FINAL

PERFLUORINATED COMPOUNDS (PFCs) RELEASE DETERMINATION AT MULTIPLE BRAC BASES
INSTALLATION-SPECIFIC WORK PLAN ADDENDUM
FORMER GRIFFISS AIR FORCE BASE
AFCEC PROJECT NUMBER JREZ20147242

Prepared for:
Air Force Civil Engineer Center
Joint Base San Antonio – Lackland, Texas

Prepared by:

AMEC Environment & Infrastructure, Inc.

Contract FA8903-08-D-8766
Task Order 0177

November 2014

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ACRONYMS

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFFF	Aqueous Film Forming Foam
AMEC	AMEC Environment & Infrastructure, Inc.
AST	Above ground Storage Tank
BEC	BRAC Environmental Coordinator
bgs	below ground surface
BRAC	Base Realignment and Closure
CE2L	Certified Energy Labs
CO	Contracting Officer
COR	Contracting Officer Representative
CSM	Conceptual Site Model
DOT	Department of Transportation
DPT	Direct Push Technology
DQOs	Data Quality Objectives
ERPIMS	Environmental Resources Program Information Management System
ft	Foot or Feet
FTA	Fire Training Area
GPS	Global Positioning System
GW	Groundwater
HSE	Health, Safety and Environment
HSO	Health and Safety Officer
HSP	Health and Safety Plan
IDW	Investigation-derived Waste
in	Inch
IRP	Installation Restoration program
ISWPA	Installation-Specific Work Plan Addendum
LC/MS/MS	Liquid Chromatography/Mass Spectrometry/Mass Spectrometry
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NYSDEC	New York Department of Environmental Conservation

O/WS	Oil/Water Separator
PAL	Project Action Limits
PEL	Permissible Exposure Limit
PFC	Perfluorinated Compounds
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
PPE	Personal Protective Equipment
ppm	parts per million
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QPP	Quality Program Plan
SOP	Standard Operating Procedure
TLV	Threshold Limit Value
TO	Task Order
UFP	Uniform Federal Policy
UST	Underground Storage Tank
USEPA	United States Environmental Protection Agency
VISTA	Vista Analytical Laboratories

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INTRODUCTION

This Installation-Specific Work Plan Addendum (ISWPA) presents information regarding perfluorinated compound (PFC) release determination activities at fire training area (FTA) site FT030P[1], located at the former Griffiss Air Force Base (AFB) in Rome, New York (**Figure 1**). This document is provided as an addendum to the general Quality Program Plan (QPP) (AMEC, 2014). This ISWPA has been prepared under Contract No. FA8903-08-D-8766, Task Order (TO) 0177 between AMEC Environment & Infrastructure, Inc. (AMEC) and the Air Force Civil Engineering Center (AFCEC).

Combined, this addendum and the QPP have been prepared to ensure (1) the site investigation objectives and data quality objectives (DQOs) for this project are clearly identified; (2) the field sampling protocols are documented and reviewed in a consistent manner; and, (3) the data collected are scientifically valid and defensible. This ISWPA includes specific Uniform Federal Policy (UFP) - Quality Assurance Project Plan (QAPP) worksheets to accompany the general QPP. Installation-specific Health and Safety Plan (HSP) information is provided in **Appendix A** of this addendum (AMEC, 2014).

INSTALLATION AND FTA HISTORY

Griffiss AFB was established as the Rome Air Depot on 1 February 1942. Construction of the installation began in August 1941 and flying operations on the depot airfield began on 18 February 1942. Prior to construction of the installation, the land was primarily pasture and cropland with scattered farmsteads, except for a small housing subdivision with more than 100 lots which had been established in the mid-1930s in the area northwest of Building 101.

During World War II, activities at the installation centered on aircraft engine maintenance and repair, and the training of air depot groups in engine repair. A number of the original buildings constructed in the central portion of the installation for these activities remained, including Building 106, a former engine repair facility; Building 112, a former engine test cell facility; and Building 115, a former engine storage and cleaning facility.

Electronic research activities began in 1949 at Griffiss AFB. The Watson Laboratory complex transferred from Red Bank, New Jersey and became the Rome Air Development Center in June 1951 (later known as Rome Laboratory). The original northwest-southeast trending runway was upgraded and extended in the

[1] The FTA historically has been addressed under the Installation Restoration Program (IRP) under site designation FT030. To manage and administer PFC-related site investigation, characterization, and mitigation activities, the Air Force has defined the site with a new identification that adds a "P" to the IRP site identification. The corresponding site identification, FT030P is used throughout this document.

early 1950s to handle jet fighter aircraft for the 49th Fighter Interceptor Squadron that was stationed at Griffiss AFB. Various fighter interceptor aircraft were at Griffiss AFB from 1950 to 1987.

