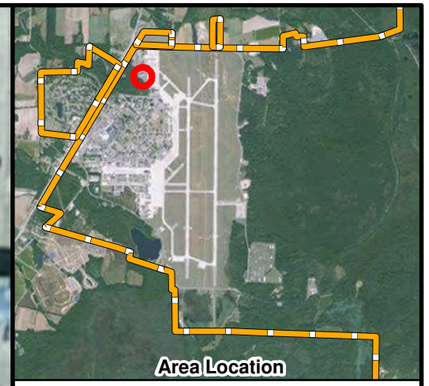


Moody02-006-GW-048		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.088**	380
PFOA	0.0053 U	0.07
PFOS	**0.013 J**	0.07
Combined PFOA/PFOS	**0.013 J**	0.07

Moody02-005-GW-043		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.0035 J**	380
PFOA	0.0053 U	0.07
PFOS	**0.011 J**	0.07
Combined PFOA/PFOS	**0.011 J**	0.07

Moody02-004-GW-043		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.0098 J**	380
PFOA	0.0053 U	0.07
PFOS	**0.046**	0.07
Combined PFOA/PFOS	**0.046**	0.07



Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil Sample
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- DPT Boring Surface and Subsurface Soil Samples
- Former AFFF Pond
- AFFF Inpection Areas
- Installation Boundary
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 8 Hangar 644 (AFFF Area 2) PFBS, PFOA, and PFOS in Groundwater

Aerostar SES LLC

Drawn: B Baxter

Date: 12/21/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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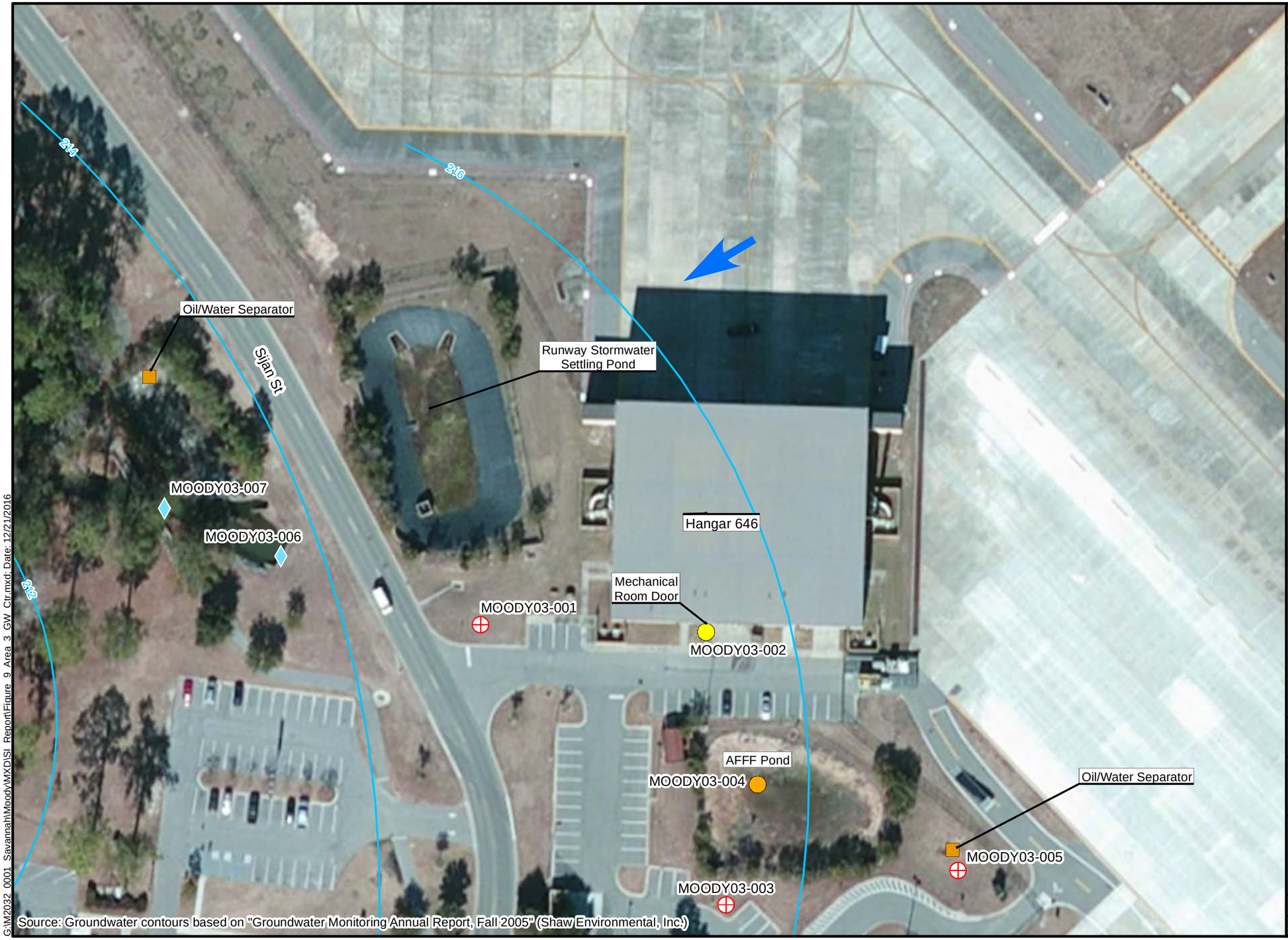

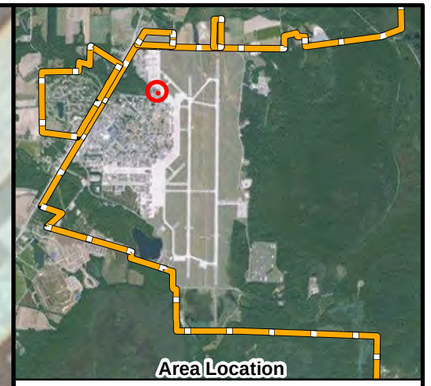

Legend

- DPT Boring Groundwater Sample
- DPT Boring Surface and Subsurface Soil Samples
- Surface Soil Sample
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 9 Hangar 646 (AFFF Area 3) Sample Locations and Potentiometric Surface Contours

Aerostar SES LLC

Drawn: B Baxter

Date: 12/21/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

Source: Groundwater contours based on "Groundwater Monitoring Annual Report, Fall 2005" (Shaw Environmental, Inc.)

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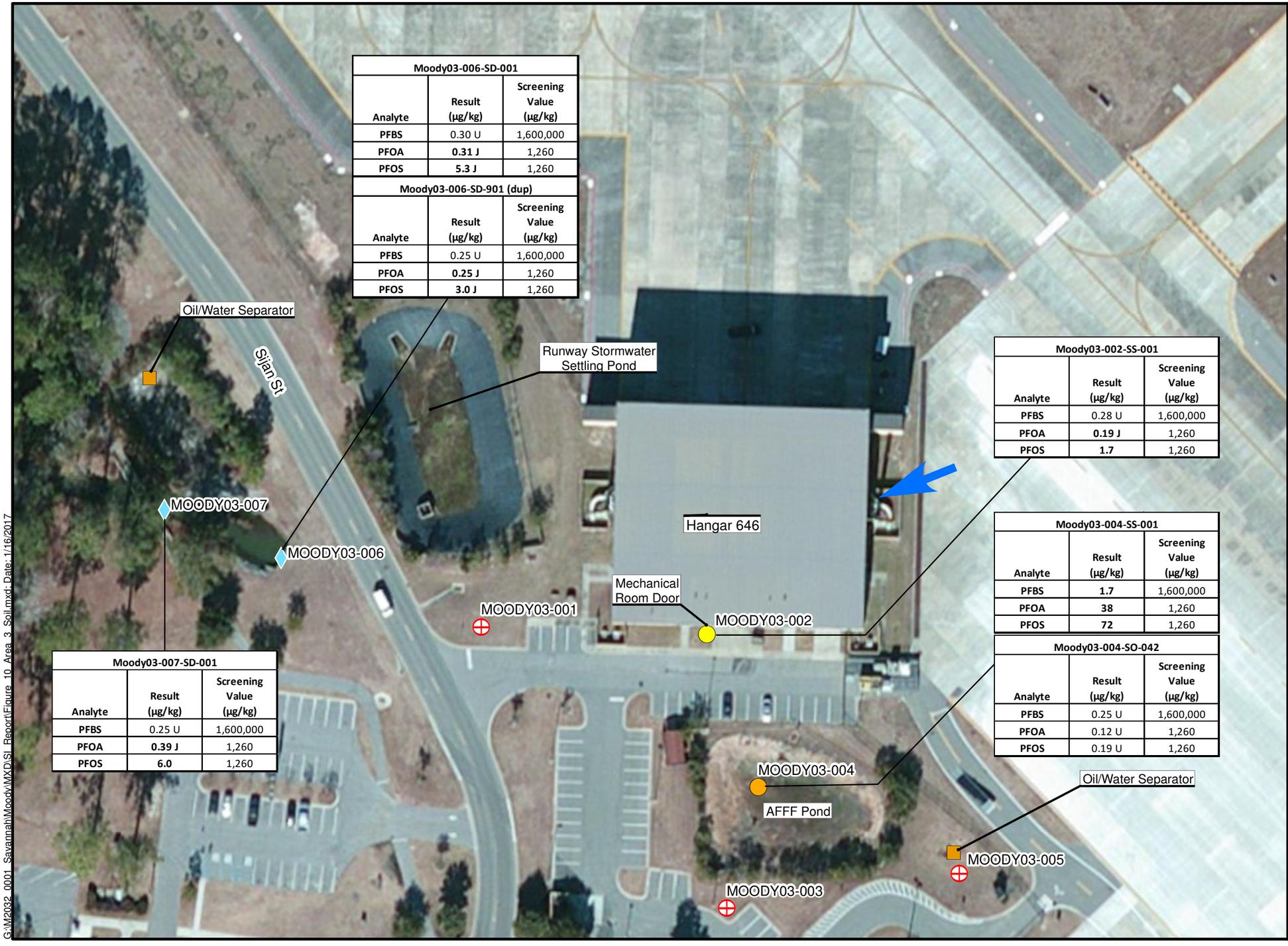


Moody03-006-SD-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.30 U	1,600,000
PFOA	**0.31 J**	1,260
PFOS	**5.3 J**	1,260

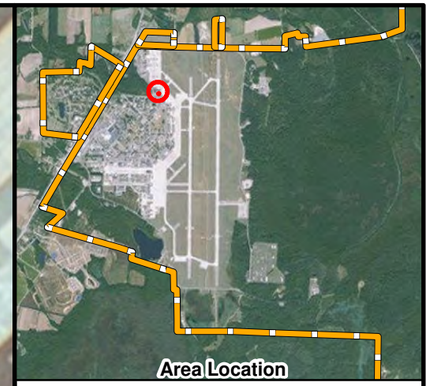
Moody03-006-SD-901 (dup)		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	**0.25 J**	1,260
PFOS	**3.0 J**	1,260

Moody03-007-SD-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	**0.39 J**	1,260
PFOS	**6.0**	1,260

Moody03-002-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.28 U	1,600,000
PFOA	**0.19 J**	1,260
PFOS	**1.7**	1,260

Moody03-004-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	**1.7**	1,600,000
PFOA	**38**	1,260
PFOS	**72**	1,260

Moody03-004-SO-042		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	0.12 U	1,260
PFOS	0.19 U	1,260



Legend

- DPT Boring Groundwater Sample
- DPT Boring Surface and Subsurface Soil Samples
- Surface Soil Sample
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

SS = Surface Soil
SO = Subsurface Soil
SD = Sediment

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 10 Hangar 646 (AFFF Area 3) PFBS, PFOA, and PFOS in Soil and Sediment

Aerostar SES LLC

Drawn: B Baxter

Date: 1/16/2017

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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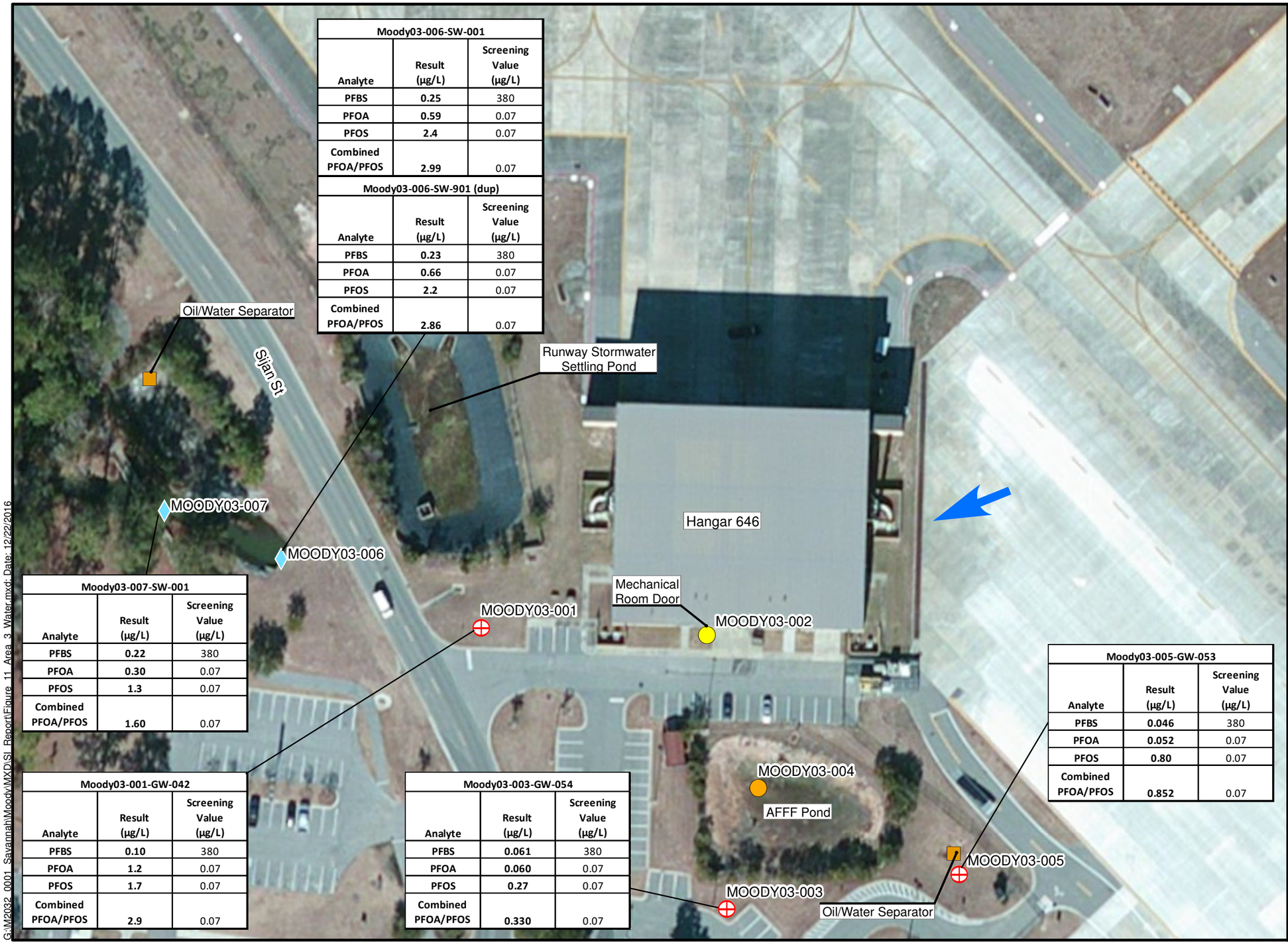


Moody03-006-SW-001		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.25	380
PFOA	0.59	0.07
PFOS	2.4	0.07
Combined PFOA/PFOS	2.99	0.07

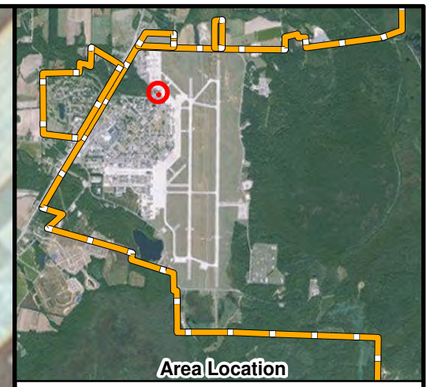
Moody03-006-SW-901 (dup)		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.23	380
PFOA	0.66	0.07
PFOS	2.2	0.07
Combined PFOA/PFOS	2.86	0.07

Moody03-007-SW-001		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.22	380
PFOA	0.30	0.07
PFOS	1.3	0.07
Combined PFOA/PFOS	1.60	0.07

Moody03-001-GW-042		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.10	380
PFOA	1.2	0.07
PFOS	1.7	0.07
Combined PFOA/PFOS	2.9	0.07

Moody03-003-GW-054		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.061	380
PFOA	0.060	0.07
PFOS	0.27	0.07
Combined PFOA/PFOS	0.330	0.07

Moody03-005-GW-053		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.046	380
PFOA	0.052	0.07
PFOS	0.80	0.07
Combined PFOA/PFOS	0.852	0.07



Legend

- DPT Boring Groundwater Sample
- DPT Boring Surface and Subsurface Soil Samples
- Surface Soil Sample
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 11 Hangar 646 (AFFF Area 3) PFBS, PFOA, and PFOS in Groundwater and Surface Water

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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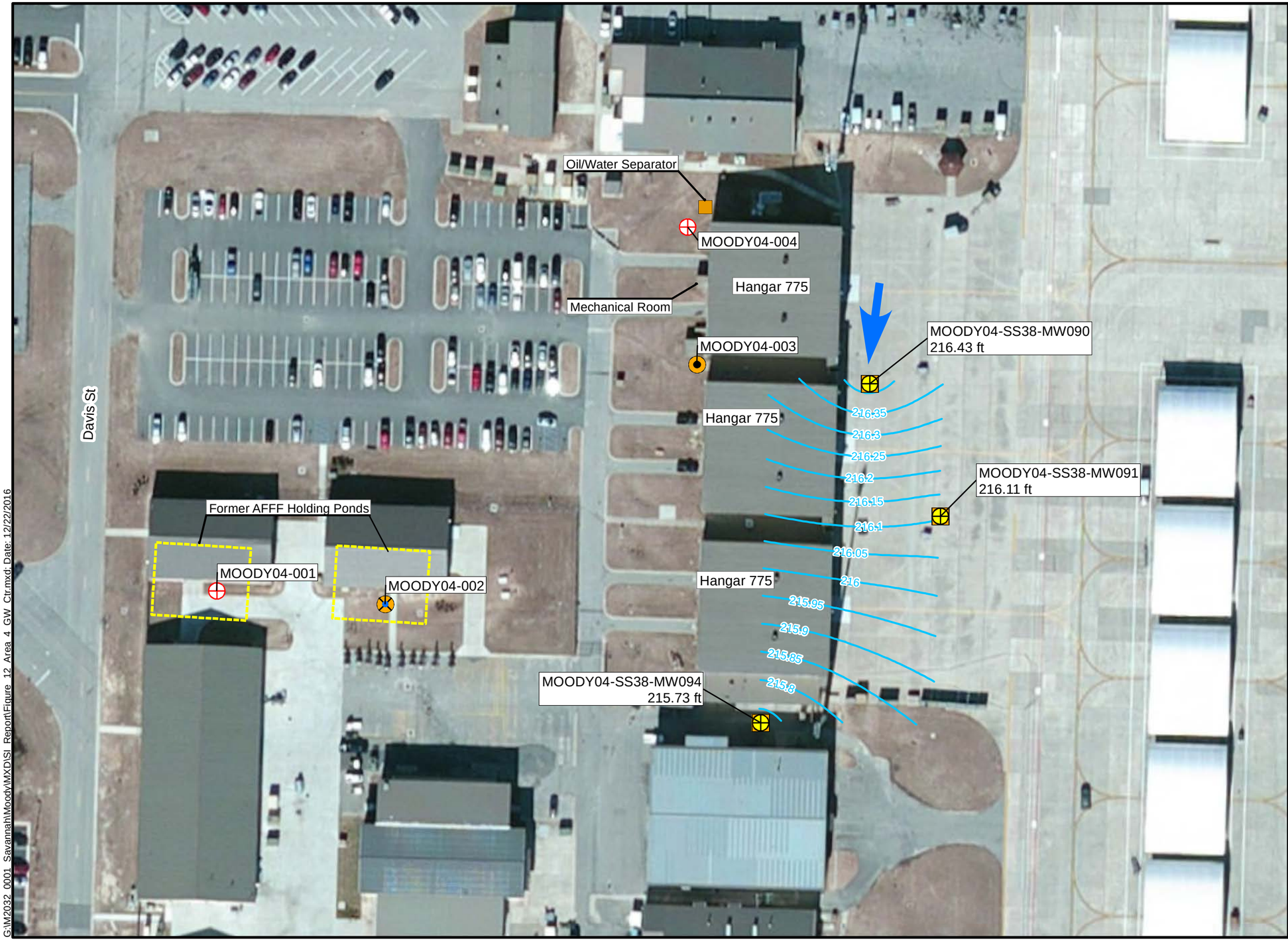

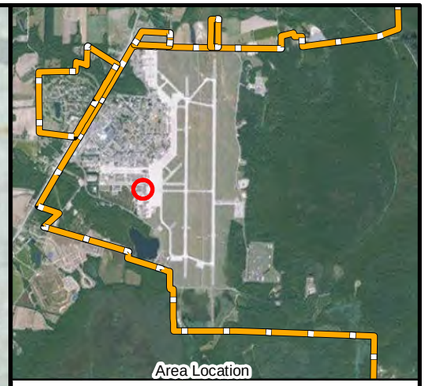

Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil and Groundwater Samples
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Existing Groundwater Monitoring Well Sampled
- Former Drainage Basin
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 12 Hangar 775 (AFFF Area 4) Sample Locations and Potentiometric Surface Contours

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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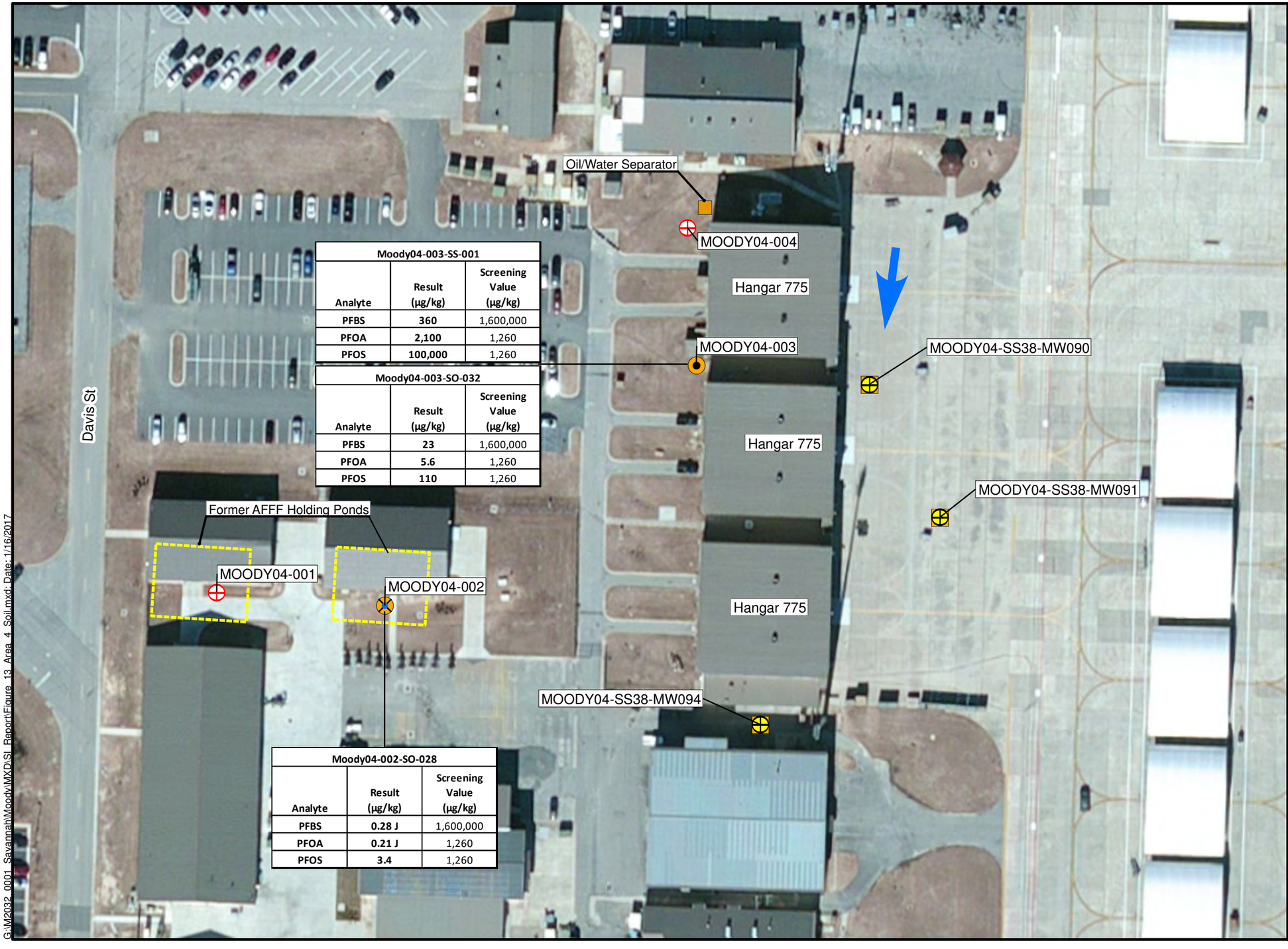
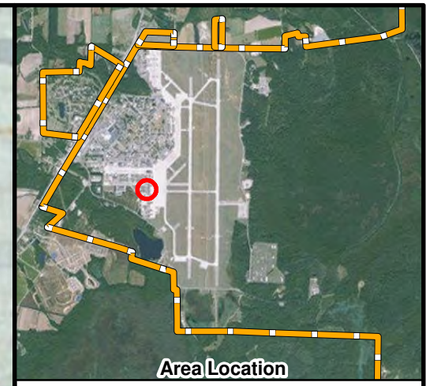


Moody04-003-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	360	1,600,000
PFOA	2,100	1,260
PFOS	100,000	1,260

Moody04-003-SO-032		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	23	1,600,000
PFOA	5.6	1,260
PFOS	110	1,260

Moody04-002-SO-028		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.28 J	1,600,000
PFOA	0.21 J	1,260
PFOS	3.4	1,260



Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil and Groundwater Samples
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Existing Groundwater Monitoring Well Sampled
- Former Drainage Basin
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

SS = Surface Soil
SO = Subsurface Soil

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 13 Hangar 775 (AFFF Area 4) PFBS, PFOA, and PFOS in Soil

Aerostar SES LLC

Drawn: B Baxter | Date: 1/16/2017

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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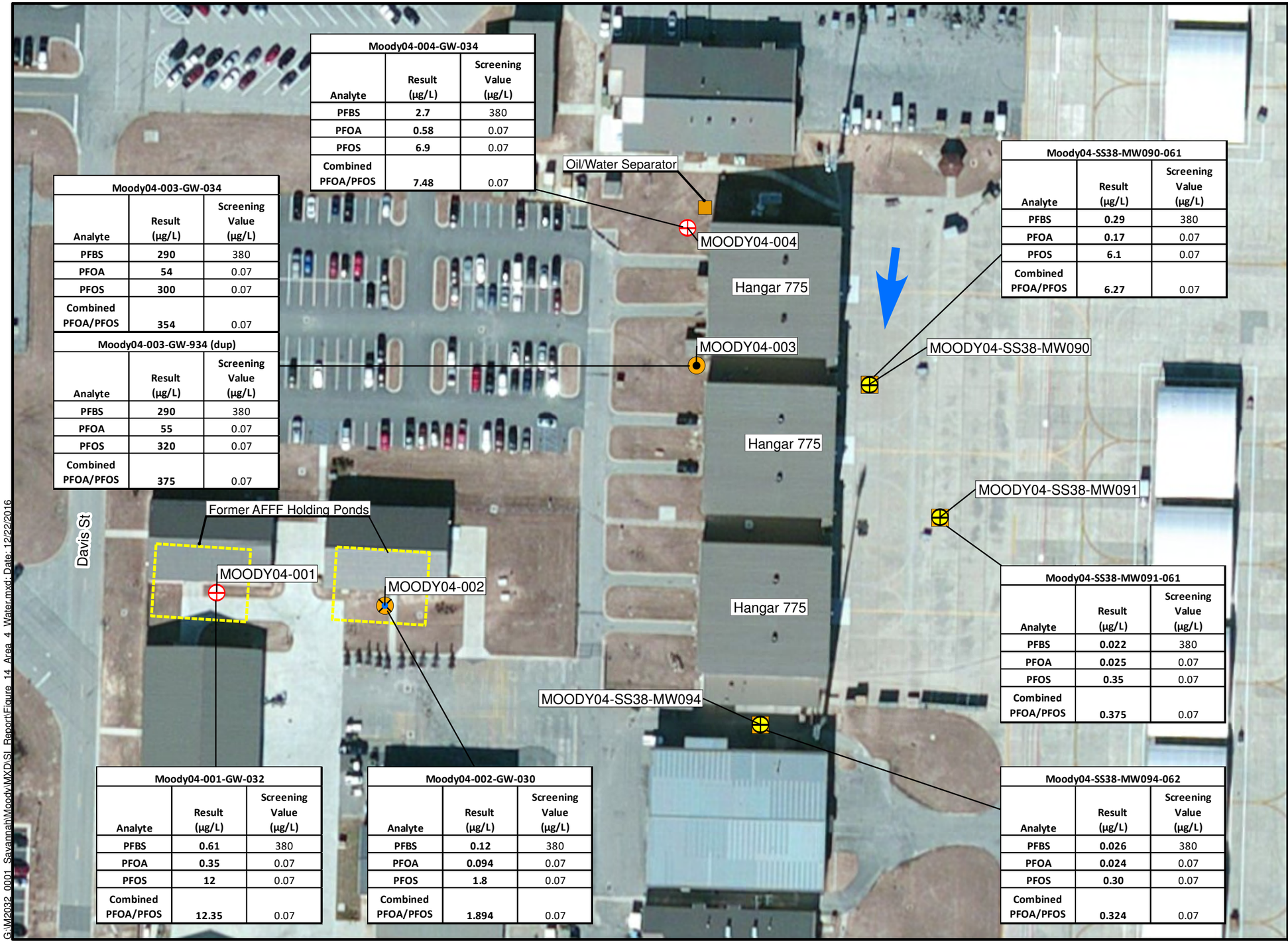


Moody04-004-GW-034		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	2.7	380
PFOA	0.58	0.07
PFOS	6.9	0.07
Combined PFOA/PFOS	7.48	0.07

Moody04-003-GW-034		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	290	380
PFOA	54	0.07
PFOS	300	0.07
Combined PFOA/PFOS	354	0.07

Moody04-003-GW-934 (dup)		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	290	380
PFOA	55	0.07
PFOS	320	0.07
Combined PFOA/PFOS	375	0.07

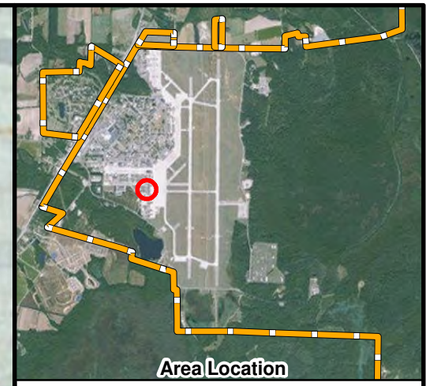
Moody04-SS38-MW090-061		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.29	380
PFOA	0.17	0.07
PFOS	6.1	0.07
Combined PFOA/PFOS	6.27	0.07

Moody04-SS38-MW091-061		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.022	380
PFOA	0.025	0.07
PFOS	0.35	0.07
Combined PFOA/PFOS	0.375	0.07

Moody04-001-GW-032		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.61	380
PFOA	0.35	0.07
PFOS	12	0.07
Combined PFOA/PFOS	12.35	0.07

Moody04-002-GW-030		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.12	380
PFOA	0.094	0.07
PFOS	1.8	0.07
Combined PFOA/PFOS	1.894	0.07

Moody04-SS38-MW094-062		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.026	380
PFOA	0.024	0.07
PFOS	0.30	0.07
Combined PFOA/PFOS	0.324	0.07



Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil and Groundwater Samples
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Existing Groundwater Monitoring Well Sampled
- Former Drainage Basin
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 14 Hangar 775 (AFFF Area 4) PFBS, PFOA, and PFOS in Groundwater and Surface Water

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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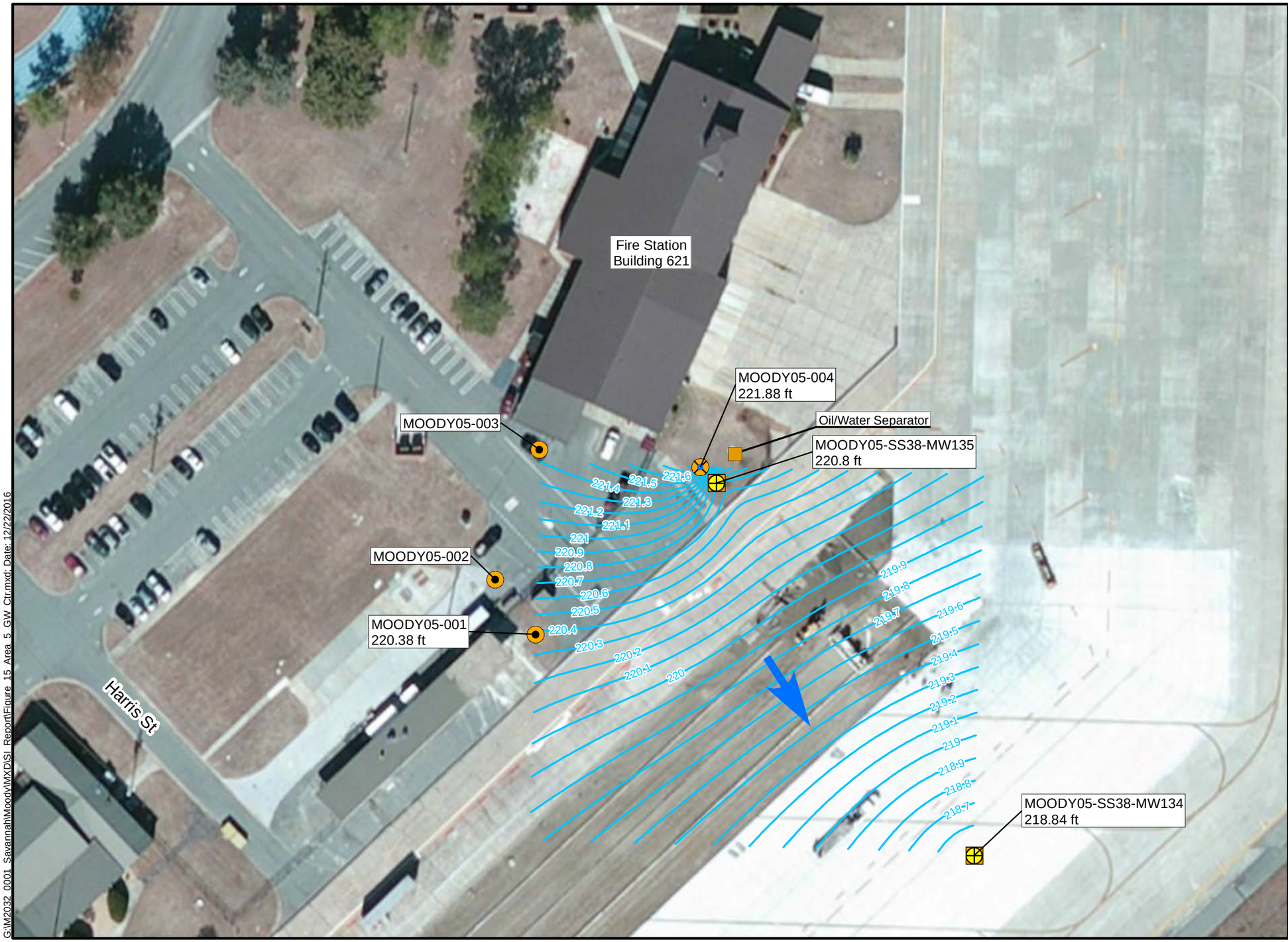

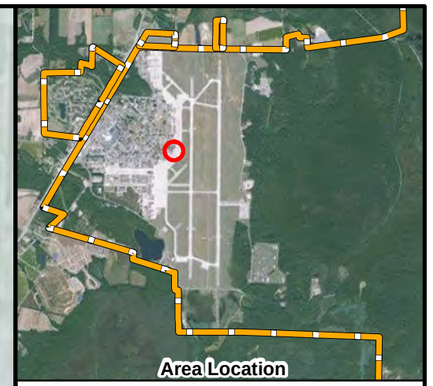

Legend

- DPT Boring Subsurface Soil and Groundwater Samples
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Existing Groundwater Monitoring Well Sampled
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 15 Fire Station (Building 621) (AFFF Area 5) Sample Locations and Potentiometric Surface Contours

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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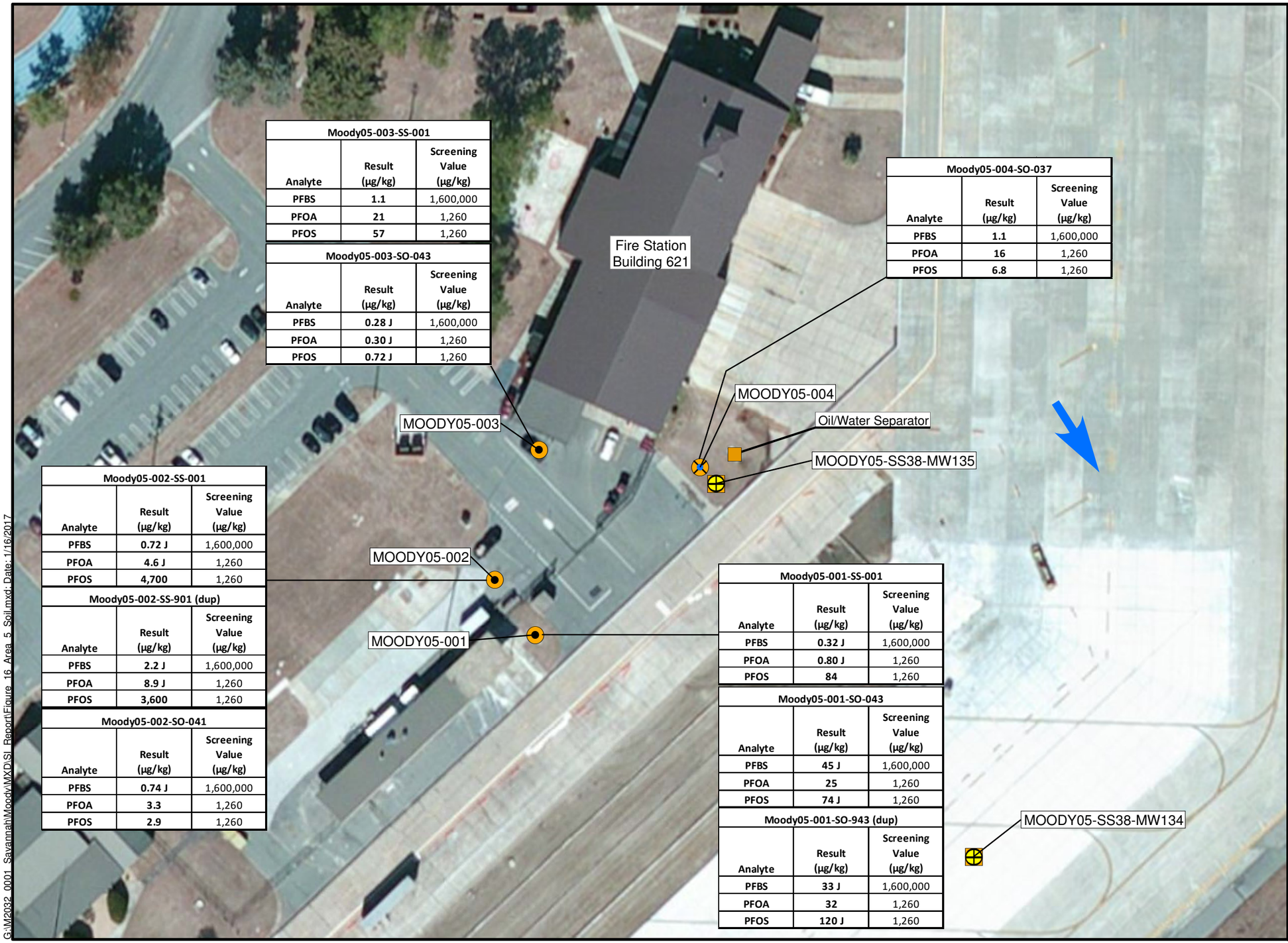

Moody05-003-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	1.1	1,600,000
PFOA	21	1,260
PFOS	57	1,260

Moody05-003-SO-043		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.28 J	1,600,000
PFOA	0.30 J	1,260
PFOS	0.72 J	1,260

Moody05-004-SO-037		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	1.1	1,600,000
PFOA	16	1,260
PFOS	6.8	1,260

Moody05-002-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.72 J	1,600,000
PFOA	4.6 J	1,260
PFOS	4,700	1,260

Moody05-002-SS-901 (dup)		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	2.2 J	1,600,000
PFOA	8.9 J	1,260
PFOS	3,600	1,260

Moody05-002-SO-041		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.74 J	1,600,000
PFOA	3.3	1,260
PFOS	2.9	1,260

Moody05-001-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.32 J	1,600,000
PFOA	0.80 J	1,260
PFOS	84	1,260

Moody05-001-SO-043		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	45 J	1,600,000
PFOA	25	1,260
PFOS	74 J	1,260

Moody05-001-SO-943 (dup)		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	33 J	1,600,000
PFOA	32	1,260
PFOS	120 J	1,260

Legend

- DPT Boring Subsurface Soil and Groundwater Samples
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Existing Groundwater Monitoring Well Sampled
- AFFF Inspection Areas Areas
- Installation Boundary
- Groundwater Flow Direction

SS = Surface Soil
SO = Subsurface Soil

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 16 Fire Station (Building 621) (AFFF Area 5) PFBS, PFOA, and PFOS in Soil

Aerostar SES LLC

Drawn: B Baxter

Date: 1/16/2017

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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Moody05-003-GW-044		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.52	380
PFOA	1.1	0.07
PFOS	2.6	0.07
Combined PFOA/PFOS	3.7	0.07

Moody05-004-GW-038		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	3.2	380
PFOA	26	0.07
PFOS	12 J	0.07
Combined PFOA/PFOS	38 J	0.07

Moody05-002-GW-042		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	3.8	380
PFOA	16	0.07
PFOS	32	0.07
Combined PFOA/PFOS	48	0.07

Moody05-001-GW-046		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	3.7	380
PFOA	4.9	0.07
PFOS	18	0.07
Combined PFOA/PFOS	22.9	0.07

Moody05-SS38-MW135-080		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.020	380
PFOA	0.011 J	0.07
PFOS	0.72	0.07
Combined PFOA/PFOS	0.731 J	0.07

Moody05-SS38-MW135-980 (dup)		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.020 J	380
PFOA	0.014 J	0.07
PFOS	0.66	0.07
Combined PFOA/PFOS	0.674 J	0.07

Moody05-SS38-MW134-079		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	0.0095 J	380
PFOA	0.010 J	0.07
PFOS	0.23	0.07
Combined PFOA/PFOS	0.240 J	0.07

Fire Station Building 621

MOODY05-003

MOODY05-004

Oil/Water Separator

MOODY05-SS38-MW135

MOODY05-SS38-MW134

MOODY05-002

MOODY05-001

Harris St

Area Location

Legend

- DPT Boring Subsurface Soil and Groundwater Samples
- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- Existing Groundwater Monitoring Well Sampled
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

N

0 100

Feet

Moody Air Force Base, Georgia

Figure 17 Fire Station (Building 621) (AFFF Area 5) PFBS, PFOA, and PFOS in Groundwater

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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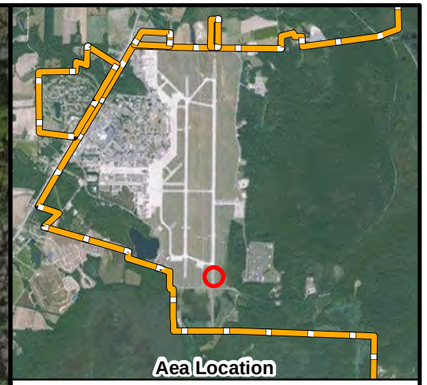

Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil and Groundwater Samples
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 200

Feet

Moody Air Force Base, Georgia

Figure 18
T-38 Tail Fire & A-10 Crash Site (AFFF Area 6) Sample Locations and Potentiometric Surface Contours

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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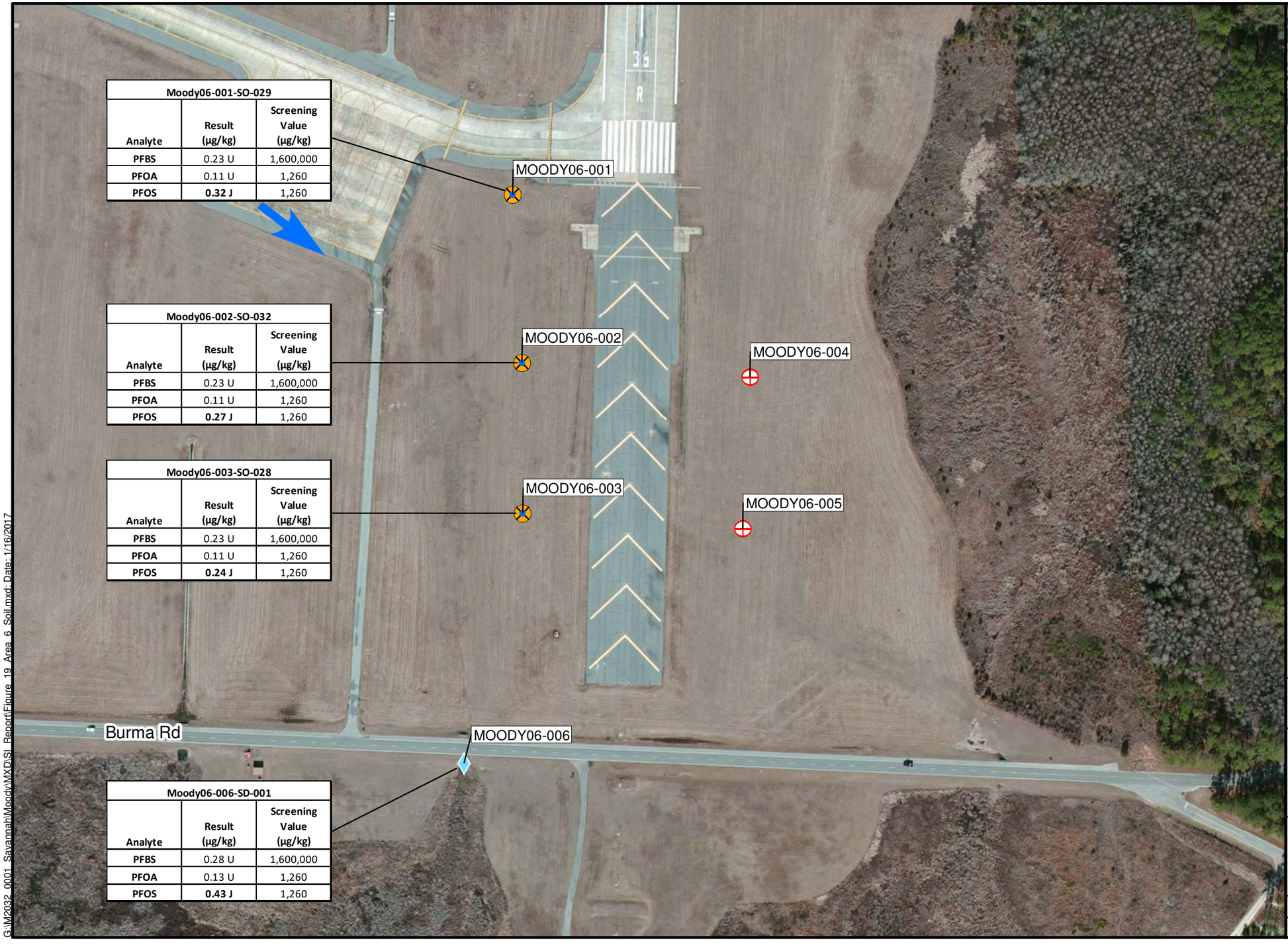
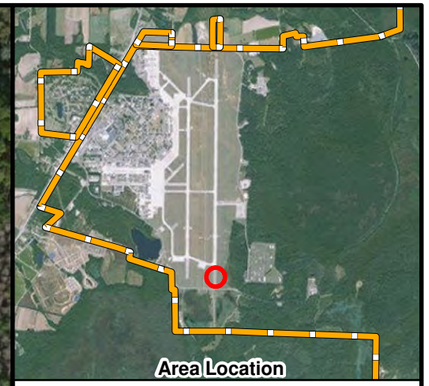


Moody06-001-SO-029		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.23 U	1,600,000
PFOA	0.11 U	1,260
PFOS	**0.32 J**	1,260

Moody06-002-SO-032		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.23 U	1,600,000
PFOA	0.11 U	1,260
PFOS	**0.27 J**	1,260

Moody06-003-SO-028		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.23 U	1,600,000
PFOA	0.11 U	1,260
PFOS	**0.24 J**	1,260

Moody06-006-SD-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.28 U	1,600,000
PFOA	0.13 U	1,260
PFOS	**0.43 J**	1,260



Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil and Groundwater Samples
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

SO = Subsurface Soil
SD = Sediment

N

0 200

Feet

Moody Air Force Base, Georgia

Figure 19
T-38 Tail Fire & A-10 Crash Site
(AFFF Area 6)
PFBS, PFOA, and PFOS
in Soil and Sediment

Aerostar SES LLC

Drawn: B Baxter | Date: 1/16/2017

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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Moody06-001-GW-030		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.12**	380
PFOA	**0.19**	0.07
PFOS	**0.46**	0.07
Combined PFOA/PFOS	**0.65**	0.07

MOODY06-001

Moody06-002-GW-033		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.13**	380
PFOA	**0.12**	0.07
PFOS	**0.87**	0.07
Combined PFOA/PFOS	**0.99**	0.07

MOODY06-002

Moody06-003-GW-030		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.011 J**	380
PFOA	**0.0060 J**	0.07
PFOS	**0.069**	0.07
Combined PFOA/PFOS	**0.0750 J**	0.07

MOODY06-003

MOODY06-004

Moody06-004-GW-030		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.0062 J**	380
PFOA	0.0053 U	0.07
PFOS	**0.0058 J**	0.07
Combined PFOA/PFOS	**0.0058 J**	0.07

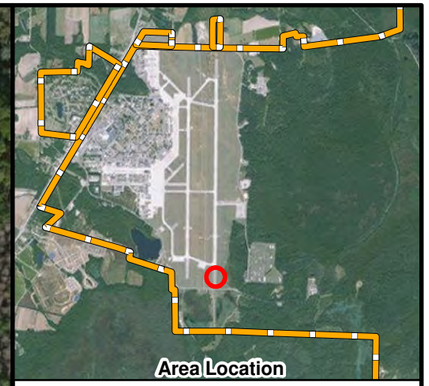
MOODY06-005

Moody06-005-GW-030		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.011 J**	380
PFOA	0.0053 U	0.07
PFOS	**0.035**	0.07
Combined PFOA/PFOS	**0.035**	0.07

Burma Rd

MOODY06-006

Moody06-006-SW-001		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.012 J**	380
PFOA	**0.011 J**	0.07
PFOS	**0.049**	0.07
Combined PFOA/PFOS	**0.060 J**	0.07



Legend

- DPT Boring Groundwater Sample
- DPT Boring Subsurface Soil and Groundwater Samples
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

N

0 200

Feet

Moody Air Force Base, Georgia

Figure 20
T-38 Tail Fire & A-10 Crash Site
(AFFF Area 6)
PFBS, PFOA, and PFOS
in Groundwater and Surface Water

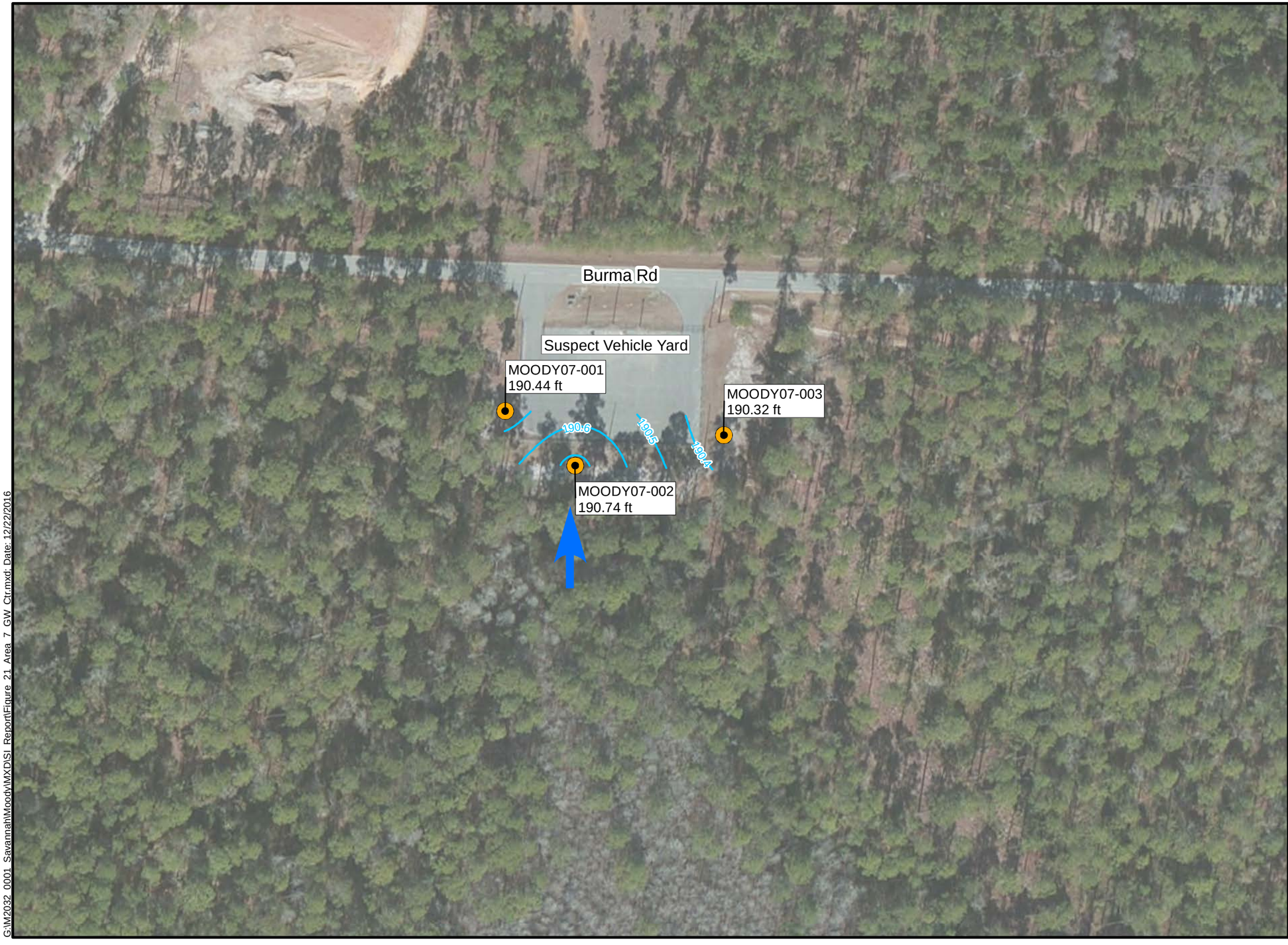
Aerostar SES LLC

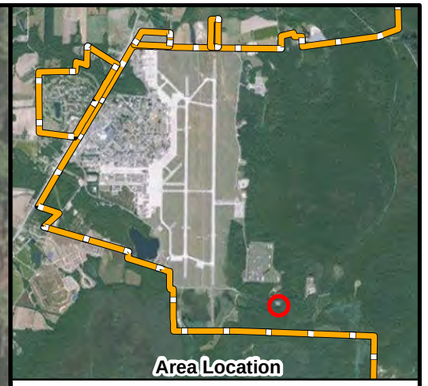
Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_20_Area_6_Water.mxd - Date: 12/22/2016





Legend

- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 200

Feet

Moody Air Force Base, Georgia

Figure 21
Suspect Vehicle Yard (AFFF Area 7)
Sample Locations and Potentiometric Surface Contours

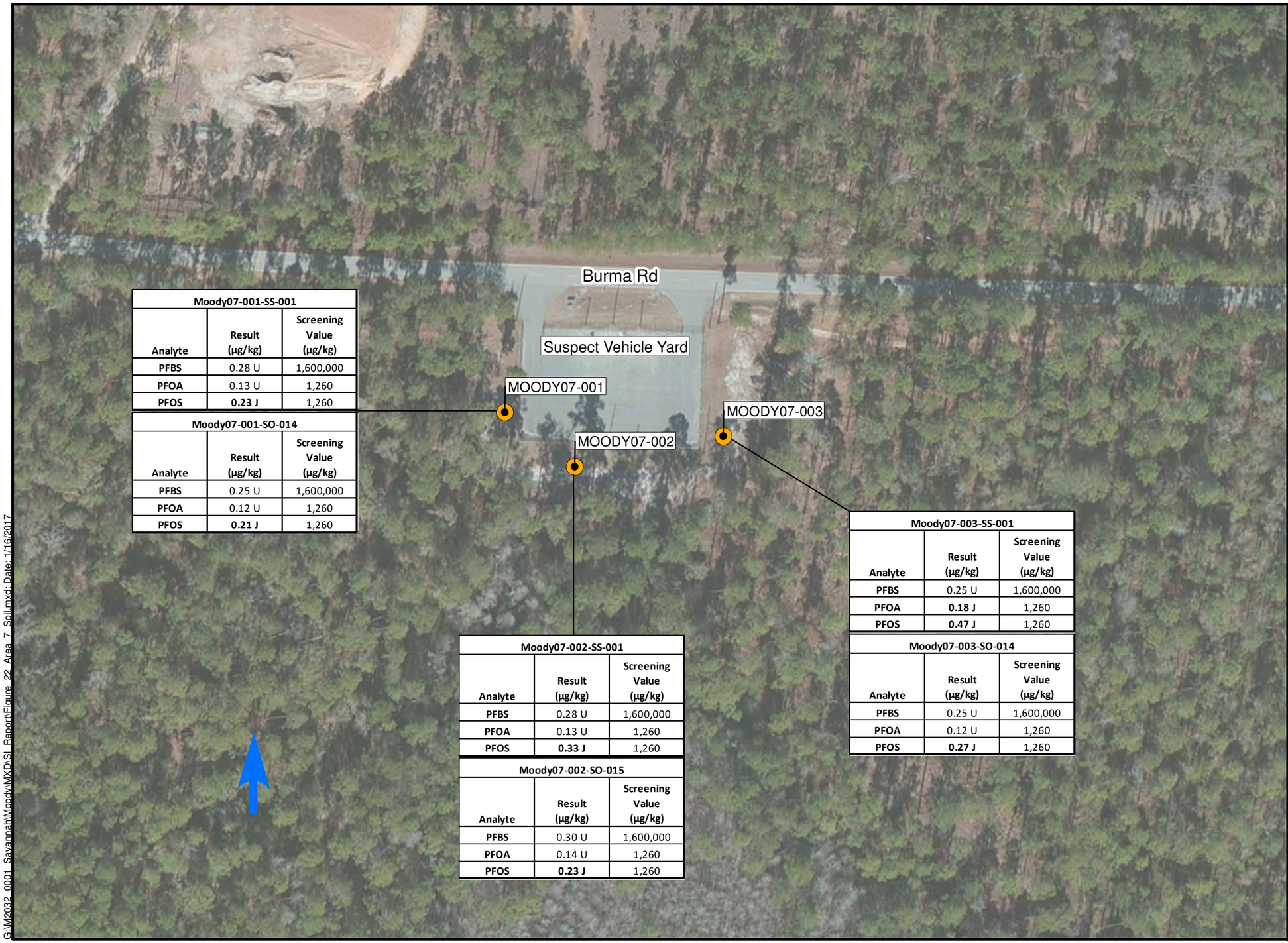
Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_21_Area_7_GW_Ctr.mxd; Date: 12/22/2016



Moody07-001-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.28 U	1,600,000
PFOA	0.13 U	1,260
PFOS	**0.23 J**	1,260

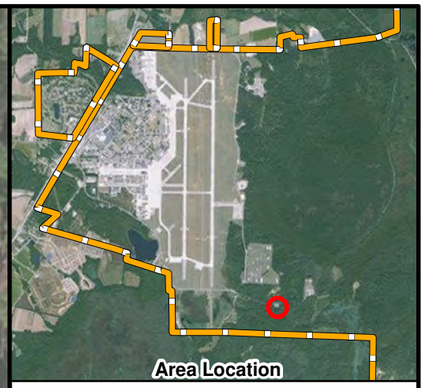
Moody07-001-SO-014		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	0.12 U	1,260
PFOS	**0.21 J**	1,260

Moody07-002-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.28 U	1,600,000
PFOA	0.13 U	1,260
PFOS	**0.33 J**	1,260

Moody07-002-SO-015		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.30 U	1,600,000
PFOA	0.14 U	1,260
PFOS	**0.23 J**	1,260

Moody07-003-SS-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	**0.18 J**	1,260
PFOS	**0.47 J**	1,260

Moody07-003-SO-014		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	0.12 U	1,260
PFOS	**0.27 J**	1,260



Legend

- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

SS = Surface Soil
SO = Subsurface Soil

N

0 200

Feet

Moody Air Force Base, Georgia

Figure 22
Suspect Vehicle Yard (AFFF Area 7)
PFBS, PFOA, and PFOS in Soil

Aerostar SES LLC

Drawn: B Baxter

Date: 1/16/2017

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_22_Area_7_Soil.mxd; Date: 1/16/2017

Burma Rd

Suspect Vehicle Yard

MOODY07-001

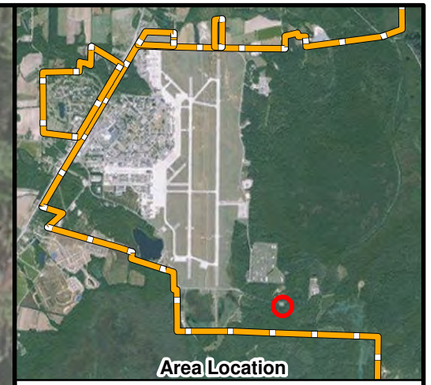
MOODY07-002

MOODY07-003

Moody07-001-GW-020		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.0042 J**	380
PFOA	0.0053 U	0.07
PFOS	**0.016 J**	0.07
Combined PFOA/PFOS	**0.016 J**	0.07

Moody07-002-GW-020		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.0032 J**	380
PFOA	0.0053 U	0.07
PFOS	**0.011 J**	0.07
Combined PFOA/PFOS	**0.011 J**	0.07

Moody07-003-GW-020		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.024**	380
PFOA	0.0053 U	0.07
PFOS	**0.015 J**	0.07
Combined PFOA/PFOS	**0.015 J**	0.07



Legend

- DPT Boring Surface Soil, Subsurface Soil, and Groundwater Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

N

0 200

Feet

Moody Air Force Base, Georgia

Figure 23
Suspect Vehicle Yard (AFFF Area 7)
PFBS, PFOA, and PFOS in Groundwater

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

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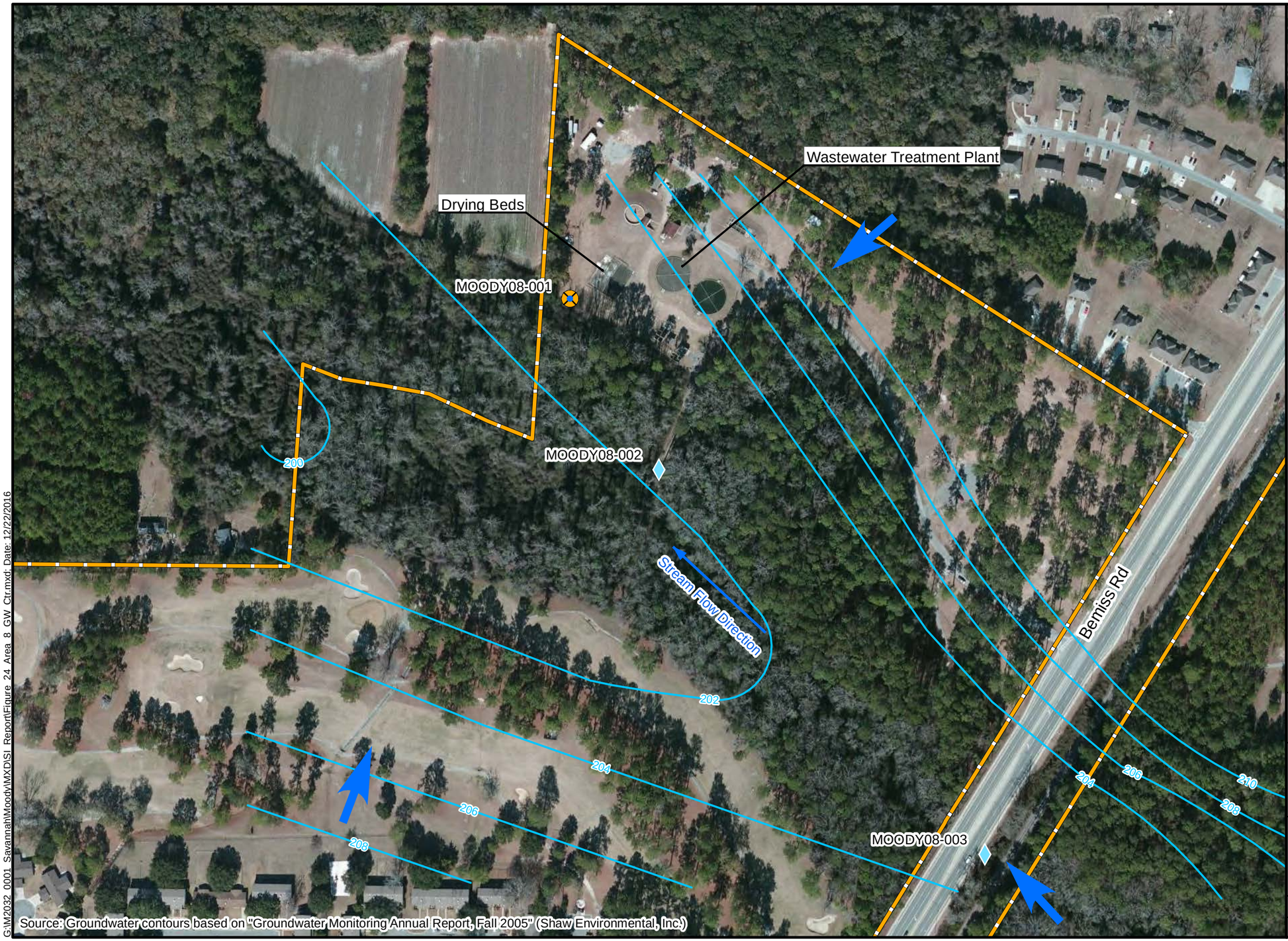
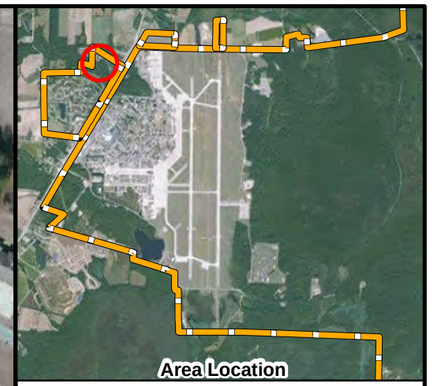




Legend

- DPT Boring Subsurface Soil and Groundwater Samples
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Elevation Contour (NAVD88 ft)
- Groundwater Flow Direction

N

0 300

Feet

Moody Air Force Base, Georgia

Figure 24
Waste Water Treatment Plant
(AFFF Area 8) Sample Locations and Potentiometric Surface Contours

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001 Savannah\Moody\MXD\SI Report\Figure 24 Area 8 GW Ctr.mxd Date: 12/22/2016

Moody08-001-SO-018		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	**0.27 J**	1,260
PFOS	**8.2 J**	1,260
Moody08-001-SO-918 (dup)		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.23 U	1,600,000
PFOA	**0.26 J**	1,260
PFOS	**2.1 J**	1,260

Moody08-002-SD-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.23 U	1,600,000
PFOA	**0.12 J**	1,260
PFOS	**0.99**	1,260

Moody08-003-SD-001		
Analyte	Result (µg/kg)	Screening Value (µg/kg)
PFBS	0.25 U	1,600,000
PFOA	**0.13 J**	1,260
PFOS	**1.4**	1,260

Wastewater Treatment Plant
Drying Beds
MOODY08-001
MOODY08-002
MOODY08-003
Stream Flow Direction
Bemiss Rd

Area Location

Legend

- DPT Boring Subsurface Soil and Groundwater Samples
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

SS = Surface Soil
SO = Subsurface Soil
SD = Sediment

N

0 300
Feet

Moody Air Force Base, Georgia

Figure 25
Waste Water Treatment Plant (AFFF Area 8) PFBS, PFOA, and PFOS in Soil and Sediment

Aerostar SES LLC

Drawn: B Baxter | Date: 1/16/2017

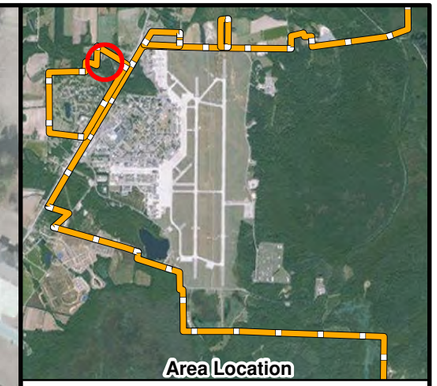
Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_25_Area_8_Soil.mxd Date: 1/16/2017

Moody08-001-GW-017		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.39**	380
PFOA	**0.62**	0.07
PFOS	**2.6**	0.07
Combined PFOA/PFOS	**3.22**	0.07

Moody08-002-SW-001		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.057**	380
PFOA	**0.14**	0.07
PFOS	**0.94**	0.07
Combined PFOA/PFOS	**1.08**	0.07

Moody08-003-SW-001		
Analyte	Result (µg/L)	Screening Value (µg/L)
PFBS	**0.12**	380
PFOA	**0.29**	0.07
PFOS	**1.0**	0.07
Combined PFOA/PFOS	**1.29**	0.07



Legend

- DPT Boring Subsurface Soil and Groundwater Samples
- Surface Water and Sediment Samples
- AFFF Inspection Areas
- Installation Boundary
- Groundwater Flow Direction

N

0 300

Feet

Moody Air Force Base, Georgia

Figure 26
Waste Water Treatment Plant
(AFFF Area 8) PFBS, PFOA, and PFOS in Groundwater and Surface Water

Aerostar SES LLC

Drawn: B Baxter

Date: 12/22/2016

Service Layer Credits: Esri ArcGIS Online Aerial Photography

G:\M2032_0001_Savannah\Moody\MXD\SI_Report\Figure_26_Area_8_Water.mxd Date: 12/22/2016

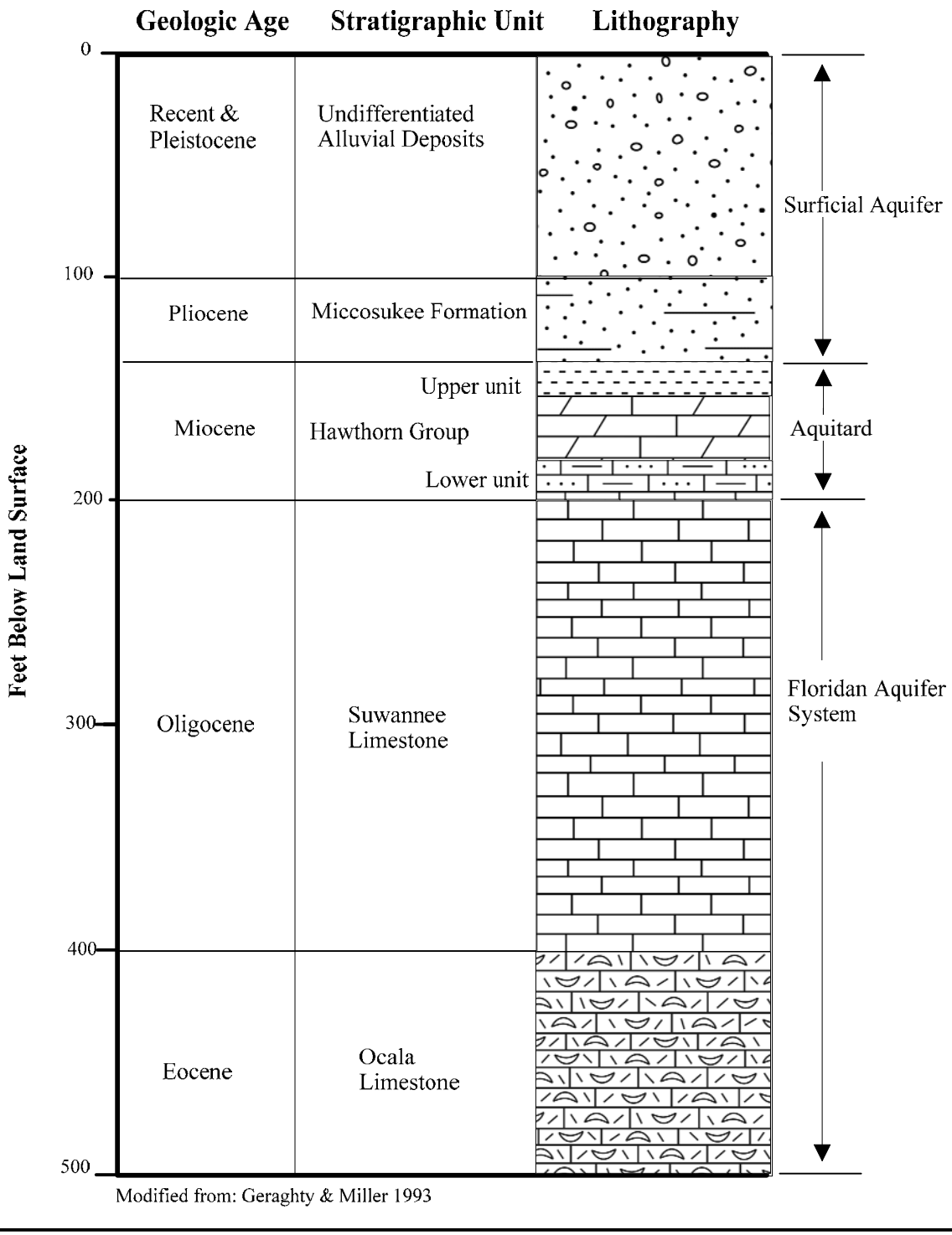


Figure 27 Generalized Hydrogeologic Cross Section, Lowndes County, Georgia

Appendix B

Field Forms

(See separate file)

Appendix C
Validation Report and Laboratory Data Tables

(See separate file)

Appendix D

Boring Logs

Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY01-001

Site Name (Number): : Hangar 642 (Site 1)
Date Started: : 4-11-2016
Date Complete: : 4-12-2016
Total Depth: : 50 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 359432.79
Easting Coord. : 2598659.94
Surf Elev (feet/amsl): : 230.86
Hole Completion: : Backfilled
Depth to Groundwater: : 41 feet

Drilling Company: : Zebra Technology
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 3 inch

Depth in Feet	Surf. Elev. 230.86	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	230.86	SC		(0 to 15) 2.5YR 8/1, white, clayey-sand mottles w/ 2.5YR 5/8, red mottles throughout, medium plasticity, well sorted, slightly damp, stiff, no odor. PID = 0 ppm		MOODY01-001-SS-001 (MS/MSD) MOODY01-001-SS-901 (Duplicate)
5	225.86				5/5	
10	220.86				5/5	
15	215.86	SC		(15 to 35) 2.5YR 8/1, White clayey sand, grading to 7.5YR 5/8 red clayey sand, medium plasticity, well sorted, slightly damp, stiff, no odor PID = 0 ppm	5/5	
20	210.86				5/5	
25	205.86				5/5	
30					5/5	

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Soil Boring Log: MOODY01-001

(Page 1 of 2)

Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY01-001

Site Name (Number):	Hangar 642 (Site 1)
Date Started:	4-11-2016
Date Complete:	4-12-2016
Total Depth:	50 feet
Logged by:	Ash Willis
Signature/Date:	

Northing Coord.	359432.79
Easting Coord.	2598659.94
Surf Elev (feet/amsl):	230.86
Hole Completion:	Backfilled
Depth to Groundwater:	41 feet

Drilling Company:	Zebra Technology
Driller:	Daniel Muillin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	3 inch

Depth in Feet	Surf. Elev. 230.86	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	200.86	SC			5/5	
35	195.86	SC		(35 to 40) 2.5YR 8/1 white clayey sand, medium plasticity, well sorted, damp, @ 35.7 feet moist, stiff, no odor. PID = 0ppm	5/5	
40	190.86	SC		(40 to 45) 2.5YR 8/1, white clayey sand, grading to 7.5YR 5/8 red clayey sand, @ 42.3 feet grading to 7.5R 5/8 red / 7.5YR 8/8 yellow @ 43.2 feet, low plasticity, well sorted, saturated, soft, no odor. PID = 0ppm	4.3/5	MOODY01-001-SO-040 43 45 MOODY01-001-GW-045 (MS/MSD) MOODY01-001-GW-945 (Duplicate)
45	185.86	SC		(45 to 50) 2.5YR 8/8 yellow clayey sand grading to 10R 8/3 pink clayey sand @ 46.4 feet, low plasticity, well sorted, saturated, soft, no odor. PID = 0ppm	5.5	
50	180.86			Total Depth of Boring 50 feet	5.5	
55	175.86					
60						

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Soil Boring Log: MOODY01-001
(Page 2 of 2)

Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY01-002

Site Name (Number): : Hangar 642 (Site 1)
Date Started: : 4-11-2016
Date Complete: : 4-11-2016
Total Depth: : 50 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 359383.46
Easting Coord. : 2598717.46
Surf Elev (feet/amsl): : 232.28
Hole Completion: : Backfilled
Depth to Groundwater: : 38 feet

Drilling Company: : Zebra Technology
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 3 inch

Depth in Feet	Surf. Elev. 232.28	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	232.28	FB		(0 to 0.8) 7.5YR 3/3 Dark brown, sandy clay, low plasticity, hard organic rich, no odor. PID = 1.0 ppm		MOODY01-002-SS-001
		CL		(0.8 to 7.2) 10YR 8/1 white clay-silt, medium plasticity, soft, damp, mottled with 10R 6/6 light red, no odor. PID = 1.0 ppm		
5	227.28				3.9/5	
		CL		(7.2 to 10) 10YR 8/1 white, silty-clay, low plasticity, soft, slightly damp, 10R 6/6, light red, no odor. PID = 1.0 ppm		
10	222.28				5/5	
		CL		(10 to 15) 10YR 8/1, white silty clay, low plasticity, soft, slightly damp, 10R 6/6 light red mottles grading to 7.5R 6/8 light red mottles, no odor. PID = 0 ppm		
15	217.28				4.8/5	
		CL		(15 to 20) 10YR 8/1 white silty clay, low plasticity, soft, slightly damp, 10R 6/6 light red mottles and 10YR 8/1 white mottles within 7.5YR 6/4 pale red sandy clay.. PID = 1.0 ppm		
20	212.28				5/5	
		CL		(20 to 38 feet) 10YR 8/1 white silty clay, low plasticity, soft, slightly damp, 7.5R 6/4 pale red mottles within 7.5R 8/1 white sandy clay, no odor. PID = 0 ppm		
25	207.28				5/5	
30					5/5	

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Soil Boring Log: MOODY01-002

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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY01-002

Site Name (Number): : Hangar 642 (Site 1)
Date Started: : 4-11-2016
Date Complete: : 4-11-2016
Total Depth: : 50 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 359383.46
Easting Coord. : 2598717.46
Surf Elev (feet/amsl): : 232.28
Hole Completion: : Backfilled
Depth to Groundwater: : 38 feet

Drilling Company: : Zebra Technology
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 3 inch

Depth in Feet	Surf. Elev. 232.28	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	202.28	CL			5/5	
35	197.28				5/5	MOODY01-002-SO-037
		CL		(38 to 40 feet) 10 YR 8/1 white silty clay, low plasticity, soft, 7.5R 6/4 pale red mottles within 7.5R 8/1 white sandy clay, groundwater @ 38 feet, no odor. PID = 0 ppm		
40	192.28				5/5	
		CL		(40 to 42.7 feet) 7.5R 8/2 light pink sandy clay, medium plasticity, damp soft, no odor. PID = 0 ppm		
						43
45	187.28	CL		(42.7 to 50 feet) 10R 8/1 white silty clay, low plasticity, soft, wet, 7.5R 6/4 pale red mottles, 7.5R 6/8 light red mottles throughout, no odor. PID = 0 ppm Saturated from 42.7 to 46.8 feet. Wet from 46.8 to 50 feet.	5.5	45 MOODY01-002-GW-045
50	182.28			Total Depth of Boring 50 feet	5.5	
55	177.28					
60						

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Soil Boring Log: MOODY01-002
(Page 2 of 2)

Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY01-004

Site Name (Number): : Hangar 642 (Site 1)
Date Started: : 4-12-2016
Date Complete: : 4-12-2016
Total Depth: : 45 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 359392.13
Easting Coord. : 2598667.41
Surf Elev (feet/amsl): : 231.39
Hole Completion: : Backfilled
Depth to Groundwater: : 42.5 feet

Drilling Company: : Zebra Technology
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 3 inch

Depth in Feet	Surf. Elev. 231.39	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	231.39	SC		(0 to 5) 5YR 6/8 Reddish yellow, clayey sand, medium plasticity, well sorted, slightly damp, soft, no odor. PID = 0 ppm		MOODY01-004-SS-001
5	226.39	SC		(5 to 10) 5YR 6/8 Reddish yellow, clayey sand, grading to 2.5YR 8/1 white clayey sand @ 6.9 ft, then 7.5 red clay mottles throughout, medium plasticity, well sorted, damp, medium stiff, no odor. PID = 0 ppm	5/5	
10	221.39	SC		(10 to 20) 2.5YR 8/1 white, clayey sand, with few 7.5YR 5/8 red clayey sand mottles throughout. PID = 0.0 ppm	3.4/5	
15	216.39				4.6/5	
20	211.39	SC		(20 to 26.5) 2.5YR 8/1, white clayey sand grading to 7.5R 5/8 red clayey sand and 2.5YR white clayey sand, mottles @ 23.5 ft, medium plasticity, well sorted, slightly damp, very stiff, no odor. PID = 0 ppm	4.5/5	
25	206.39	SC		(26.5 to 30.2) 2.5YR 8/1 white clayey sand, grading to 7.5R 5/8 red clayey sand @ 29.4 ft, medium plasticity, well sorted, slightly damp, stiff, no odor. PID = 0 ppm	5/5	
30					5/5	

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Soil Boring Log: MOODY01-004

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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY01-004

Site Name (Number):	Hangar 642 (Site 1)
Date Started:	4-12-2016
Date Complete:	4-12-2016
Total Depth:	45 feet
Logged by:	Ash Willis
Signature/Date:	

Northing Coord.	359392.13
Easting Coord.	2598667.41
Surf Elev (feet/amsl):	231.39
Hole Completion:	Backfilled
Depth to Groundwater:	42.5 feet

Drilling Company:	Zebra Technology
Driller:	Daniel Muillin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	3 inch

Depth in Feet	Surf. Elev. 231.39	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	201.39	SC			5/5	
		SC		(30.2 to 35 feet) 2.5YR 8/1 white clayey sand from 30.2 ft to 30.9 ft then 7.5YR 5/8 red clayey sand from 30.9 ft to 33.7 ft then back to 2.5YR 8/1 white clayey sand, increased saturation from 30 to 35 ft, medium plasticity, well sorted, medium stiff, no odor, moist. PID = 0 ppm		
35	196.39				5/5	
		SC		(35 to 40 feet) 2.5 YR 8/1 white clayey sand, grading to 2.5YR 8/2 pinkish white clayey sand @ 37.2 ft, medium plasticity, well sorted, medium stiff, no odor, damp. PID = 0 ppm		
40	191.39				4.9/5	MOODY01-004-SO-042 (MS/MSD) MOODY01-004-SO-942 (Duplicate)
		SC		(40 to 45 feet) 2.5R 8/1 white clayey sand, grading to 2.5YR 8/8 yellow clayey sand, low plasticity, well sorted, saturated, soft, no odor. PID = 0 ppm Groundwater @ 42.5 ft		43 MOODY01-004-GW-045
45	186.39			Total Depth of Boring 45 feet	5.5	45
50	181.39					
55	176.39					
60						

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Soil Boring Log: MOODY01-004
(Page 2 of 2)

Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY02-001

Site Name (Number): : Hangar 644 (Site 2)
Date Started: : 4-14-2016
Date Complete: : 4-14-2016
Total Depth: : 44 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Northing Coord. : 358826.66
Easting Coord. : 2598398.9
Surf Elev (feet/amsl): : 229.65
Hole Completion: : Backfilled
Depth to Groundwater: : 43.0 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 3 inch

Depth in Feet	Surf. Elev. 229.65	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	229.65	CL		(0 to 5) 10YR 6/8 Brownish yellow, sandy clay, slightly damp, low plasticity, well sorted, no odor, very loose. PID = 0 ppm		
5	224.65	CL		(5 to 10) 2.5Y 8/1 White sandy clay, with 7.5R 4/6 red mottling, slightly damp, low plasticity, well sorted, firm, no odor. PID = 0 ppm	5/5	
10	219.65			(10 to 15) NO SAMPLE. ROD STUCK IN HOLE.	5/5	
15	214.65	CL		(15 to 17.3) 2.5Y 8/1, white sandy clay, with 7.5R 4/6 red mottling, dry, low plasticity, well sorted, very firm, no odor. PID = 0 ppm	0/5	
				(17.3 to 20) NO SAMPLE. SAMPLE STUCK IN ROD.		
20	209.65	CL		(20 to 25.5 feet) 2.5Y 8/1 white sandy clay, with 7.5R 4/6 red mottling, dry, low plasticity, well sorted, firm, no odor. PID = 0 ppm	5/5	
25	204.65	CL		(25.5 to 27.5 feet) 2.5 Y 8/1 white sandy clay, dry, low plasticity, well sorted, firm, no odor. PID = 0 ppm	11.5/5	
		CL		(27.5 to 36 feet) 5R 8/1 white sandy clay, dry, low plasticity, well sorted, firm, no odor. PID = 0 ppm		
30					10.6/5	

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Soil Boring Log: MOODY02-001

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Northing Coord.	: 358826.66
Easting Coord.	: 2598398.9
Surf Elev (feet/amsl):	: 229.65
Hole Completion:	: Backfilled
Depth to Groundwater:	: 43.0 feet

Drilling Company:	: Cascade Drilling
Driller:	: Daniel Muillin
Drill Type:	: Geoprobe 7822 DT
Diameter of Boring:	: 3 inch

Site Name (Number):	: Hangar 644 (Site 2)
Date Started:	: 4-14-2016
Date Complete:	: 4-14-2016
Total Depth:	: 44 feet
Logged by:	: Jeremy Meshew
Signature/Date:	:

Depth in Feet	Surf. Elev. 229.65	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	199.65	CL			10.6/5	
35	194.65				9.5/5	
		CL		(36 to 43 feet) 5YR 8/1, White sandy clay, slightly damp, low plasticity, well sorted, firm, no odor. PID = 0ppm		
40	189.65				7.4/5	MOODY02-001-SO-042
				Total Depth of boring 43 feet		
					6/4	
45	184.65					
50	179.65					
55	174.65					
60						

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Soil Boring Log: MOODY02-002

Site Name (Number): : Hangar 644 (Site 2)
Date Started: : 4-15-2016
Date Complete: : 4-15-2016
Total Depth: : 47.5 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Northing Coord. : 358921
Easting Coord. : 2598397.64
Surf Elev (feet/amsl): : 230.31
Hole Completion: : Backfilled
Depth to Groundwater: : 44 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 230.31	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	230.31	CL		(0 to 5) 10YR 8/3 Very pale brown, sandy clay, with 10YR 4/6 red mottling, low plasticity, soft, dry, well sorted, no odor. PID = 0 ppm		
5	225.31	CL		(5 to 5.9) 10YR 8/2 Very pale brown, sandy clay with 10R 4/6 red mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm	5/5	
		CL		(5.9 to 8.5) 10YR 8/2 Very pale brown, sandy clay, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm.		
10	220.31	CL		(8.5 to 17.5) 10YR 8/2 Very pale brown, sandy clay with 10R 4/6 red mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm	5/5	
15	215.31				7/5	
20	210.31	CL		(17.5 to 20) 10YR 8/2 Very pale brown, sandy clay with 10R4/6 red slight mottling, low plasticity, very firm, dry, well sorted, no odor. PID = 0ppm	8/5	
		CL		(20 to 22.5 feet) 10YR 8/1 White sandy clay with 10R 7/8 light red slight mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm		
25	205.31	CL		(22.5 to 26 feet) 10YR 8/1 White sandy clay 10R 6/6 light red slight mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm	7.2/5	
		CL		(26 to 28 feet) 10YR 8/1 White sandy clay, low plasticity, slightly stiff, dry, well sorted, no odor. PID = 0 ppm		
30		CL		(28 to 31 feet) 10YR 5/1 White sandy clay with 10R 7/2 pale red mottling, plasticity, firm, dry, well sorted, no odor. PID = 0ppm	7.6/5	

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Soil Boring Log: MOODY02-002

Site Name (Number):	Hangar 644 (Site 2)
Date Started:	4-15-2016
Date Complete:	4-15-2016
Total Depth:	47.5 feet
Logged by:	Jeremy Meshew
Signature/Date:	

Northing Coord.	358921
Easting Coord.	2598397.64
Surf Elev (feet/amsl):	230.31
Hole Completion:	Backfilled
Depth to Groundwater:	44 feet

Drilling Company:	Cascade Drilling
Driller:	Daniel Muillin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	2.25 inch

Depth in Feet	Surf. Elev. 230.31	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	200.31	CL			7.6/5	
		CL		(31 to 35 feet) 10YR 7/3 Pale red sandy clay with 7.5YR reddish yellow slight mottling, low plasticity, very firm, dry, well sorted, no odor. PID = 0ppm		
35	195.31	CL		(35 to 36 feet) 2.5 YR 3/1 White sandy clay, low plasticity, slightly stiff, slightly damp, well sorted, no odor. PID = 0ppm	8.4/5	
		CL		(36 to 45 feet) 2.5YR 8/2 Pinkish white sandy clay, low plasticity, soft, slightly damp, well sorted, no odor. PID = 0ppm		
40	190.31	CL			8/5	MOODY02-002-SO-043
45	185.31			Total depth of boring 45 feet	6.6/5	
50	180.31					
55	175.31					
60						

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Soil Boring Log: MOODY02-003

Site Name (Number): : Hangar 644 (Site 2)
Date Started: : 4-13-2016
Date Complete: : 4-14-2016
Total Depth: : 50 feet
Logged by: : Jeremy Klein
Signature/Date: :

Northing Coord. : 358807.04
Easting Coord. : 2598621.98
Surf Elev (feet/amsl): : 229.26
Hole Completion: : Backfilled
Depth to Groundwater: : 43 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 230.31	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	230.31	SC		(0 to 5) 7.5YR 5/2 Brown clayey sand, slightly damp, very soft, low plasticity, well sorted, no odor. PID = 0 ppm		MOODY02-003-SS-001
5	225.31	CL		(5 to 6.2) 7.5YR 5/2 Brown clayey sand, slightly damp, very soft, low plasticity, well sorted, no odor. PID = 0 ppm	5/5	
		CL		(6.2 to 13.1) 10R 7/4 Pale red sandy clay, slightly damp, hard, medium plasticity, well sorted, no odor. PID = 0ppm.		
10	220.31				5/5	
15	215.31	CL		(13.1 to 21.8) 5YR 8/2 Pinkish white with 10R 6/6 light red mottling, sandy clay, slightly damp, very stiff (softer with depth), medium plasticity, well sorted, no odor. PID = 0 ppm	3.8/5	
20	210.31				4.3/5	
		CL		(21.8 to 23.2) 10YR 8/2 Very pale brown, sandy clay, wet soft, low plasticity, well sorted, no odor. PID = 0ppm		
25	205.31	CL		(23.2 to 31.5 feet) 10YR 8/2 Very pale brown with 10R 4/6 red mottling, sandy clay, very stiff, medium plasticity, well sorted, no odor, slightly damp. PID = 0 ppm	5/5	
30					4.3/5	

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Soil Boring Log: MOODY02-003

Site Name (Number): : Hangar 644 (Site 2)
Date Started: : 4-13-2016
Date Complete: : 4-14-2016
Total Depth: : 50 feet
Logged by: : Jeremy Klein
Signature/Date: :

Northing Coord. : 358807.04
Easting Coord. : 2598621.98
Surf Elev (feet/amsl): : 229.26
Hole Completion: : Backfilled
Depth to Groundwater: : 43 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 230.31	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	200.31	CL			4.3/5	
				(31.5 to 43 feet) 2.5YR 8/1 White sandy clay, very stiff, medium plasticity, slightly damp, well sorted, no odor. PID = 0 ppm		
35	195.31	CL			8/5	
40	190.31				9.2/5	MOODY02-003-SO-042
		CL		(43 to 44 feet) 5R 8/3 Light pink sandy clay, saturated, soft, low plasticity, well sorted, no odor. PID = 0 ppm		
45	185.31	CL		(44 to 50 feet) 12.5YR 8/1 White sandy clay, moist, medium plasticity, medium stiff, well sorted, no odor. PID = 0ppm	7.9/5	
50	180.31			Total depth of boring 50 feet	5/5	
55	175.31					
60						

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Soil Boring Log: MOODY02-006

Site Name (Number): : Hangar 644 (Site 2)
Date Started: : 4-13-2016
Date Complete: : 4-13-2016
Total Depth: : 50 feet
Logged by: : Jeremy Klein
Signature/Date: :

Northing Coord. : 358848.27
Easting Coord. : 2598645.49
Surf Elev (feet/amsl): : 229.36
Hole Completion: : Backfilled
Depth to Groundwater: : 42.2 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 229.36	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	229.36	SC		(0 to 4.5) 10YR 7/1 Light grey, damp, clayey sand, very soft, low plasticity, well sorted, no odor. PID = 0 ppm		MOODY02-006-SS-001
5	224.36	CL		(4.5 to 5) 10YR 8/4 Very pale brown sandy clay, slightly damp, medium stiff, medium plasticity, well sorted, no odor. PID = 0 ppm	5/5	
				(5 to 30) 10YR 8/2 Very pale brown with 5YR 7/4 pink mottling, sandy clay, slightly damp, stiff, medium plasticity, well sorted, no odor. PID = 0ppm.		
10	219.36				5/5	
15	214.36	CL			4.7/5	
20	209.36				5/5	
25	204.36				3.8/5	
30					5/5	

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Soil Boring Log: MOODY02-006

Site Name (Number):	Hangar 644 (Site 2)
Date Started:	4-13-2016
Date Complete:	4-13-2016
Total Depth:	50 feet
Logged by:	Jeremy Klein
Signature/Date:	

Northing Coord.	358848.27
Easting Coord.	2598645.49
Surf Elev (feet/amsl):	229.36
Hole Completion:	Backfilled
Depth to Groundwater:	42.2 feet

Drilling Company:	Cascade Drilling
Driller:	Daniel Muillin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	2.25 inch

Depth in Feet	Surf. Elev. 229.36	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	199.36	CL		(30 to 34) 5YR 7/2 Pinkish grey, sandy clay, stiff medium plasticity, slightly damp, well sorted, no odor. PID = 0 ppm	5/5	
35	194.36	CL		(34 to 35) 5YR 7/2 Pinkish grey sandy clay with 2.5YR 4/6 red mottling, stiff, medium plasticity, slightly damp, well sorted, no odor. PID = 0ppm	5/5	
		CL		(35 to 40 feet) 2.5YR 8/2 Pinkish white sandy clay, stiff, medium plasticity, slightly damp, well sorted, no odor. PID = 0 ppm		
40	189.36	CL		(40 to 41.5 feet) 2.5YR 8/1 White sandy clay, with 2.5YR 6/6 light red mottling, stiff, medium plasticity, slightly damp, well sorted, no odor. PID = 0 ppm	5/5	MOODY02-006-SO-042
		SC		(41.5 to 45 feet) 7.5YR 8/2 Pinkish white clayey sand, medium stiff, medium plasticity, damp, well sorted, no odor. PID = 0 ppm		
45	184.36	SC		(45 to 50 feet) 10YR 8/1 White clayey sand, medium plasticity, medium stiff, damp, well sorted, no odor. PID = 0ppm	5/5	46 MOODY02-006-GW-048 48
50	179.36			Total depth of boring 50 feet	4.5/5	
55	174.36					
60						

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Soil Boring Log: MOODY03-004

Site Name (Number): : Hangar 646 (Site 3)
Date Started: : 4-15-2016
Date Complete: : 4-15-2016
Total Depth: : 45 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Northing Coord. : 357557.6
Easting Coord. : 2599430.66
Surf Elev (feet/amsl): : 218.94
Hole Completion: : Backfilled
Depth to Groundwater: : 43 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Muillin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 218.94	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	218.94	CL		(0 to 0.5) 10YR 6/6 Brownish yellow sandy clay, with 10YR 3/4 dark red mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm		MOODY03-004-SS-001
		SM				
		SM				
		SM		(0.5 to 1) 10YR 4/1 Dark grey silty sand, unconsolidated, soft, slightly damp, well sorted, no odor. PID = 0 ppm		
		CL		(1 to 1.5) 10YR 8/2 Light brownish grey silty sand unconsolidated, soft slightly damp, well sorted, no odor. PID = 0ppm.		
5	213.94				3.7/5	
		CL		(1.5 to 3.5) 7.5YR 4/6 Strong brown and 10YR 6/2 light brownish grey, silty sand, unconsolidated, moist, well sorted, no odor. PID = 0 ppm	3.5/2.5	
				(3.5 to 5) 7.5YR 4/6 Strong brown sandy clay, low plasticity, medium stiff, slightly damp, well sorted, no odor. PID = 0ppm		
10	208.94				4.1/2.5	
				(5 to 11.5) 7.5YR 8/1 White sandy clay, with 7.5YR 7/6 reddish yellow and 10R 5/6 red mottling, low plasticity, very firm, dry, well sorted, no odor. PID = 0 ppm	3.8/2.5	
				(11.5 to 24) 10YR 8/1 White sandy clay, low plasticity, very firm, dry, well sorted, no odor. PID = 0 ppm		
15	203.94				4/2.5	
				(23.5 to 24) 0.5 feet water saturated zone		
		CL			2.4/2.5	
20	198.94				3.1/2.5	
					3.9/2.5	
25	193.94	CL		(24 to 27.5 feet) 2.5Y 7/4 Pale brown sandy clay, low plasticity, very firm, dry, well sorted, no odor. PID = 0 ppm	3.6/2.5	
					3.1/2.5	
		CL		(27.5 to 31) 10YR 8/1 White sandy clay, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm		
30					3.3/2.5	

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Soil Boring Log: MOODY03-004

Site Name (Number):	Hangar 646 (Site 3)
Date Started:	4-15-2016
Date Complete:	4-15-2016
Total Depth:	45 feet
Logged by:	Jeremy Meshew
Signature/Date:	

Northing Coord.	357557.6
Easting Coord.	2599430.66
Surf Elev (feet/amsl):	218.94
Hole Completion:	Backfilled
Depth to Groundwater:	43 feet

Drilling Company:	Cascade Drilling
Driller:	Daniel Muillin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	2.25 inch

Depth in Feet	Surf. Elev. 218.94	USCS Code	Graphic	Soil Description	Recovery	Remarks
30	188.94	CL			3.3/2.5	
		CL		(31 to 31.5) 10YR 8/1 White sandy clay with 10YR 6/8 brownish yellow and 5YR 4/6 yellowish red mottling, low plasticity, stiff, dry, well sorted, no odor. PID = 0ppm	4.3/2.5	
35	183.94			(31.5 to 45) 10YR 6/8 Brownish yellow sandy clay with 10YR 8/1 white and 5YR 4/6 yellowish red mottling, low plasticity, stiff, dry, well sorted, no odor. PID = 0ppm	3.8/2.5	
				(39.5 to 40) 0.5 foot water saturated zone	3.5/2.5	
		CL		43 to 45 feet water saturated.		
40	178.94				3.6/2.5	MOODY03-004-SO-042
					2.4/2.5 ▼	
45	173.94			Total depth of boring 45 feet.	5/2.5	
50	168.94					
55	163.94					
60						

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Soil Boring Log: MOODY04-002

Site Name (Number): : Hangar 775 (Site 4)
Date Started: : 4-16-2016
Date Complete: : 4-16-2016
Total Depth: : 32 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 352711.38
Easting Coord. : 2598697.58
Surf Elev (feet/amsl): : 224.71
Hole Completion: : Backfilled
Depth to Groundwater: : 29 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 224.71	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	224.71	SC		(0 to 7.8) 5YR 4/6 Yellowish brown clayey sand, non plastic, well sorted, slightly damp, very soft, no odor. PID = 0 ppm Damp near 5 feet	5/5	Bottom of former AFFF Basin appears to be 7.8 feet below current ground surface.
5	219.71					
		SC		(7.8 to 11) 5R 8/1 White clayey sand, low plasticity, well sorted, slightly damp, hard, no odor. PID = 0 ppm	3.9/5	
10	214.71					
		SC		(11 to 25) 7.5R 6/6 Light red to 5R 8/1 white clayey sand mottles, low plasticity, well sorted, slightly damp, hard, no odor. PID = 0ppm. 21.2 feet - Hard to stiff 24 feet - Slightly damp to wet	5/5	
15	209.71					
					5/5	
20	204.71					
					4/5	
25						

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Soil Boring Log: MOODY04-002

Site Name (Number):	Hangar 775 (Site 4)
Date Started:	4-16-2016
Date Complete:	4-16-2016
Total Depth:	32 feet
Logged by:	Ash Willis
Signature/Date:	

Northing Coord.	352711.38
Easting Coord.	2598697.58
Surf Elev (feet/amsl):	224.71
Hole Completion:	Backfilled
Depth to Groundwater:	29 feet

Drilling Company:	Cascade Drilling
Driller:	Daniel Mullin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	2.25 inch

Depth in Feet	Surf. Elev. 224.71	USCS Code	Graphic	Soil Description	Recovery	Remarks
25	199.71	SC		(25 to 30) 5R 8/1 White clayey sand, medium plasticity, wet, soft, no odor, well sorted. PID = 0 ppm 28.7 feet - same as above with 7.5R 6/6 light red mottles, low plasticity, well sorted, saturated very soft, no odor. PID = 0ppm. 29 feet - Encountered groundwater	4/5	MOODY04-002-SO-028 28 MOODY04-002-GW-030 30
30	194.71	SM		(30 to 32) 5R 5/1 Pinkish grey silty sand, non plastic, well sorted, saturated, very soft, no odor. PID = 0ppm	6.3/5	
				Total depth of boring 32 feet	2/2	
35	189.71					
40	184.71					
45	179.71					
50						

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Soil Boring Log: MOODY04-003

Site Name (Number): : Hangar 775 (Site 4)
Date Started: : 4-18-2016
Date Complete: : 4-18-2016
Total Depth: : 35 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Northing Coord. : 352896.92
Easting Coord. : 2598925.1
Surf Elev (feet/amsl): : 226.14
Hole Completion: : Backfilled
Depth to Groundwater: : 33 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 226.14	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	226.14	SM		(0 to 5) 10YR Very dark grey, silty sand, unconsolidated, soft, well sorted, slight fuel odor. PID = 0 ppm		MOODY04-003-SS-001
5	221.14	CL		(5 to 9) 10YR 8/1 White sandy clay with 2.5YR 3/6 dark red mottling, firm, saturated, well sorted, heavy fuel odor, 10YR 4/1 dark grey staining, low plasticity. PID = 0 ppm	5/5	
10	216.14	CL		(9 to 12.5) 10YR 8/1 White sandy clay, with 2.5YR 3/6 dark red mottling, firm, slightly damp, well sorted, slight fuel odor, low plasticity. PID = 0ppm.	4.5/5	
		CL		(12.5 to 15) 10YR 8/1 White sandy clay with 2.5YR 4/8 red mottling, firm, dry, well sorted, slight fuel odor, low plasticity. PID = 0 ppm	3.8/2.5	
15	211.14	CL		(15 to 17.5) 10YR 8/1 White sandy clay, with 2.5YR 7/4 light reddish brown mottling, very firm, well sorted, slight fuel odor dry. PID = 0ppm	3.7/2.5	
20	206.14	CL		(17.5 to 23) 10YR 8/1 White sandy clay, with 2.5YR 7/4 light reddish brown mottling, very firm, well sorted, no odor, low plasticity, dry. PID = 0ppm	3.6/2.5 3.3/2.5 3/2.5	
25		CL		(23 to 27.5) 10YR 8/1 White sandy clay, stiff, low plasticity, dry, well sorted, no odor. PID = 0ppm	3/2.5	

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Soil Boring Log: MOODY04-003

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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY04-003

Site Name (Number): : Hangar 775 (Site 4)
Date Started: : 4-18-2016
Date Complete: : 4-18-2016
Total Depth: : 35 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Northing Coord. : 352896.92
Easting Coord. : 2598925.1
Surf Elev (feet/amsl): : 226.14
Hole Completion: : Backfilled
Depth to Groundwater: : 33 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 226.14	USCS Code	Graphic	Soil Description	Recovery	Remarks
25	201.14	CL			3/2.5	
		CL		(27.5 to 30) 10YR 8/1 White sandy clay, low plasticity, slightly stiff, damp, well sorted, no odor. PID = 0ppm	2.5/2.5	
30	196.14	CL		(30 to 33) 10YR 8/1 Whit sandy clay with 2.5YR 7/4 light reddish brown mottling, low plasticity, moist, well sorted, no odor. PID = 0ppm	2.7/2.5	MOODY04-003-SO-032
		CL		(33 to 35) 2.5YR 7/4 Light reddish brown sandy clay, low plasticity, saturated, well sorted, no odor. PID = 0ppm	3/2.5	Groundwater at 33 feet
35	191.14			Total depth of boring 35 feet	3/2.5	
40	186.14					
45	181.14					
50						

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Soil Boring Log: MOODY04-003
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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY05-001

Site Name (Number): : Fire Station (Site 5)
Date Started: : 4-16-2016
Date Complete: : 4-16-2016
Total Depth: : 48 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Northing Coord. : 354670.35
Easting Coord. : 2599980.46
Surf Elev (feet/amsl): : 231.98
Hole Completion: : Backfilled
Depth to Groundwater: : 44 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 231.98	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	231.98	CL		(0 to 6) 10YR 5/6 Yellowish brown sandy clay with 2.5YR dark reddish brown mottling, medium plasticity, soft, slightly damp, well sorted, no odor. PID = 0 ppm		MOODY05-001-SS-001
5	226.98	CL		(6 to 12) 10YR 8/1 White sandy clay with 10YR 6/8 brownish yellow and 2.5YR 5/8 red mottling, low plasticity, slightly stiff, dry well sorted, no odor, PID = 0 ppm	2.5/5	
10	221.98	CL		(12 to 20) 10YR 8/1 White sandy clay, with 2.5YR 5/8 red mottling, low plasticity, stiff, dry, well sorted, no odor. PID = 0ppm.	4.6/5	
15	216.98	CL			5/5	
					4.1/2.5	
20	211.98	CL		(20 to 22.5) 10YR 8/1 White sandy clay with 2.5YR 5/8 red slight mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm	4.1/2.5	
		CL		(22.5 to 25) 10YR 8/1 White sandy clay, with 2.5YR 5/8 red mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm	3.9/2.5	
25					3.8/2.5	

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Soil Boring Log: MOODY05-001

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Aerostar SES LLC

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Lowndes County, Georgia
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Project # M2032.0001

Soil Boring Log: MOODY05-001
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Northing Coord. : 354670.35
Easting Coord. : 2599980.46
Surf Elev (feet/amsl): : 231.98
Hole Completion: : Backfilled
Depth to Groundwater: : 44 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Site Name (Number): : Fire Station (Site 5)
Date Started: : 4-16-2016
Date Complete: : 4-16-2016
Total Depth: : 48 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Depth in Feet	Surf. Elev. 231.98	USCS Code	Graphic	Soil Description	Recovery	Remarks
25	206.98	CL		(25 to 27.5) 10YR 8/1 White sandy clay, with 2.5YR 5/8 yellowish brown mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm	3.8/2.5	
		CL		(27.5 to 35) 10YR 8/1 White sandy clay with 7.5R 6/4 pale red and 10YR 5/8 yellowish brown mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm	3.6/2.5	
30	201.98				3.6/2.5	
					2.8/2.5	
35	196.98	CL		(35 to 40.5) 10YR 8/1 White sandy clay with 5YR 3/6 dark red and 10YR 5/8 yellowish brown mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm 0.33 foot saturated zone between 37.5 and 40 feet.	2.7/2.5	
					2.5/2.5	
40	191.98	CS		(40.5 to 41.5) 10YR 6/8 Brownish yellow sandy clay, low plasticity, soft, slightly damp, well sorted, no odor. PID = 0ppm	2.4/2.5	
		CL		(41.5 to 43) 7.5YR 7/4 Pale red sandy clay with 5R 4/6 red slight mottling, low plasticity, slightly damp, soft, well sorted, no odor. PID = 0ppm		MOODY05-001-SO-043 MOODY05-001-SO-943 (Duplicate)
		CL				44 Groundwater at 44 feet
45	186.98	CS		(43 to 44) 10YR 8/1 White sandy clay with 10YR 6/8 brownish yellow mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm	4.1/5	MOODY05-001-GW-046 46
				(44 to 48) 10YR 8/1 White sandy clay with 10YR 6/8 brownish yellow mottling, low plasticity, soft, saturated, well sorted, no odor. PID = 0ppm	3/3	
50				Total depth of boring 48 feet		

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Soil Boring Log: MOODY05-001
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Aerostar SES LLC

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Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY05-002

Site Name (Number): : Fire Station (Site 5)
Date Started: : 4-18-2016
Date Complete: : 4-18-2016
Total Depth: : 46 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 354706.01
Easting Coord. : 2599952.44
Surf Elev (feet/amsl): : 232.5
Hole Completion: : Backfilled
Depth to Groundwater: : 42 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 232.5	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	232.5	SM		(0 to 2.5) Gley 2.5 bluish black, SILTY SAND, non plastic, dry, soft, well sorted, no odor PID = 0 ppm		MOODY05-002-SS-001 MOODY05-002-SS-901 (Duplicate)
		SC		(2.5 to 5) 7.5YR 4/6 strong brown CLAYEY SAND, medium plasticity, moist, no odor, gravel at 4 feet PID = 0 ppm		
5	227.5	SC		(5 to 13) 7.5YR 2/2 Light pink red CLAYEY SAND, with 7.5R 3/8 dark red mottles, slightly damp, very stiff, medium plasticity, no odor. PID = 0ppm. Softens with depth.	3.1/5	
10	222.5				5/5	
					3.3/2.5	
		SC		(13 to 20) 10R 3/1 White CLAYEY SAND, slightly damp, soft, medium plasticity, no odor. PID = 0 ppm		
15	217.5				2.5/2.5	
					2.5/2.5	
20	212.5	SC		(20 to 28) 10R 8/1 White CLAYEY SAND, with 7.5R 8/2 light pink mottles, slightly damp, soft, medium plasticity, no odor. PID = 0ppm	3.5/2.5	
					3.2/2.5	
25					2.3/2.5	

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Soil Boring Log: MOODY05-002

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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY05-002

Site Name (Number): : Fire Station (Site 5)
Date Started: : 4-18-2016
Date Complete: : 4-18-2016
Total Depth: : 46 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 354706.01
Easting Coord. : 2599952.44
Surf Elev (feet/amsl): : 232.5
Hole Completion: : Backfilled
Depth to Groundwater: : 42 feet

Drilling Company: : Cascade Drilling
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 232.5	USCS Code	Graphic	Soil Description	Recovery	Remarks
25	207.5	SC			2.3/2.5	
					3/2.5	
		SC		(28 to 32.5) 7.5R 8/2 Light pink CLAYEY SAND, slightly damp, soft, medium plasticity, no odor. PID = 0ppm		
30	202.5				2.9/2.5	
		SC		(32.5 to 35) 10R 8/1 White CLAYEY SAND, moist, medium plasticity, soft, no odor. PID = 0ppm	2.5/2.5	
35	197.5	SC		(35 to 37) 10R 8/1 White CLAYEY SAND, with 5R 2.5/6 dark red mottles, low plasticity, soft, no odor, moist, PID = 0ppm	2.6/2.5	
		SC		(37 to 42) 10YR 7/6 Yellow CLAYEY SAND, low plasticity, moist, soft, no odor, with 5R 2.5/6 dark red mottles.. PID = 0ppm	2.7/2.5	
40	192.5				3.1/2.5	40 MOODY05-002-SO-041 MOODY05-002-GW-042 42.5 Groundwater at 42 feet
		SC		(42 to 42.5) 2.5Y 8/8 Yellow SAND, saturated, non plastic, very soft, no odor. PID = 0ppm	2.5/2.5	
				Total depth of boring 42.5 feet		
45	187.5					
50						

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Soil Boring Log: MOODY05-002
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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY05-003

Site Name (Number): : Fire Station (Site 5)
Date Started: : 4-19-2016
Date Complete: : 4-19-2016
Total Depth: : 45 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 354792.91
Easting Coord. : 2599979.32
Surf Elev (feet/amsl): : 232.76
Hole Completion: : Backfilled
Depth to Groundwater: : 43.5 feet

Drilling Company: : Zebra Technology
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 232.76	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	232.76	SM		(0 to 0.9) Gley 2.5 bluish black, SILTY SAND, non plastic, dry, soft, well sorted, no odor PID = 0 ppm		0 MOODY05-003-SS-001
		SC		(0.9 to 6) 7.5YR 4/6 strong black CLAYEY SAND, medium plasticity, moist, no odor, soft. PID = 0 ppm		
5	227.76				3.2/5	
		SC		(6 to 8) 7.8YR 4/6 Light pink CLAYEY SAND, with 7.5R 3/8 dark red mottles, medium plasticity, moist, no odor, soft. PID = 0ppm. Softens with depth.		
10	222.76	SC		(8 to 21) 10R 8/1 White CLAYEY SAND, with 7.5R 3/8 dark red mottles, medium plasticity, moist, no odor, very soft.. PID = 0 ppm	5/5	
					4.5/2.5	
15	217.76				2.9/2.5	
					3.1/2.5	
20	212.76				3.7/2.5	
		SC		(21 to 24.5) 10R 8/1 White CLAYEY SAND, medium plasticity, moist, no odor, soft.. PID = 0ppm	4.2/2.5	
25		SC		(24.5 to 26) 10R 8/1 White CLAYEY SAND, wit 7.5YR dark red mottles, medium plasticity, moist, no odor, soft. PID = 0ppm	2.2/2.5	25

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Soil Boring Log: MOODY05-003

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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
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Project # M2032.0001

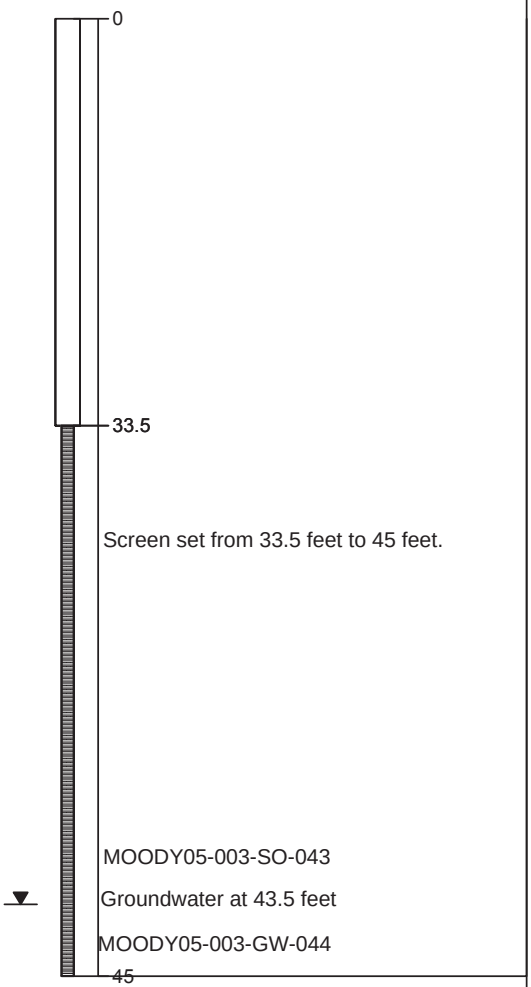
Soil Boring Log: MOODY05-003

Site Name (Number): : Fire Station (Site 5)
Date Started: : 4-19-2016
Date Complete: : 4-19-2016
Total Depth: : 45 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 354792.91
Easting Coord. : 2599979.32
Surf Elev (feet/amsl): : 232.76
Hole Completion: : Backfilled
Depth to Groundwater: : 43.5 feet

Drilling Company: : Zebra Technology
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 232.76	USCS Code	Graphic	Soil Description	Recovery
25	207.76	SC			2.2/2.5
		SC		(26 to 32) 7.5R 7/4 Pale red CLAYEY SAND, medium plasticity, moist, soft, no odor. PID = 0ppm	3/2.5
30	202.76				4/2.5
		SC		(32 to 37.5) 10R 8/1 White CLAYEY SAND, medium plasticity, moist, no odor, soft, PID = 0ppm	2.8/2.5
35	197.76				4.1/2.5
		SC		(37.5 to 42.5) 7.5YR 7/4 Pale red CLAYEY SAND, low plasticity, wet, no odor, very soft. PID = 0ppm	2.9/2.5
40	192.76				2.9/2.5
		SC		(42.5 to 45) 7.5YR 7/4 Pale red CLAYEY SAND, with 2.5Y 3/8 yellow mottles, non plastic, saturated, very soft, no odor. PID = 0ppm	2.4/2.5
45	187.76			Total depth of boring 45 feet	2.8/2.5
50					



Remarks

Screen set from 33.5 feet to 45 feet.

MOODY05-003-SO-043

Groundwater at 43.5 feet

MOODY05-003-GW-044

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Soil Boring Log: MOODY05-003

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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY05-004

Site Name (Number): : Fire Station (Site 5)
Date Started: : 4-16-2016
Date Complete: : 4-16-2016
Total Depth: : 40 feet
Logged by: : Jeremy Meshaw
Signature/Date: :

Northing Coord. : 354784.51
Easting Coord. : 2600086.52
Surf Elev (feet/amsl): : 232.18
Hole Completion: : Backfilled
Depth to Groundwater: : 38 feet

Drilling Company: : Cascade
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 232.18	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	232.18	SM		(0 to 1) 7.5YR 4/2 Brown SILTY SAND, , unconsolidated, soft, dry, well sorted, no odor PID = 0 ppm		
		CL		(1 to 5) 10YR 5/6 Yellowish brown SANDY CLAY, with 2.5YR 3/3 dark red mottles, low plasticity, soft, slightly damp, well sorted, no odor. PID = 0 ppm		
5	227.18	CL		(5 to 9) 10YR 7/3 Very pale brown SANDY CLAY, with 10YR 5/8 yellowish brown and 2.5YR 5/6 red mottling, low plasticity, firm, dry, well sorted, no odor, soft. PID = 0ppm.	3.7/5	
10	222.18	CL		(9 to 14) 10YR 7/3 Very pale brown SANDY CLAY, with 2.5YR 6/6 light red mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm	3.9/5 4.5/2.5	
15	217.18	CL		(14 to 21) 10YR 8/2 Very pale brown SANDY CLAY, with 10YR 8/8 yellow and 2.5YR 3/6 dark red mottling, low plasticity, slightly stiff, dry well sorted, no odor.. PID = 0ppm	4/4 4/4	
20	212.18	CL		(21to 25) 10YR 8/2 Very pale brown SANDY CLAY, with 2.5YR 7/3 light reddish brown and 10YR 8/8 yellow mottling, low plasticity, dry, well sorted, no odor. PID = 0ppm	5/4	
25					2.2/2.5	

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Soil Boring Log: MOODY05-004

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Aerostar SES LLC

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Project # M2032.0001

Soil Boring Log: MOODY05-004

Site Name (Number):	Fire Station (Site 5)
Date Started:	4-16-2016
Date Complete:	4-16-2016
Total Depth:	40 feet
Logged by:	Jeremy Meshaw
Signature/Date:	

Northing Coord.	354784.51
Easting Coord.	2600086.52
Surf Elev (feet/amsl):	232.18
Hole Completion:	Backfilled
Depth to Groundwater:	38 feet

Drilling Company:	Cascade
Driller:	Daniel Mullin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	2.25 inch

Depth in Feet	Surf. Elev. 232.18	USCS Code	Graphic	Soil Description	Recovery	Remarks
25	207.18	CL		(25 to 40) 10YR 5/2 Very pale brown SANDY CLAY, with 2.5YR 7/4 light reddish brown and 10R 3/6 dark red mottling, low plasticity, very firm, dry, well sorted, no odor. PID = 0ppm	2.2/2.5	
					3.9/2.5	
				0.25 foot water lens at 35.5 to 36 feet		
30	202.18			Water saturatd at 38 feet	3.4/2.5	
					3/2.5	
35	197.18				2.9/2.5	MOODY05-004-SO-037
					2.7/2.5	Groundwater at 38 feet 38 MOODY05-004-GW-038
40	192.18			Total depth of boring 40 feet	1.8/2.5	40
45	187.18					
50						

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Soil Boring Log: MOODY05-004
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Aerostar SES LLC

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Lowndes County, Georgia
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Project # M2032.0001

Soil Boring Log: MOODY06-001

Site Name (Number): : T-38 & A-10 Site (Site 6)
Date Started: : 4-17-2016
Date Complete: : 4-17-2016
Total Depth: : 35 feet
Logged by: : Jeremy Meshaw
Signature/Date: :

Northing Coord. : 349076.92
Easting Coord. : 2602143.61
Surf Elev (feet/amsl): : 204.75
Hole Completion: : Backfilled
Depth to Groundwater: : 30.6 feet

Drilling Company: : Cascade
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 204.75	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	204.75	SM / CS		(0 to 0.5) 2.5YR 3/1 Dark reddish grey SILTY SAND, unconsolidated, slightly damp, soft, well sorted, no odor. PID = 0 ppm		
		CL		(0.5 to 1.5) 10YR 4/6 Dark yellowish brown SANDY CLAY, low plasticity, slightly damp, firm, well sorted, no odor. PID = 0 ppm		
5	199.75	CL		(1.5 to 5) 10YR 8/1 White SANDY CLAY, with 2.5YR 4/8 red and 10YR 6/8 brownish yellow mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0ppm.	4.3/5	
		CL		(5 to 10) 10YR 8/1 White SANDY CLAY, with 2.5YR 4/8 red and 10YR 6/8 brownish yellow slight mottling, low plasticity, firm, dry, well sorted, no odor. PID = 0 ppm	5/3	
10	194.75	CL		(10 to 13.5) 10YR 8/2 Very pale brown SANDY CLAY, with 10YR 7/4 pale red and 10R 3/6 dark red mottling, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm	4.2/2	
		CL		(13.5 to 18) 10YR 8/2 Very pale brown SANDY CLAY, with 10RYR 3/6 dark red slight mottling, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm	5/2.5	
15	189.75	CL		(18 to 23.5) 10YR 8/2 Very pale brown SANDY CLAY, with10R 3/6 dark red slight mottling, low plasticity, damp, slightly stiff, well sorted, no odor. PID = 0ppm	4.5/2.5	
		CL		(23.5 to 26) 10YR 8/1 White SANDY CLAY, with 10YR very pale brown mottling, low plasticity, dry, firm, well sorted, no odor. PID = 0ppm	5/2.5	
20	184.75				4.2/2.5	
					3.6/2.5	
25					3.6/2.5	

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Soil Boring Log: MOODY06-001

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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY06-001

Site Name (Number):	T-38 & A-10 Site (Site 6)
Date Started:	4-17-2016
Date Complete:	4-17-2016
Total Depth:	35 feet
Logged by:	Jeremy Meshaw
Signature/Date:	

Northing Coord.	349076.92
Easting Coord.	2602143.61
Surf Elev (feet/amsl):	204.75
Hole Completion:	Backfilled
Depth to Groundwater:	30.6 feet

Drilling Company:	Cascade
Driller:	Daniel Mullin
Drill Type:	Geoprobe 7822 DT
Diameter of Boring:	2.25 inch

Depth in Feet	Surf. Elev. 204.75	USCS Code	Graphic	Soil Description	Recovery	Remarks
25	179.75	CL			3.6/2.5	
		CL		(26 to 27.5) 10YR 8/1 White SANDY CLAY, with 10 YR 6/8 brownish yellow and 2.5YR 4/8 red slight mottling, low plasticity, dry, firm, well sorted, no odor. PID = 0ppm	4.1/2.5	
		CL		(27.5 to 30.5) 10YR 7/6 Yellow SANDY CLAY, low plasticity, dry, firm, well sorted, no odor. PID = 0ppm		MOODY06-001-SO-029 Groundwater at 30.6 feet
30	174.75				3.9/2.5	30 MOODY06-001-GW-030
		CH		(30.5 to 31.5) 10YR 8/1 White CLAY with 10YR 7/6 yellow mottling, high plasticity, slightly stiff, well sorted, no odor. PID = 0ppm.		32
		CH		(31.5 to 33) 10YR 8/1 White CLAY, high plasticity, slightly stiff, well sorted, no odor. PID = 0ppm	4/2.5	
		CH		(33 to 35) 10YR 8/1 White CLAY, with 10YR 7/6 yellowmottling, high plasticity, slightly stiff, well sorted, no odor. PID = 0ppm		
35	169.75			Total depth of boring 35 feet	3.8/2.5	
40	164.75					
45	159.75					
50						

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Project # M2032.0001

Soil Boring Log: MOODY06-002

Site Name (Number): : T-38 & A-10 Site (Site 6)
Date Started: : 4-17-2016
Date Complete: : 4-17-2016
Total Depth: : 35 feet
Logged by: : Jeremy Meshaw
Signature/Date: :

Northing Coord. : 348742.92
Easting Coord. : 2602171.65
Surf Elev (feet/amsl): : 202.19
Hole Completion: : Backfilled
Depth to Groundwater: : 33 feet

Drilling Company: : Cascade
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 202.19	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	202.19	SM		(0 to 0.5) 10YR 4/1 Dark grey SILTY SAND, unconsolidated, dry, soft, well sorted, no odor. PID = 0 ppm		
		CL		(0.5 to 2.5) 10YR 5/4 Yellowish brown SANDY CLAY, low plasticity, slightly stiff, no odor. PID = 0 ppm		
5	197.19	CL		(2.5 to 10) 10YR 8/1 White SANDY CLAY, with 2.5YR 3/6 dark red mottling, low plasticity, very firm, dry, well sorted, no odor. PID = 0ppm.	3.9/5 3.4/2.5	
10	192.19	CL		(10 to 14) 10YR 8/1 White SANDY CLAY, low plasticity, very firm, well sorted, no odor. PID = 0 ppm	3.1/2.5 2.6/2.5	
15	187.19	CL		(14 to 17.5) 10YR 8/1 White SANDY CLAY, with 2.5YR 3/4 light reddish brown mottling, low plasticity, slightly damp, very firm, well sorted, no odor. PID = 0ppm	2.8/2.5	
		CL		(17.5 to 19) 10YR 8/1 White SANDY CLAY, with 2.5RYR 7/4 light reddish brown and 2.5YR 4/8 red mottling, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm	4.1/2.5	
20	182.19	CL		(19 to 22.5) 10YR 8/1 White SANDY CLAY, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm	3.8/2.5	
		CL		(22.5 to 25.5) 10YR 8/1 White SANDY CLAY, with 2.5YR 7/4 light reddish brown and 2.5YR 4/8 red mottling, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm	4/2.5 3.3/2.5	
25						

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Soil Boring Log: MOODY06-002

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Aerostar SES LLC

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Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY06-002
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Northing Coord.	: 348742.92	Drilling Company:	: Cascade
Easting Coord.	: 2602171.65	Driller:	: Daniel Mullin
Surf Elev (feet/amsl):	: 202.19	Drill Type:	: Geoprobe 7822 DT
Hole Completion:	: Backfilled	Diameter of Boring:	: 2.25 inch
Depth to Groundwater:	: 33 feet		

Site Name (Number):	: T-38 & A-10 Site (Site 6)
Date Started:	: 4-17-2016
Date Complete:	: 4-17-2016
Total Depth:	: 35 feet
Logged by:	: Jeremy Meshaw
Signature/Date:	:

Depth in Feet	Surf. Elev. 202.19	USCS Code	Graphic	Soil Description	Recovery	Remarks
25	177.19	CL			3.3/2.5	
		CL		(25.5 to 26.5) 10YR 8/1 White SANDY CLAY, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm		
		CL				
		CL		(26.5 to 27.5) 10YR 8/1 White SANDY CLAY, with 2.5YR 7/4 light reddish brown and 2.5YR 4/8 red mottling, low plasticity, slightly damp, stiff, well sorted, no odor. PID = 0ppm	3.1/2.5	
		CL				
		CL				
		CL				
30	172.19			(27.5 to 28.5) 10YR 7/3 Very pale brown SANDY CLAY, with 10YR 6/8 brownish yellow mottling, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm.	3.3/2.5	
		CL		(28.5 to 29) 10YR 8/1 White SANDY CLAY, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm	2.8/2.5	MOODY06-002-SO-032 32 MOODY06-002-GW-033 34 Groundwater at 33 feet.
				(29 to 29.5) 2.5YR 6/4 Light reddish brown SANDY CLAY, low plasticity, damp, slightly stiff, well sorted, no odor. PID = 0ppm		
35	167.19				2.5/2.5	
				(29.5 to 30) 10YR 8/1 White SANDY CLAY, low plasticity, dry, very firm, well sorted, no odor. PID = 0ppm		
				(30 to 35) 10YR 7/4 Very pale brown SANDY CLAY, low plasticity, moist, slightly stiff, well sorted, no odor. PID = 0ppm		
				Total depth of boring 35 feet		
40	162.19					
45	157.19					
50						

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Soil Boring Log: MOODY06-002
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Aerostar SES LLC

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Soil Boring Log: MOODY06-003

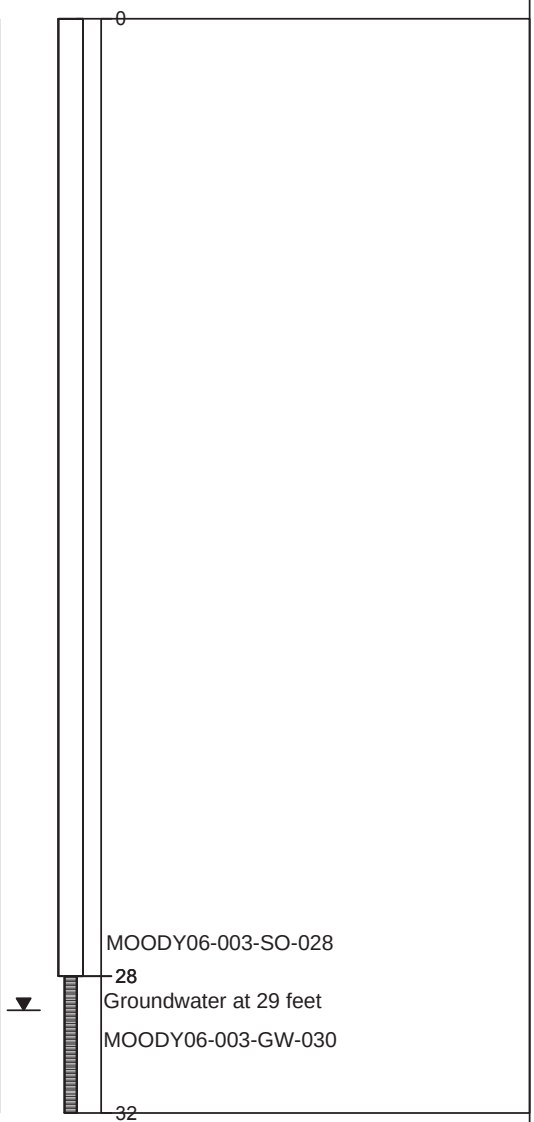
Site Name (Number): : T-38 & A-10 Site (Site 6)
Date Started: : 4-17-2016
Date Complete: : 4-17-2016
Total Depth: : 32 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 348443.42
Easting Coord. : 2602181.71
Surf Elev (feet/amsl): : 200.78
Hole Completion: : Backfilled
Depth to Groundwater: : 29 feet

Drilling Company: : Zebra Technologies
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 200.78	USCS Code	Graphic	Soil Description	Recovery
0	200.78	SM		(0 to 0.5) 10YR 3/1 Dark grey SILTY SAND, very soft, non plastic, wet, well sorted, no odor. PID = 0 ppm	
		SC		(0.5 to 4) 10YR 5/8 Yellowish brown CLAYEY SAND, medium plasticity, damp, well sorted, no odor. PID = 0 ppm	
5	195.78	CM		(4 to 6) 10YR 5/8 Yellowish brown CLAY, medium plasticity, wet, no odor. PID = 0ppm.	3.9/5
		SC		(6 to 9) 10YR 8/1 White CLAYEY SAND, with 5R 4/2 red mottles, very stiff, medium plasticity, slightly damp, well sorted, no odor. PID = 0 ppm	
10	190.78	SC		(9 to 12) 10YR 8/1 White CLAYEY SAND, very stiff, slightly damp, medium plasticity, well sorted, no odor. PID = 0ppm	5/5
15	185.78	SC		(12 to 20.8) 10YR 8/1 White CLAYEY SAND, very stiff, slightly damp, medium plasticity, 5% medium subangular quartz grains, no odor. PID = 0ppm	3.9/2.5
					2.5/2.5
				Grading to 5R 4/4 weak red from 19 feet to 20.8 feet.	4.1/2.5
20	180.78				3.7/2.5
		SC		(20.8 to 24) 10YR 8/1 White to 7.5YR 6/4 CLAYEY SAND, moist, medium plasticity, 3% medium subangular quartz grains, medium stiff, no odor. PID = 0ppm	3.7/2.5
25	175.78	SC		(24 to 26) 7.5YR 4/6 Strong brown CLAYEY SAND, moist, medium plasticity, soft, no odor. PID = 0ppm	7.7/2.5
		SC		(26 to 29) 7.5YR 5/8 Strong brown and 10R 6/8 light red mottled CLAYEY SAND, wet, very soft, nonplastic, well sorted, no odor. PID = 0ppm	3.5/2.5
30	170.78	SC		(29 to 32) 10YR 8/8 Yellow SILTY SAND, nonplastic, saturated, very soft, no odor. PID = 0ppm	3.1/2.5
35				Total depth of boring 32 feet	

Remarks



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Soil Boring Log: MOODY06-003
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Aerostar SES LLC

Moody Air Force Base
Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY07-001

Site Name (Number): : Suspect Vehicle Yard (Site 7)
Date Started: : 4-13-2016
Date Complete: : 4-13-2016
Total Depth: : 25 feet
Logged by: : Jeremy Klein
Signature/Date: :

Northing Coord. : 347168.71
Easting Coord. : 2605536.31
Surf Elev (feet/amsl): : 191.69
Hole Completion: : Backfilled
Depth to Groundwater: : 14.3 feet

Drilling Company: : Zebra Technologies
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 191.69	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	191.69	SC		(0 to 1) 10YR 5/3 Brown CLAYEY SAND, moist, soft, low plasticity, well sorted, no odor. PID 0ppm.		MOODY07-001-SS-001
		CL		(1 to 5) 10YR 5/1 Gray SANDY CLAY, damp, stiff, high plasticity, well sorted, no odor. PID = 0 ppm		
5	186.69	CL		(5 to 9.7) 10YR 8/1 White with 10R 4/6 red mottles, SANDY CLAY, low plasticity, well sorted, no odor. PID = 0ppm.	2.6/5	
10	181.69	CL		(9.7 to 14.3) 10YR 5/6 Yellowish brown SANDY CLAY, dry, very stiff, low plasticity, no odor. PID = 0 ppm	5/5	MOODY07-001-SO-014
		SC		(14.3 to 15) 10YR 8/3 Very pale brown CLAYEY SAND, wet, soft, low plasticity, well sorted, no odor. PID = 0ppm		Groundwater at 14.3 feet
15	176.69	SC		(15 to 16.2) 10YR 8/3 Very pale brown CLAYEY SAND, wet, soft, low plasticity, well sorted, no odor. PID = 0ppm	5/5	
		CL		(16.2 to 17.9) 10YR 8/1 White SANDY CLAY, slightly damp, high plasticity, medium stiff, no odor. PID = 0ppm		19 MOODY07-001-GW-020 21
20	171.69	SC		(17.9 to 20) 10YR 8/2 Very pale brown CLAYEY SAND, wet, soft, low plasticity, well sorted, no odor. PID = 0ppm	4.8/5	
		SC		(20 to 20.3) 7.5YR 7/8 Reddish yellow CLAYEY SAND, saturated, very soft, low plasticity, no odor. PID = 0ppm		
25	166.69			(20.3 to 25) 5Y 8/1 White CLAYEY SAND, saturated, very soft, low plasticity, well sorted, no odor. PID = 0ppm	4.4/5	
30				Total depth of boring 25 feet		

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Soil Boring Log: MOODY07-001

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Aerostar SES LLC

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Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY07-002

Site Name (Number): : Vehicle Yard (Site 7)
Date Started: : 4-13-2016
Date Complete: : 4-13-2016
Total Depth: : 25 feet
Logged by: : Jeremy Klein
Signature/Date: :

Northing Coord. : 347110.5
Easting Coord. : 2605615.41
Surf Elev (feet/amsl): : 190.84
Hole Completion: : Backfilled
Depth to Groundwater: : 15.5 feet

Drilling Company: : Zebra Technologies
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 190.84	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	190.84	SC		(0 to 2.5) 7.5YR 2.5/1 Black CLAYEY SAND, moist to slightly damp, low to medium plasticity, soft to stiff, well sorted, no odor. PID 0ppm.		MOODY07-002-SS-001
		SC		(2.5 to 5) 5Y 5/1 Gray CLAYEY SAND, slightly damp, medium plasticity, stiff, well sorted, no odor. PID = 0 ppm		
5	185.84	CL		(5 to 10) 5Y 6/1 for first 0.83 feet grading to 7.5YR 4/6 strong brown SILTY CLAY, mottled below 0.83 feet, low plasticity, slightly damp, well sorted, stiff, no odor. PID = 0ppm.	3.7/5	
10	180.84	CL		(10 to 15) 5Y 7/2 Light grey SILTY CLAY, with 7.5YR mottles throughout, very stiff to stiff, slightly damp, medium plasticity, well sorted, no odor. PID = 0 ppm	5/5	
15	175.84	SC		(15 to 20) 5Y 8/2 Pale yellow CLAYEY SAND, low plasticity, very soft, saturated, well sorted, no odor. PID = 0ppm	4.9/5	MOODY07-002-SO-015 Groundwater at 15.5 feet
20	170.84	SC		(20 to 24) 5Y 8/1 White CLAYEY SAND, for first 4 feet grading to 5Y 7/1 light grey SILTY CLAY, in last 1 foot, high plasticity, medium stiff, damp, no odor. PID = 0ppm	5/5	19 MOODY07-002-GW-020 21
		LS		(24 to 25) Limestone		
25	165.84			Total depth of boring 25 feet	5/5	
30						

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Soil Boring Log: MOODY07-002

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Aerostar SES LLC

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Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY07-003

Site Name (Number): : Vehicle Yard (Site 7)
Date Started: : 4-12-2016
Date Complete: : 4-12-2016
Total Depth: : 25 feet
Logged by: : Ash Willis
Signature/Date: :

Northing Coord. : 347148.98
Easting Coord. : 2605779.1
Surf Elev (feet/amsl): : 192.02
Hole Completion: : Backfilled
Depth to Groundwater: : 15 feet

Drilling Company: : Zebra Technologies
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 1 inch

Depth in Feet	Surf. Elev. 192.02	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	192.02	SC		(0 to 5) Gley 10Y 2.5/1 Greenish black CLAYEY SAND, for 2 feet then Gley 10Y 6/1 greenish grey from 2 to 2.8 feet grading to 10R 5/8 red CLAYEY SAND, saturated for the first 2 feet then slightly damp, soft for first 2 feet, then hard, low plasticity, well sorted, no odor. PID 0ppm.		MOODY07-003-SS-001
5	187.02	SC		(5 to 10) 10R 5/8 Red mottles in 10R 7/1 light grey CLAYEY SAND, slightly damp, firm, low plasticity, well sorted, no odor. PID = 0 ppm	3.7/5	
10	182.02	SC		(10 to 15) 7.5R 4/6 Strong brown mottles with 7.5YR 8/1 white and 10R 7/1 light grey CLAYEY SAND, slightly damp, stiff low plasticity, no odor. PID = 0ppm.	5/5	MOODY07-003-SO-014
15	177.02	SC		(15 to 20) 10YR 8/2 Very pale brown CLAYEY SAND, saturated, soft, low plasticity, well sorted, no odor. PID = 0 ppm	4.9/5	Groundwater at 15 feet 19
20	172.02	SC		(20 to 25) 10YR 8/2 Very pale brown CLAYEY SAND, saturated, soft, low plasticity, well sorted, no odor. PID = 0ppm	5/5	MOODY07-003-GW-020 21
25	167.02			Total depth of boring 25 feet	5/5	
30						

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Soil Boring Log: MOODY07-003

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Aerostar SES LLC

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Lowndes County, Georgia
AFFF Site Inspection
Project # M2032.0001

Soil Boring Log: MOODY08-001

Site Name (Number): : WWTP (Site 8)
Date Started: : 4-19-2016
Date Complete: : 4-19-2016
Total Depth: : 24 feet
Logged by: : Jeremy Meshew
Signature/Date: :

Northing Coord. : 359363.47
Easting Coord. : 2596042.87
Surf Elev (feet/amsl): : 212.57
Hole Completion: : Backfilled
Depth to Groundwater: : 18.5 feet

Drilling Company: : Zebra Technologies
Driller: : Daniel Mullin
Drill Type: : Geoprobe 7822 DT
Diameter of Boring: : 2.25 inch

Depth in Feet	Surf. Elev. 212.57	USCS Code	Graphic	Soil Description	Recovery	Remarks
0	212.57	SM		(0 to 4.5) 10YR Dark greyish brown SILTY SAND, low plasticity, slightly damp, soft, well sorted, no odor. PID 0ppm.		
5	207.57	CS		(4.5 to 6) 10R 5/8 Yellowish brown SANDY CLAY, slightly damp, medium plasticity, soft, well sorted, no odor. PID = 0 ppm	3.8/5	
		CL		(6 to 14) 10YR 8/1 White SANDY CLAY, with 10R 4/6 red mottling, slightly damp, slightly stiff, well sorted, no odor. PID = 0ppm.		
10	202.57				4.3/5	
15	197.57	CS		(14 to 24) 10YR 8/1 SANDY CLAY, with 10YR 6/8 brownish yellow mottling, low plasticity, slightly stiff, well sorted, slightly damp, no odor. PID = 0 ppm Saturated at 18 feet.	4.3/5	17 MOODY08-001-SO-018 MOODY08-001-GW-017 19 Groundwater at 18.5 feet
20	192.57				5/5	
					3.8/4	
25	187.57			Total depth of boring 24 feet		
30						

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Soil Boring Log: MOODY08-001

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Appendix E

Investigation-Derived Waste Manifest

380.00

INVOICE

SOUTHERN RECYCLING
INDUSTRIES, INC.
2011 - 2012
64 PAULINE AVE
RAY CITY, GA 31645

Voice: 229-455-2300
Fax: 229-455-2301

Invoice Number: N1606001
Invoice Date: Jun 24, 2016

Bill To:

AEROSTAR SES LLC
1006 FLOYD CULLER COURT
OAK RIDGE, TN 37830

Customer PO	Payment Terms	Due Date	Project #
BRIAN ODOM	Net 30 Days	7/24/16	N1606001

Quantity	Description	Unit Price	Amount
4.00	TRANSPORTATION AND THERMAL TREATMENT/RECYCLING OR DISPOSAL OF DRUMMED INVESTIGATION DERIVED WASTE. GENERATOR & SITE ADDRESS: 23RD CES/CEVR 3485 GEORGIA STREET MOODY AFB, GA	95.00	380.00

Overdue invoices are subject to late charges of 18% APR.

TOTAL 380.00

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
			061716-01

5. Generator's Name and Mailing Address: 23 CES/CEVR, 3485 Georgia St, MAFB, GA 3199

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name: SRI — U.S. EPA ID Number

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address: SRI, 64 Pauline Ave Ray City, GA 31645 — U.S. EPA ID Number

Facility's Phone: 229-455-2300

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	IDW	4	DM		G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Lori M. Burnam — Signature: Lori M. Burnam — Month: 6 — Day: 17 — Year: 16

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: James Plair — Signature: James Plair — Month: 6 — Day: 17 — Year: 16

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Sara Stephens — Signature: Sara Stephens — Month: 06 — Day: 17 — Year: 16

Appendix F

Geotechnical Sample Results

Table F-1 Geotechnical Sample Results

AFFF Area	Sample Number	Depth (feet/bgs)	TOC (mg/kg)	pH (units)	Percent Solid (percent)
AFFF Area 1 Hangar 642	MOODY01-005-SS-001	0.5	1,290 J	7.01	83.3
	MOODY01-005-SO-040	40.0	1,100 U	5.17	85.1
AFFF Area 2 Hangar 644	MOODY02-007-SS-001	0.5	7,440	6.65	91.9
	MOODY02-007-SO-042	42.0	1,100 U	5.07	84.9
AFFF Area 3 Hangar 646	MOODY03-008-SS-001	0.5	20,700	6.53	87.8
	MOODY03-008-SO-042	42.0	1,000 U	5.03	86.4
AFFF Area 4 Hangar 775	MOODY04-005-SS-001	0.5	5,240	5.99	89.6
	MOODY04-005-SO-032	32.0	1,100 U	4.97	85.2
AFFF Area 5 Fire Station (Building 621)	MOODY05-005-SS-001	0.5	9,470	6.56	90.0
	MOODY05-005-SO-043	43.0	1,000 U	4.52	87.6
AFFF Area 6 T-38 Tail Fire and A-10 Crash Site	MOODY06-007-SO-028	28.0	1,100 U	5.09	83.7
AFFF Area 7 Suspect Vehicle Storage Yard	MOODY07-004-SS-001	0.5	2,760	5.31	82.5
	MOODY07-004-SO-015	15.0	1,100 U	5.02	82.9
AFFF Area 8 Wastewater Treatment Plant	MOODY08-004-SO-018	18.0	1,000 U	4.66	85.9

bgs = below ground surface

J = estimated value

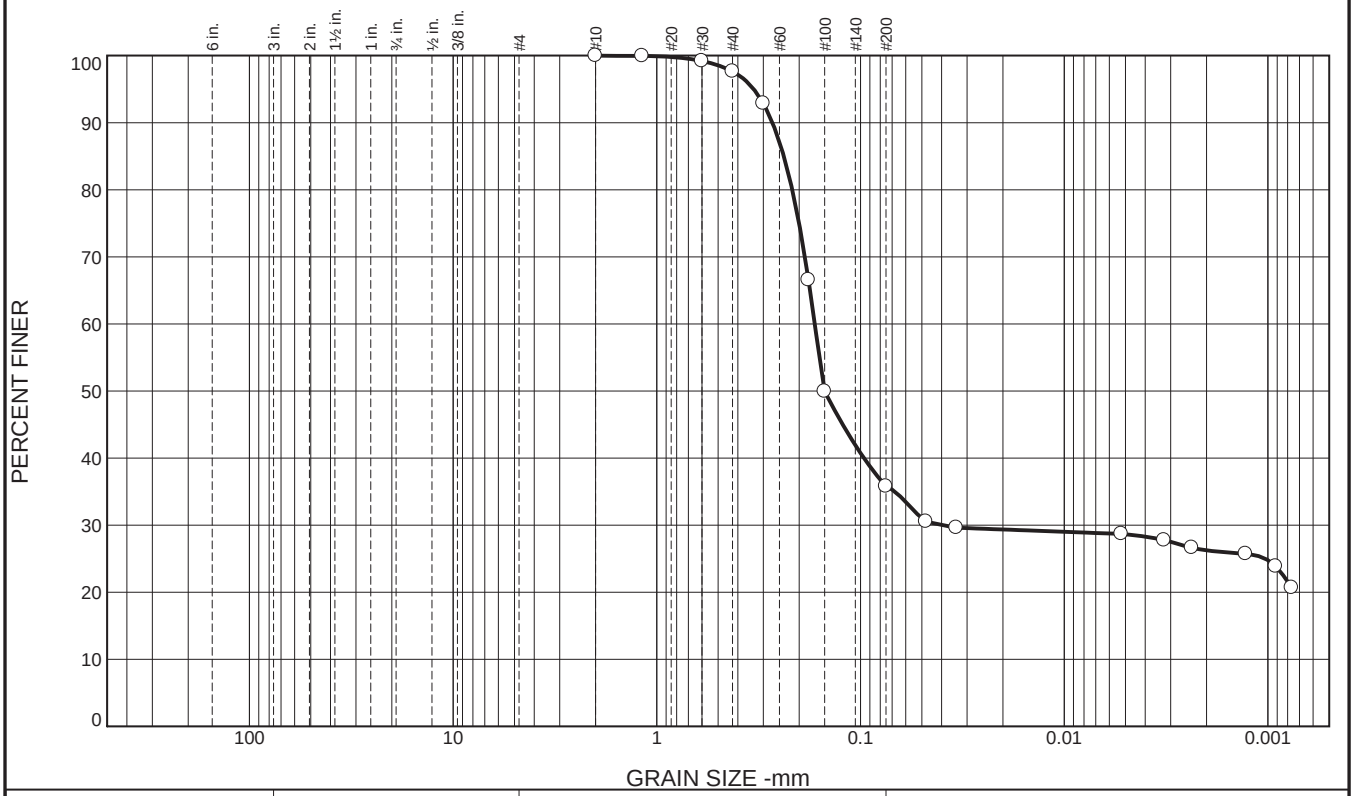
mg/kg = milligrams per kilogram

pH = potential of hydrogen

TOC = total organic carbon

U = analyte not detected at the Method Detection Limit

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.4	61.8	7.2	28.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	99.9		
#30	99.2		
#40	97.6		
#50	92.9		
#80	66.5		
#100	49.9		
#200	35.8		

* (no specification provided)

Material Description

White Clayey Fine Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2705 D_{85}= 0.2379 D_{60}= 0.1678
D_{50}= 0.1501 D_{30}= 0.0395 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Natural Moisture = 17.0%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY01-005-SO-040

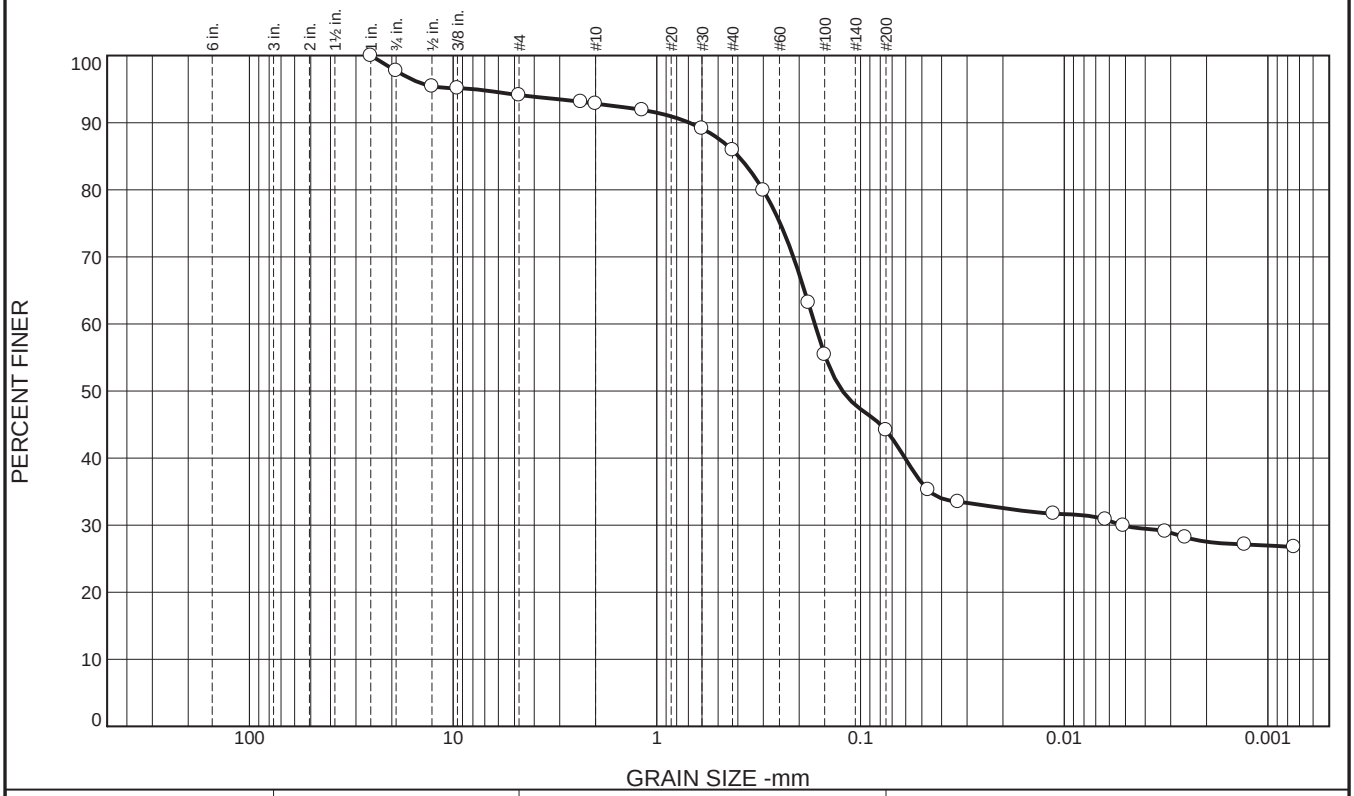
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.3	3.6	1.3	6.9	41.7	14.3	29.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	97.7		
1/2	95.4		
3/8	95.1		
#4	94.1		
#8	93.1		
#10	92.8		
#16	91.9		
#30	89.1		
#40	85.9		
#50	79.9		
#80	63.2		
#100	55.4		
#200	44.2		

* (no specification provided)

Material Description

Brown Clayey Fine to Medium Sand, Little Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.6926 D_{85}= 0.3969 D_{60}= 0.1676
D_{50}= 0.1226 D_{30}= 0.0052 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Natural Moisture = 15.9%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY01-005-SS-001

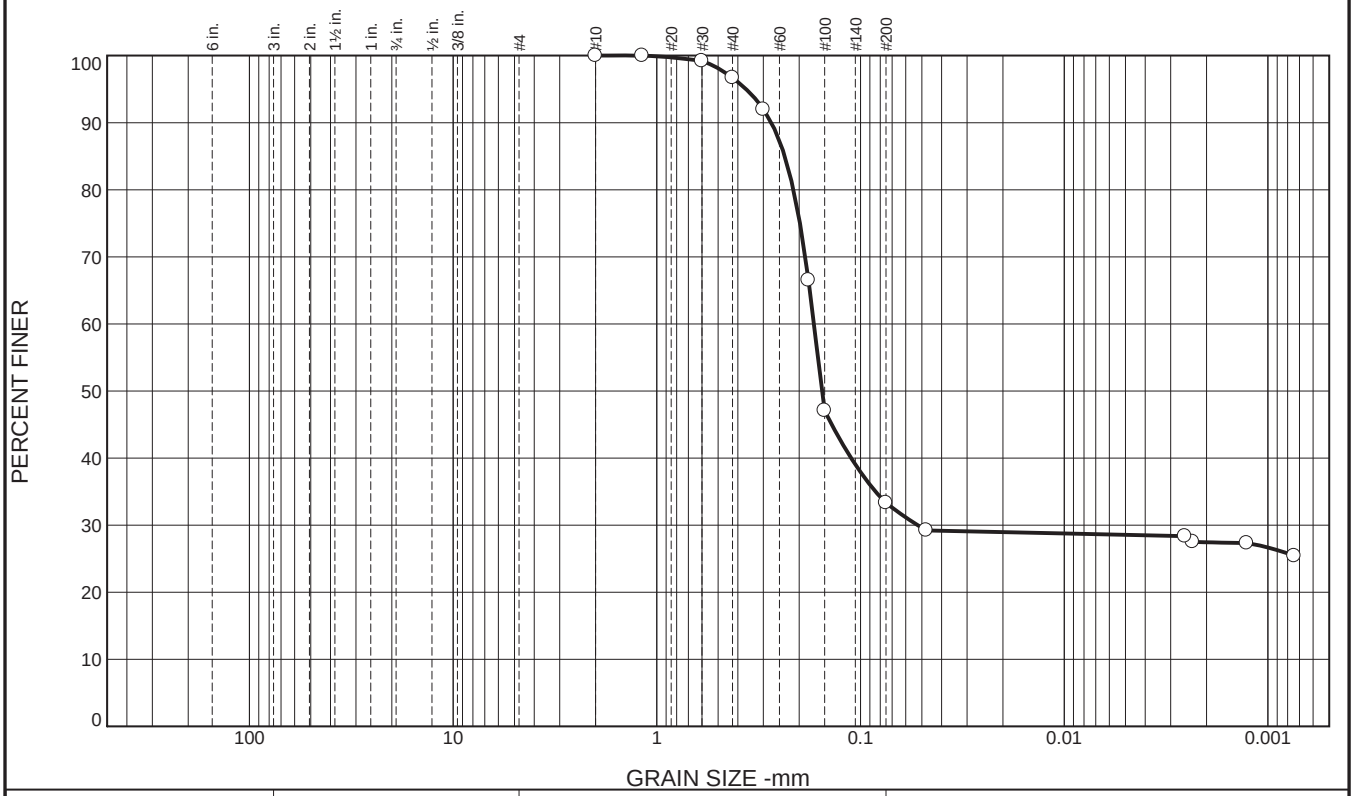
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.3	63.4	4.7	28.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	100.0		
#30	99.2		
#40	96.7		
#50	92.0		
#80	66.5		
#100	47.1		
#200	33.3		

* (no specification provided)

Material Description

White Fine Sand, Some Clay, Trace Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2740 D_{85}= 0.2353 D_{60}= 0.1694
D_{50}= 0.1546 D_{30}= 0.0524 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Natural Moisture = 18.0%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY02-007-SO-042

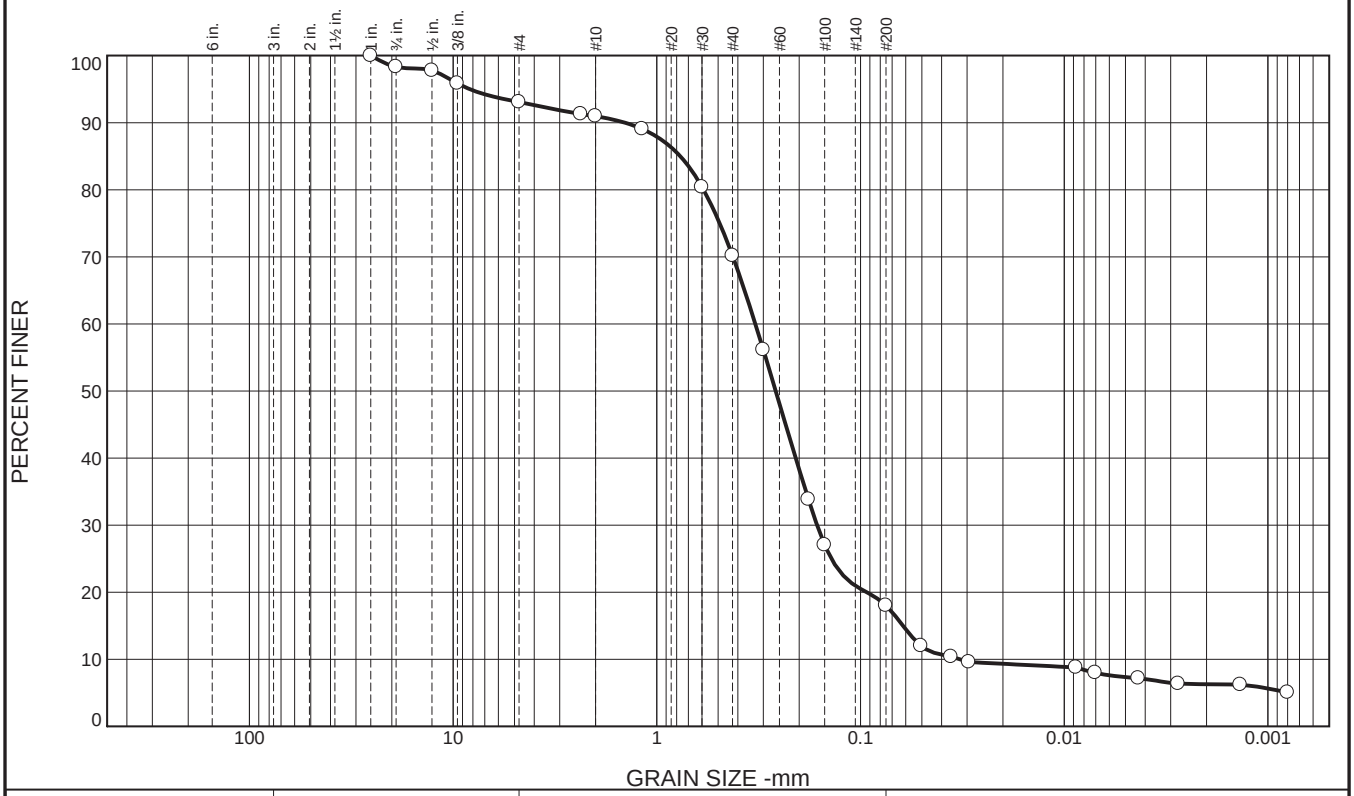
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.7	5.2	2.1	20.8	52.2	10.6	7.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	98.3		
1/2	97.8		
3/8	95.9		
#4	93.1		
#8	91.3		
#10	91.0		
#16	89.0		
#30	80.4		
#40	70.2		
#50	56.1		
#80	33.8		
#100	27.0		
#200	18.0		

* (no specification provided)

Material Description

Brown Fine to Medium Sand, Little Silt, Clay, and Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.4369 D_{85}= 0.7688 D_{60}= 0.3282
D_{50}= 0.2609 D_{30}= 0.1635 D_{15}= 0.0619
D_{10}= 0.0325 C_u= 10.10 C_c= 2.51

Classification

USCS= SM AASHTO=

Remarks

Natural Moisture = 7.3%

Sample Number: MOODY02-007-SS-001

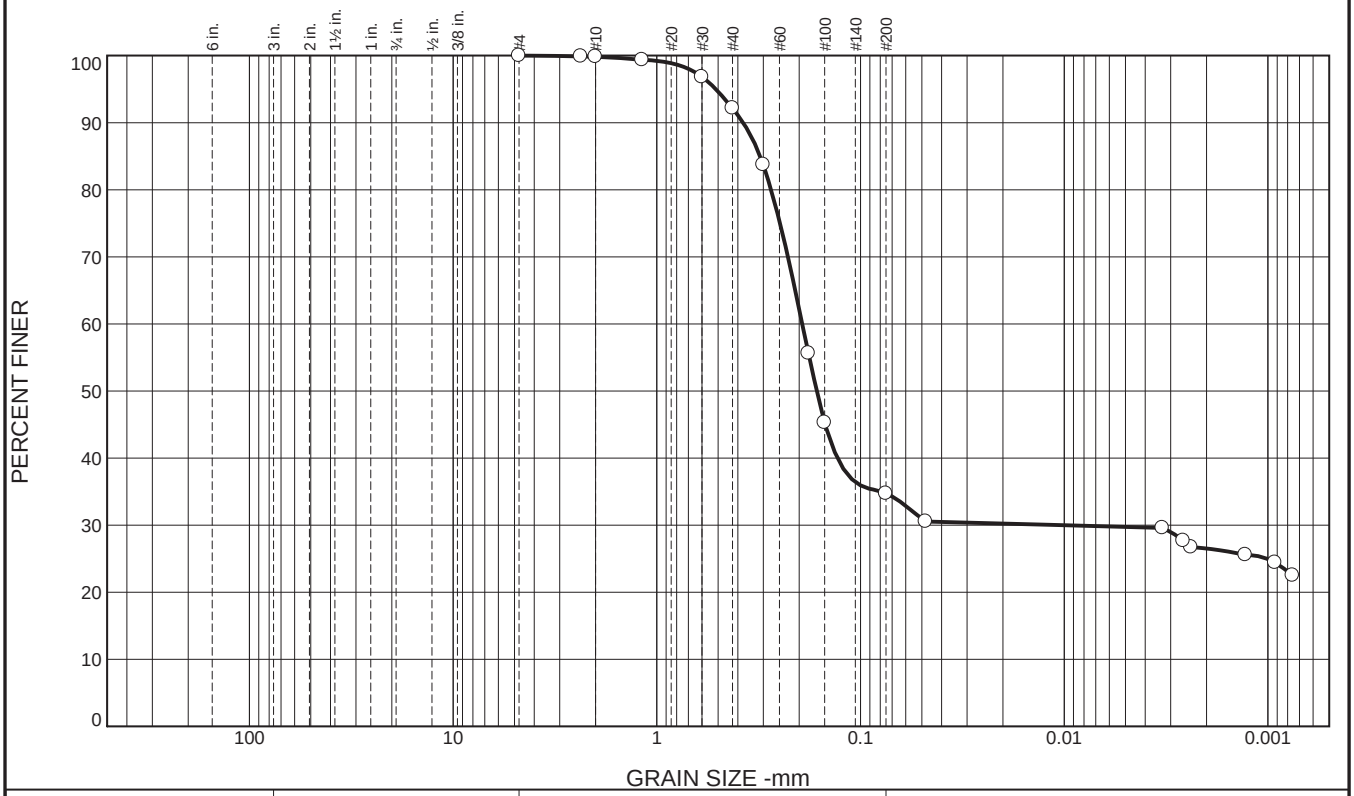
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	7.7	57.4	5.0	29.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#8	99.9		
#10	99.8		
#16	99.4		
#30	96.8		
#40	92.1		
#50	83.7		
#80	55.6		
#100	45.3		
#200	34.7		

* (no specification provided)

Material Description

Yellow-Brown Fine to Medium Sand, Some Clay, Little Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3768 D_{85}= 0.3109 D_{60}= 0.1931
D_{50}= 0.1640 D_{30}= 0.0103 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

Natural Moisture = 22.3%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY03-008-SO-042

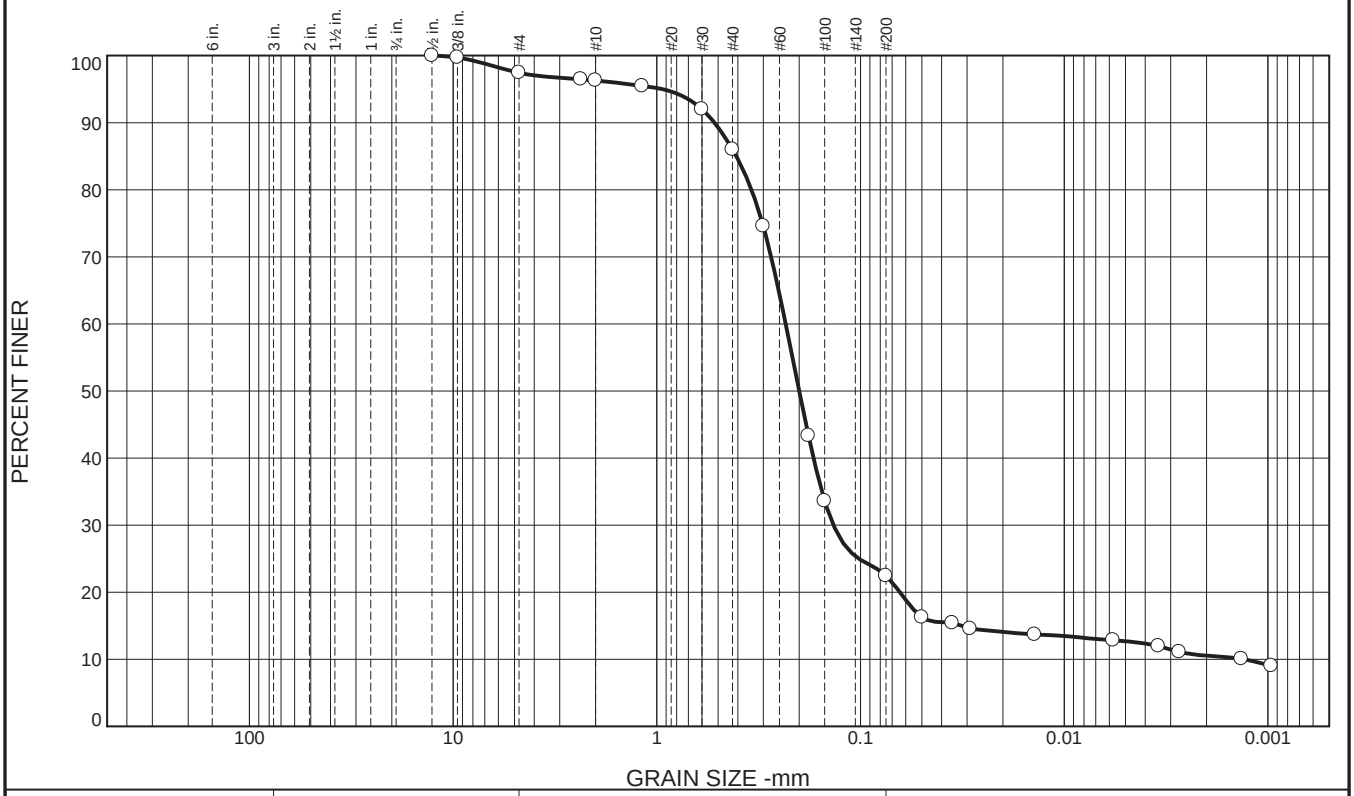
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	1.1	10.3	63.6	9.7	12.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	99.7		
#4	97.4		
#8	96.5		
#10	96.3		
#16	95.5		
#30	92.0		
#40	86.0		
#50	74.6		
#80	43.4		
#100	33.6		
#200	22.4		

* (no specification provided)

Material Description

Brown Fine to Medium Sand, Some Clay, Little Silt, Trace Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5214 D_{85}= 0.4072 D_{60}= 0.2329
D_{50}= 0.1999 D_{30}= 0.1358 D_{15}= 0.0318
D_{10}= 0.0013 C_u= 177.77 C_c= 60.41

Classification

USCS= SM/SC AASHTO=

Remarks

Natural Moisture = 20.1%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY03-008-SS-001

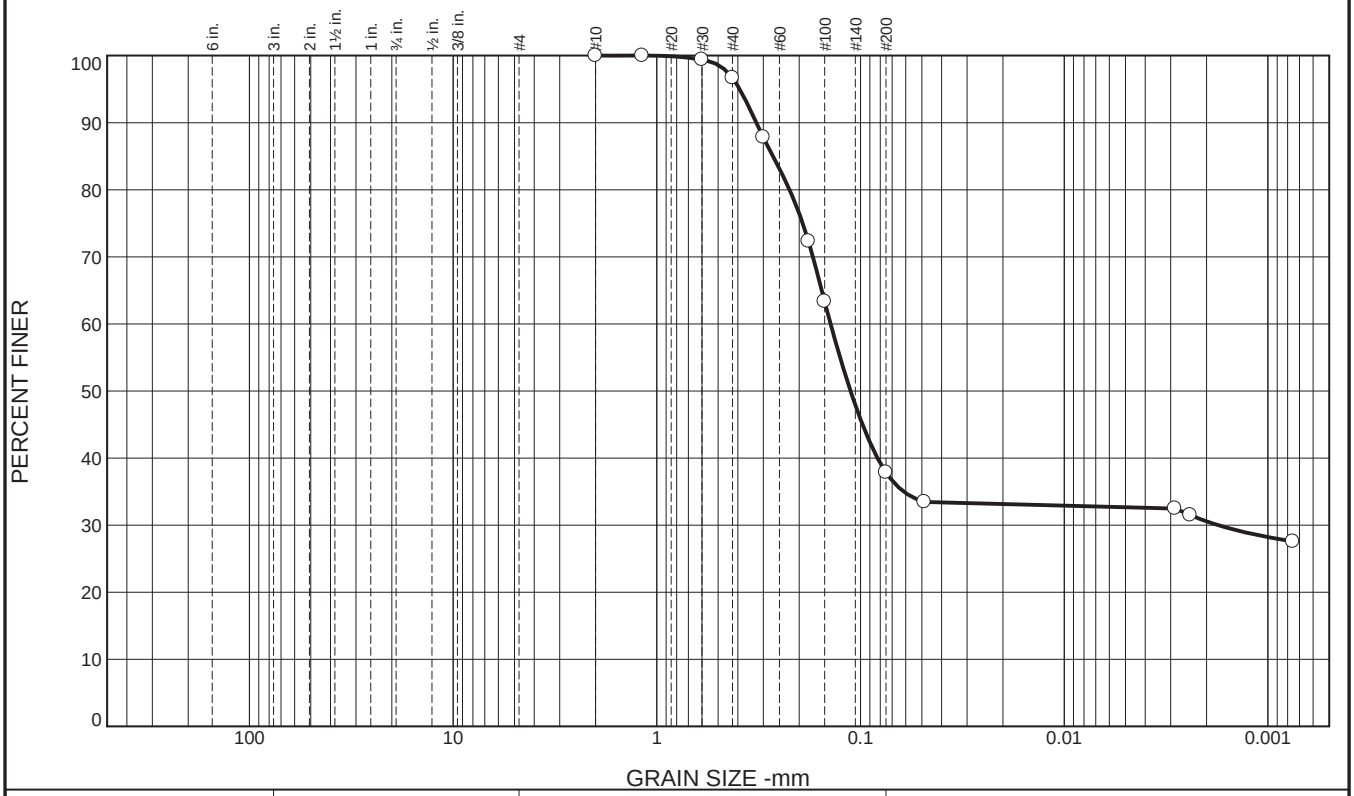
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	3.3	58.8	5.2	32.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	100.0		
#30	99.4		
#40	96.7		
#50	87.8		
#80	72.3		
#100	63.3		
#200	37.9		

* (no specification provided)

Material Description

White Clayey Fine Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3247 D_{85}= 0.2691 D_{60}= 0.1403
D_{50}= 0.1119 D_{30}= 0.0018 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Natural Moisture = 17.5%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY04-005-SO-032

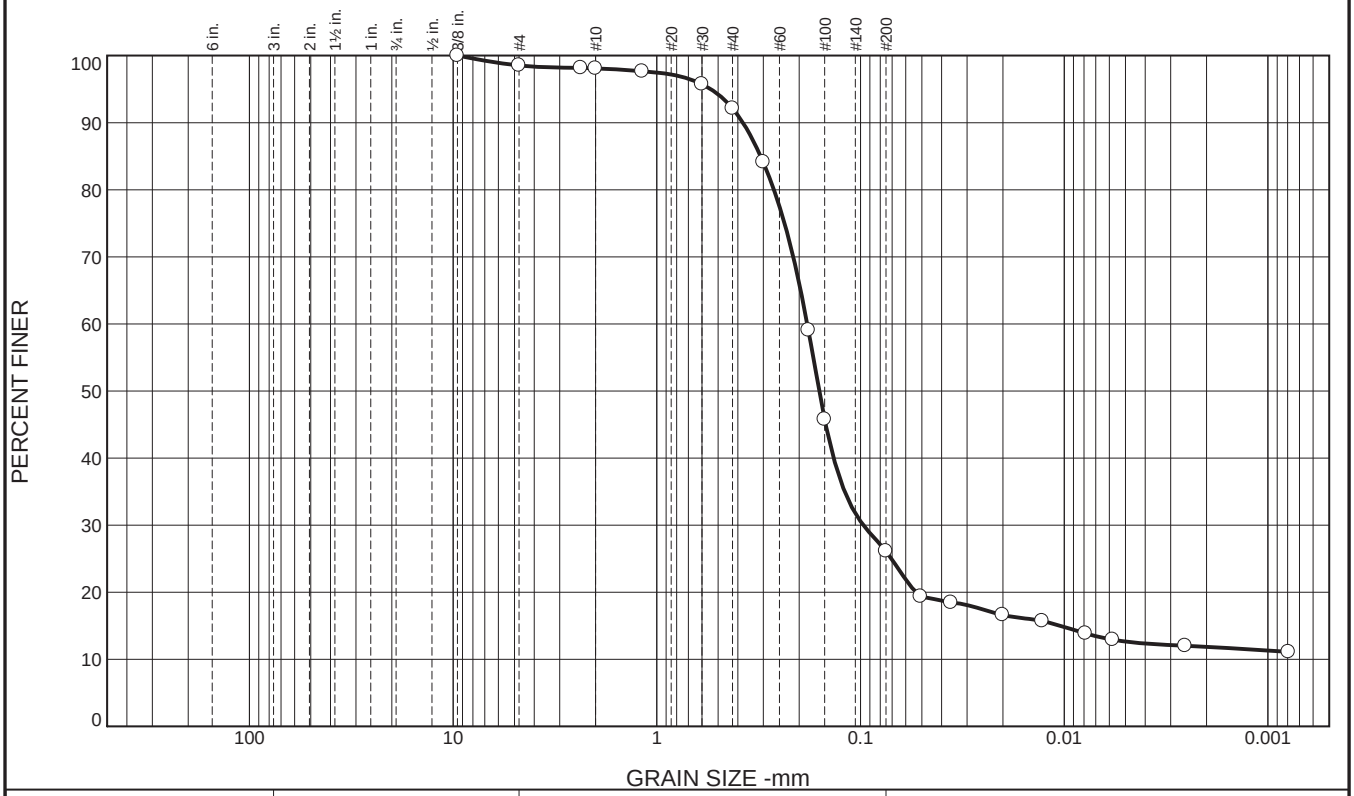
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	0.4	6.0	66.0	13.5	12.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	98.5		
#8	98.2		
#10	98.1		
#16	97.7		
#30	95.7		
#40	92.1		
#50	84.1		
#80	59.1		
#100	45.8		
#200	26.1		

* (no specification provided)

Material Description

Brown Fine to Medium Sand, Some Silt and Clay, Trace Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3776 D_{85}= 0.3089 D_{60}= 0.1824
D_{50}= 0.1594 D_{30}= 0.0969 D_{15}= 0.0105
D_{10}= C_u= C_c=

Classification

USCS= SM/SC AASHTO=

Remarks

Natural Moisture = 10.6%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY04-005-SS-001

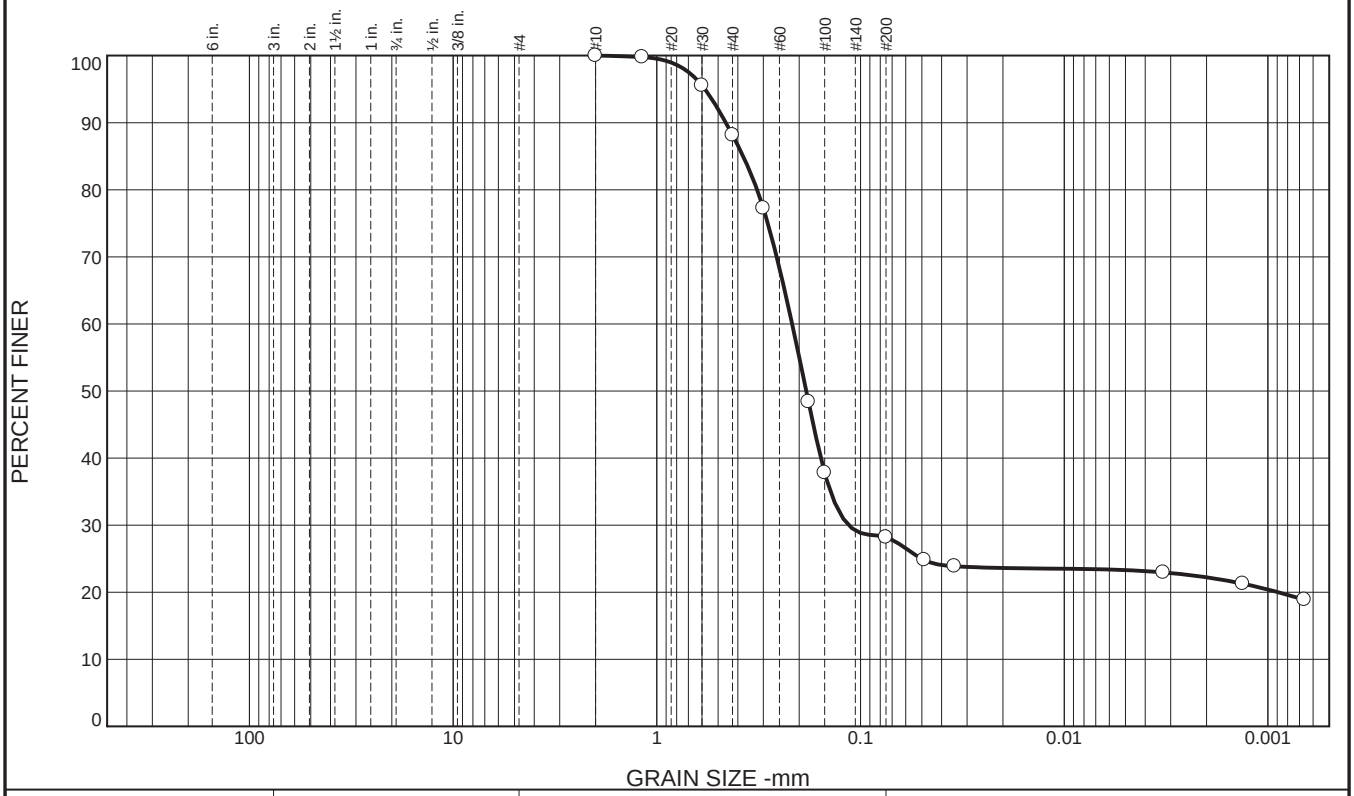
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.9	59.9	4.9	23.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	99.8		
#30	95.5		
#40	88.1		
#50	77.3		
#80	48.4		
#100	37.8		
#200	28.2		

* (no specification provided)

Material Description

Yellow-Pink Fine to Medium Sand, Some Clay, Trace Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4583 D_{85}= 0.3769 D_{60}= 0.2166
D_{50}= 0.1846 D_{30}= 0.1145 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-2-4(0)

Remarks

Natural Moisture = 17.6%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY05-005-SO-043

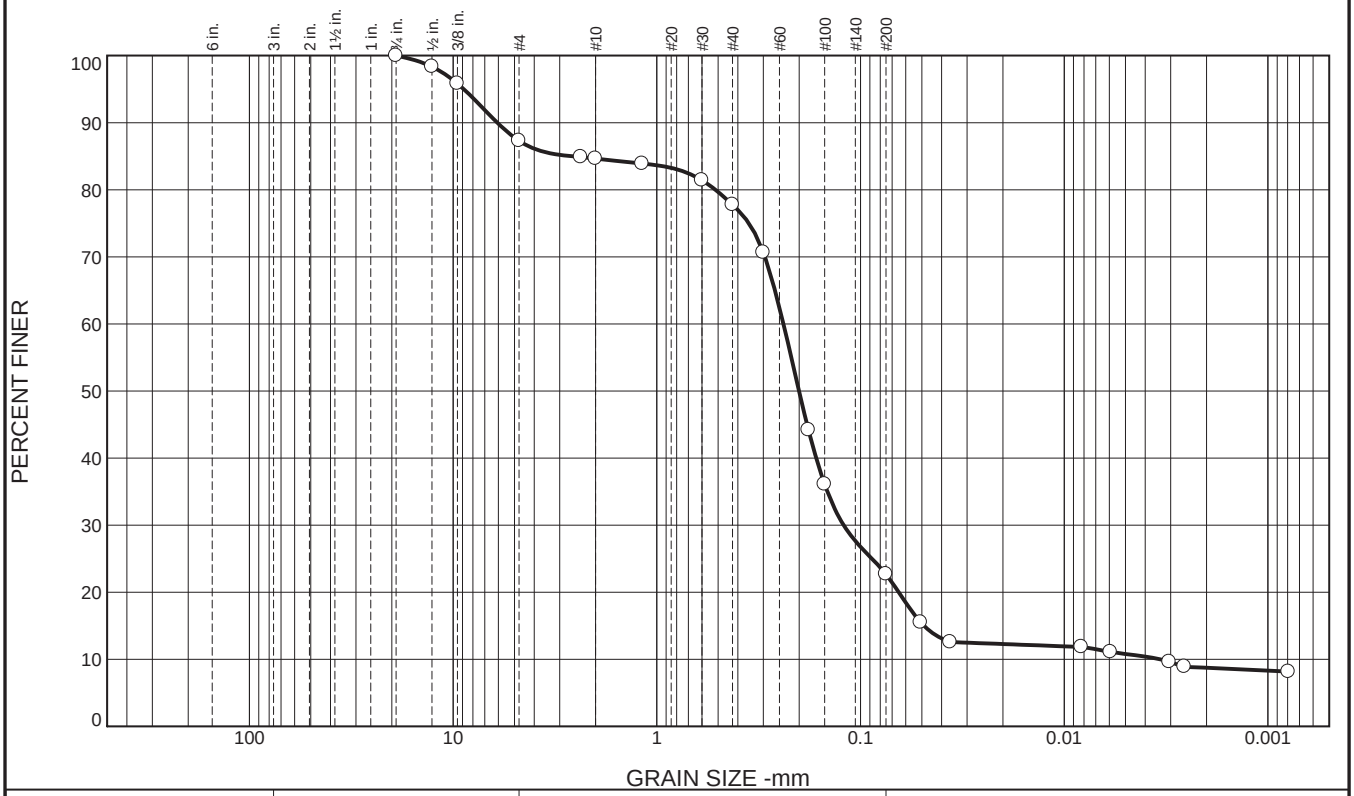
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	12.7	2.7	6.8	55.1	11.9	10.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	98.3		
3/8	95.8		
#4	87.3		
#8	84.9		
#10	84.6		
#16	83.9		
#30	81.4		
#40	77.8		
#50	70.7		
#80	44.2		
#100	36.1		
#200	22.7		

* (no specification provided)

Material Description

Brown Fine to Medium Sand, Some Gravel, Little Silt and Clay

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.0671 D_{85}= 2.6029 D_{60}= 0.2390
D_{50}= 0.2004 D_{30}= 0.1209 D_{15}= 0.0488
D_{10}= 0.0034 C_u= 70.52 C_c= 18.03

Classification

USCS= SM/SC AASHTO= A-2-4(0)

Remarks

Natural Moisture = 10.3%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY05-005-SS-001

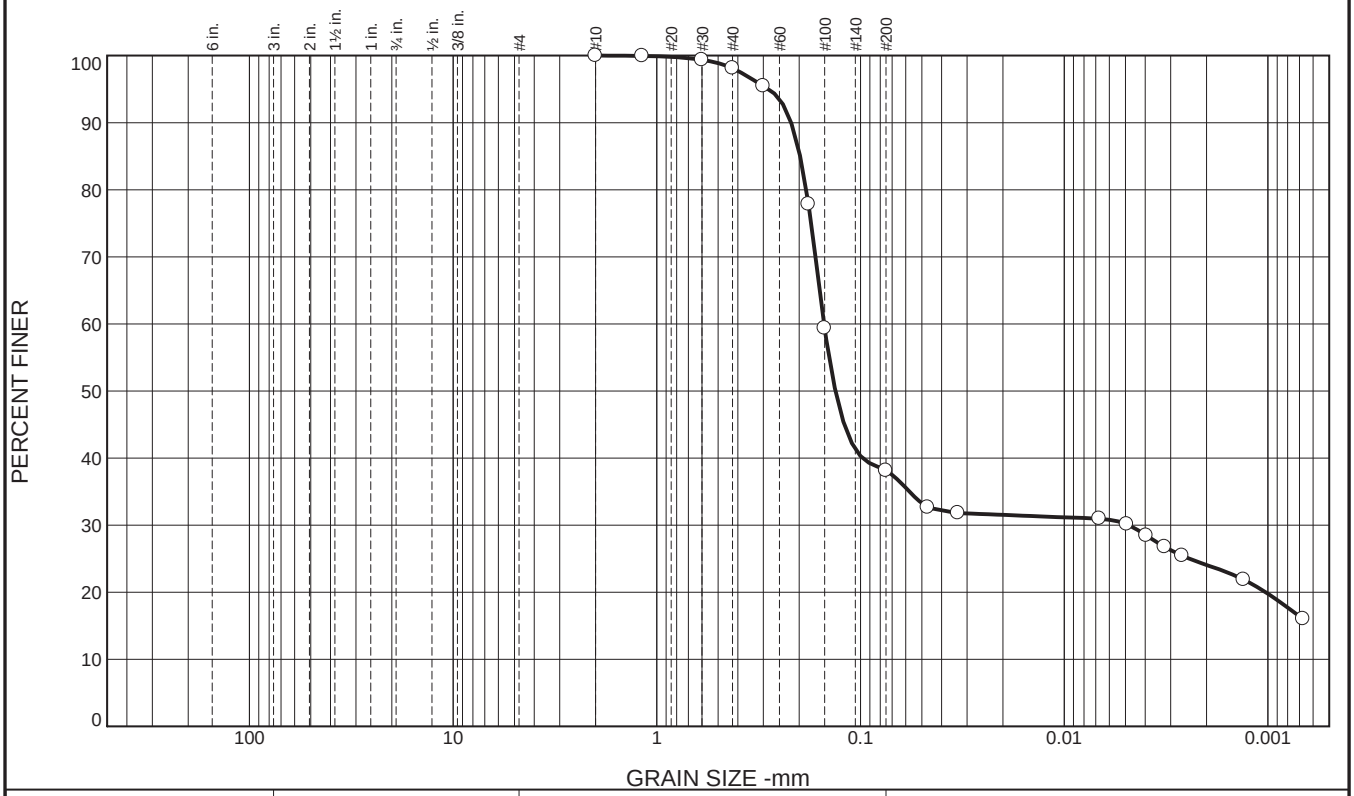
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	1.9	60.0	7.9	30.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	100.0		
#30	99.4		
#40	98.1		
#50	95.4		
#80	77.8		
#100	59.4		
#200	38.1		

* (no specification provided)

Material Description

Yellow-Brown Clayey Fine Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2190 D_{85}= 0.1979 D_{60}= 0.1510
D_{50}= 0.1328 D_{30}= 0.0048 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Natural Moisture = 20.1%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY06-007-SO-028

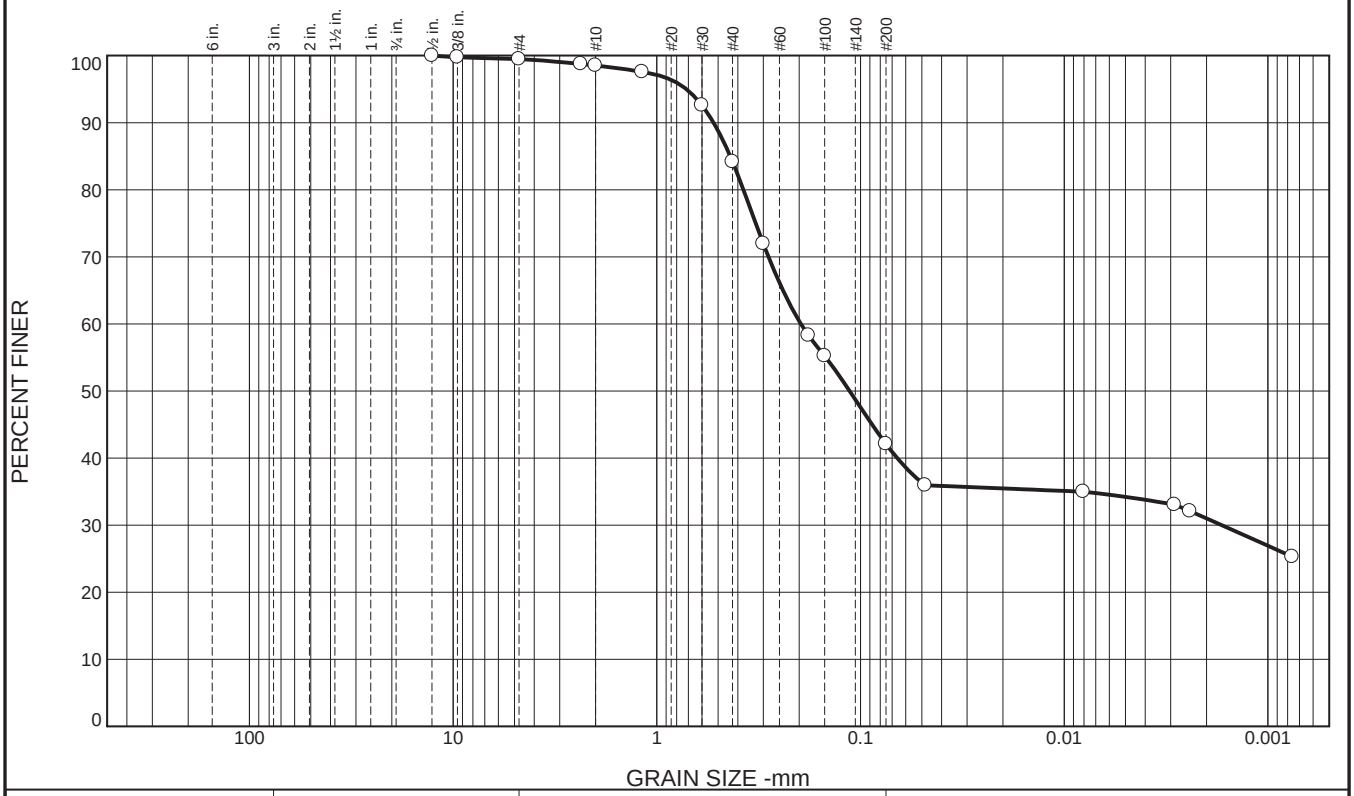
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	1.0	14.3	42.1	7.9	34.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100.0		
3/8	99.8		
#4	99.5		
#8	98.7		
#10	98.5		
#16	97.6		
#30	92.6		
#40	84.2		
#50	72.0		
#80	58.3		
#100	55.2		
#200	42.1		

* (no specification provided)

Material Description

Yellow-Brown Clayey Fine to Medium Sand, Trace Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5266 D_{85}= 0.4363 D_{60}= 0.1963
D_{50}= 0.1131 D_{30}= 0.0017 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Natural Moisture = 21.1%
* - Visual Classification Only No Atterberg Limits Performed

Sample Number: MOODY07-004-SO-015

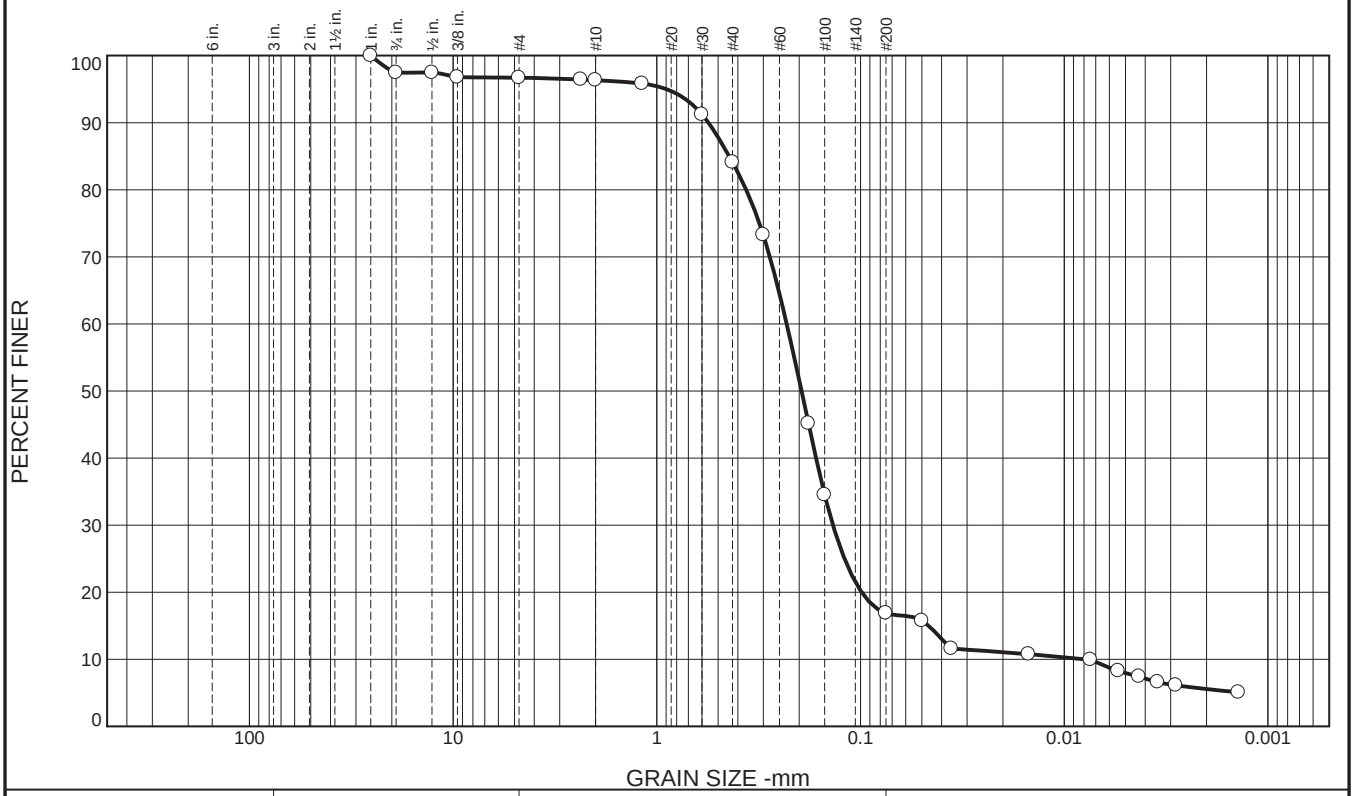
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.5	0.8	0.4	12.2	67.2	9.0	7.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0		
3/4	97.5		
1/2	97.5		
3/8	96.8		
#4	96.7		
#8	96.4		
#10	96.3		
#16	95.8		
#30	91.2		
#40	84.1		
#50	73.3		
#80	45.2		
#100	34.5		
#200	16.9		

* (no specification provided)

Material Description

Gray Fine to Medium Sand, Little Silt and Clay, Trace Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5587 D_{85}= 0.4412 D_{60}= 0.2303
D_{50}= 0.1947 D_{30}= 0.1366 D_{15}= 0.0463
D_{10}= 0.0079 C_u= 29.20 C_c= 10.26

Classification

USCS= SM/SC AASHTO= A-2-4(0)

Remarks

Natural Moisture = 16.7%
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY07-004-SS-001

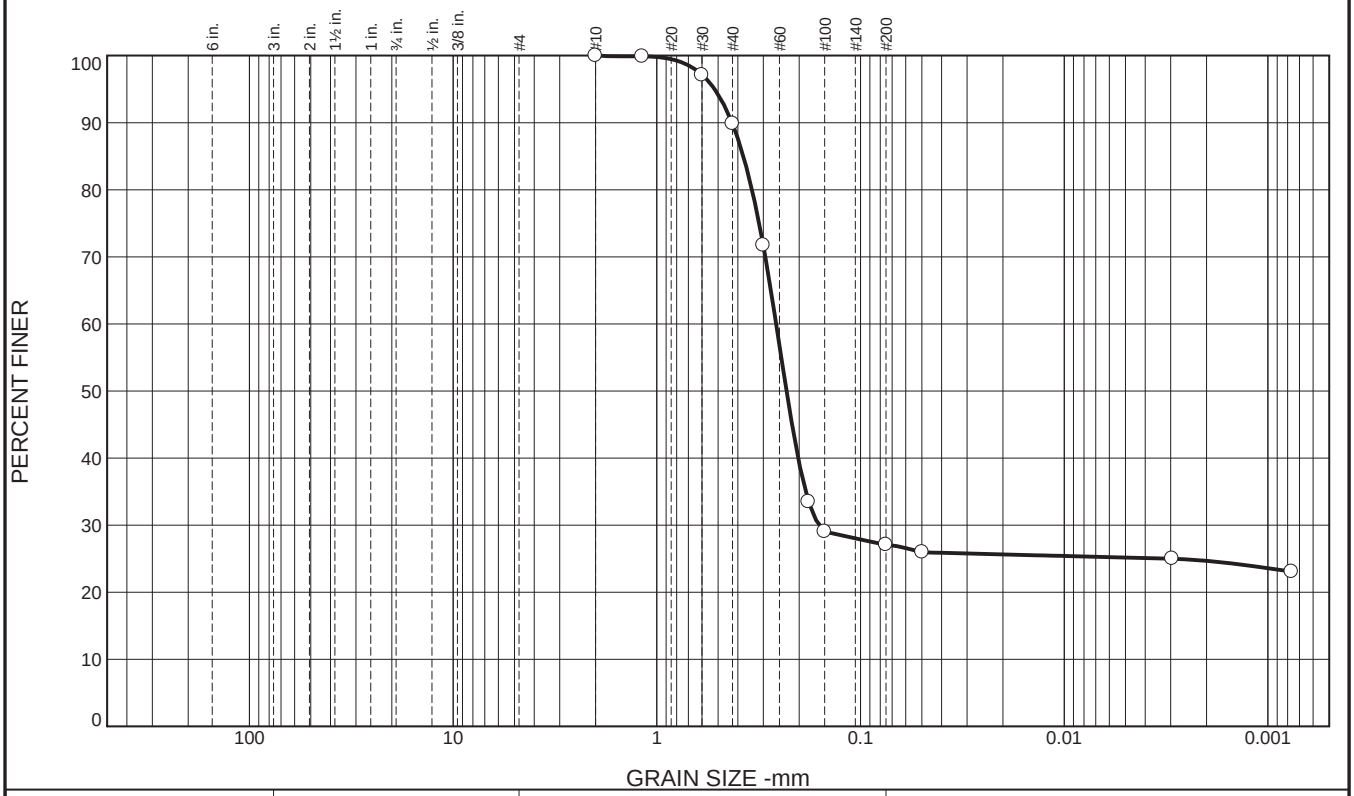
Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.2	62.7	1.9	25.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#16	99.9		
#30	97.1		
#40	89.8		
#50	71.7		
#80	33.5		
#100	29.0		
#200	27.1		

* (no specification provided)

Material Description

Yellow-Brown Fine to Medium Sand, Some Clay, Trace Silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4271 D_{85}= 0.3758 D_{60}= 0.2595
D_{50}= 0.2307 D_{30}= 0.1596 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO=

Remarks

Natural Moisture = 16.2
* - Visual Classification Only; No Atterberg Limits Performed

Sample Number: MOODY08-004-SO-018

Date: 5/2/16

CGC,Inc.

Client: CT Laboratories
Project: AFFF SI Savannah Corp
PO# 118415 CGC
Project No: C15013-9 **Figure**

Tested By: DRW **Checked By:** DAS

Appendix G

Groundwater Level Measurements

Table G-1 Groundwater Level Measurements

AFFF Area Name	Location Number	Easting (feet)	Northing (feet)	Ground Surface Elevation (feet amsl)	Depth to Groundwater (feet bgs)	Groundwater Surface Elevation (feet amsl)	Location Types
AFFF Area 1 Hangar 642	MOODY01-001	2598659.940	359432.790	230.86	3.90	226.96	DPT boring
	MOODY01-002	2598717.460	359383.460	232.28	5.60	226.68	DPT boring
	MOODY01-004	2598667.410	359392.130	231.39	5.10	226.29	DPT boring
AFFF Area 4 Hangar 775	SS38-MW090	2599053.450	352888.540	226.21	9.78	216.43	Existing monitoring well
	SS38-MW091	2599108.950	352791.130	225.86	9.75	216.11	Existing monitoring well
	SS38-MW094	2598979.120	352632.910	226.33	10.60	215.73	Existing monitoring well
AFFF Area 5 Fire Station (Building 621)	MOODY05-001	2599980.460	354670.350	231.98	11.60	220.38	DPT boring
	MOODY05-004	2600086.520	354784.510	232.18	10.30	221.88	DPT boring
	SS38-MW134	2600274.310	354533.790	228.23	9.75	218.48	Existing monitoring well
	SS38-MW135	2600096.320	354776.230	231.7	10.90	220.80	Existing monitoring well
AFFF Area 7 Suspect Vehicle Storage Yard	MOODY07-001	2605536.310	347168.710	191.69	1.25	190.44	DPT boring
	MOODY07-002	2605615.410	347110.500	190.84	0.10	190.74	DPT boring
	MOODY07-003	2605779.100	347148.980	192.02	1.70	190.32	DPT boring

AFFF = aqueous film forming foam amsl = above mean sea level bgs = below ground surface DPT = direct push technology

Everything is based upon Moody AFB control monument which is based upon NAD 1983 NAVD 1988.						
Point	Northing	Easting	Elev	Description		
4	354706.01	2599952.44	232.50	05-002 topasphalt		
5	354792.91	2599979.32	232.76	05-003 topasphalt		
6	354784.51	2600086.52	232.18	05-004 grd		
7	354670.35	2599980.46	231.98	05-001 grd		
23	352999.51	2598915.41	226.47	04-004 grd		
24	352896.92	2598925.10	226.14	04-003 grd		
25	352717.74	2598571.63	225.02	04-001 grd		
26	352711.38	2598697.58	224.71	04-002		
33	359432.89	2598660.43	230.94	01-001 toppvc		
34	359432.79	2598659.94	230.86	grd		
35	359391.95	2598667.94	231.44	01-004 toppvc		
36	359392.13	2598667.41	231.39	grd		
37	359383.95	2598717.75	232.49	01-002 toppvc		
38	359383.46	2598717.46	232.28	grd		
43	347167.99	2605536.44	192.04	07-001 toppvc		
44	347168.71	2605536.31	191.69	grd		
45	347110.49	2605615.45	190.84	07-002 toppvc		
46	347110.50	2605615.41	190.84	grd		
47	347149.53	2605778.52	192.35	07-003 toppvc		
48	347148.98	2605779.10	192.02	grd		
53	357658.56	2599243.85	221.58	03-001 grd		
54	357658.00	2599393.66	224.93	03-002 grd		
55	357477.03	2599411.96	220.45	03-003 grd		
56	357504.29	2599565.61	225.17	03-005 grd		
57	357557.60	2599430.66	218.94	03-004 grd		
63	358921.00	2598397.64	230.31	02-002 grd		
64	358826.66	2598398.90	229.65	02-001 grd		
65	358761.62	2598406.10	228.44	02-005 grd		
66	358761.91	2598594.43	228.87	02-004 grd		
67	358807.04	2598621.98	229.26	02-003 grd		
68	358848.27	2598645.49	229.36	02-006 grd		
73	359363.47	2596042.87	212.57	08-001 grd		