In 1956, a major expansion of the existing airfield was initiated, including the construction of a new 11,500-foot (ft)-long runway (Runway 15/33), associated taxiways, Aprons 1 and 2, and an Alert Apron. In 1970, the 416th Bombardment Wing of the Strategic Air Command was activated at Griffiss AFB, requiring construction of support facilities for KC-135 tanker and B-52 bomber aircraft adjacent to Aprons 1 and 2 and the Alert Apron. These facilities included a series of aircraft maintenance hangars (or nose docks) adjacent to Apron 2 and various industrial shops and administrative buildings on a hill overlooking the three aprons. The Barge Canal Bulk Fuel Storage Area and associated hydrant fueling systems at Aprons 1 and 2 were also completed in the late 1950s.

The Weapons Storage Area was constructed in the late 1950s in the northeastern portion of the installation, east of the new runway. This facility replaced a small munitions storage bunker facility which had been constructed in the early 1950s to the west. The Weapons Storage Area was expanded in the late 1970s and early 1980s with the construction of a number of storage igloos and other support facilities for the air launch cruise missile, and the short range attack missile. The North American Aerospace Defense Command Operational Control Center (now the Eastern Air Defense Sector) facilities (Buildings 700 and 702) were completed in the early 1980s.

Griffiss AFB was designated for realignment by the Base Realignment and Closure (BRAC) commission in 1993 and closed in 1995. The New York Air National Guard continued its air operations and managed the airfield until October 1998, at which time the military flying mission at Griffiss ended. Parcels at the property have been, and continue to be, turned over to the Griffiss Local Development Corporation, which promotes, facilitates and oversees the redevelopment of the former installation. Significant facilities at the former installation include the Griffiss Business and Technology Park, the Air Force Research Laboratory, Defense Finance and Accounting Service, and the Eastern Air Defense Sector.

The Base Fire Control Department operated an FTA (FT030P) just west of the northwestern end of the main runway (**Figure 2**). The FTA was located between Six Mile Creek and the Mohawk River. The FTA was in operation from the 1960s to base closure in 1995 to simulate aircraft fuel fires. Petroleum fires were set for burning and extinguishing practice approximately three times a year (Law, 1995). JP-4 fuel and waste JP-4 were the most common fuels used in the fire training exercises.

FTA activities originally occurred on bare soil at this site. In 1985, contaminated soil was removed, and a new FTA was constructed at the same location. Contaminated soil was defined as soil with oil and grease contamination greater than 10 parts per million (ppm). Approximately 500 cubic yards of soil were removed during the remediation action. A 1985 letter from the Installation Environmental Coordinator to the Oneida County Department of Public Works requested that soil be used as daily cover at the Oneida County Ash Disposal Landfill. No confirmation regarding the acceptance of this request has been located. The reconstructed FTA consisted of a clay-lined concrete basin that was approximately 100 ft in diameter and contained a mock aircraft in its center. A JP-4 underground storage tank (UST) was located northeast

of the concrete basin. The UST supplied the fuel through an underground pipeline to ignite fires. An oil/water (O/WS) separator system was used to collect the waste liquids generated during fire training; however, the system capacity was reportedly insufficient to handle the volume of waste liquids generated during the training exercises and frequently overflowed (AF, 2009). The historical layout of the FTA is illustrated on **Figure 3**.

In 1993, the original 4,000-gallon O/WS and two USTs were replaced by a 10,000-gallon O/WS. The new O/WS transferred aqueous waste to a sanitary lift station and petroleum waste to the remaining UST until 1996, when the UST was replaced with an aboveground storage tank (AST). The concrete basin, covering gravel, and surrounding asphalt were removed in 1998, with the O/WS, AST, and remediation of superficial contaminated soils occurred in 1999 (FPM, 2007). Soils from the excavation activities were land farmed on Apron 1 along with other contaminated soil from the installation. The excavation areas were backfilled with treated soil from Apron 1 (although not specifically the FTA-related soil).

Today, the only remaining facilities associated with the former FTA are the former smokehouse, a block fire rescue training structure located approximately 600 ft west of the former FTA dish. The rest of the area is relatively flat, open grassland.

QAPP Worksheet #1 & 2: Title and Approval Page

Site Name/Project Name: Perfluorinated Compounds (PFCs) Release Determination at Multiple BRAC Bases

Site Location: Former Griffiss AFB, AFCEC Project No. JREZ20147242

Contract Number: FA8903-08-D-8766, Task Order 0177

Lead Organization:

Air Force Civil Engineer Center
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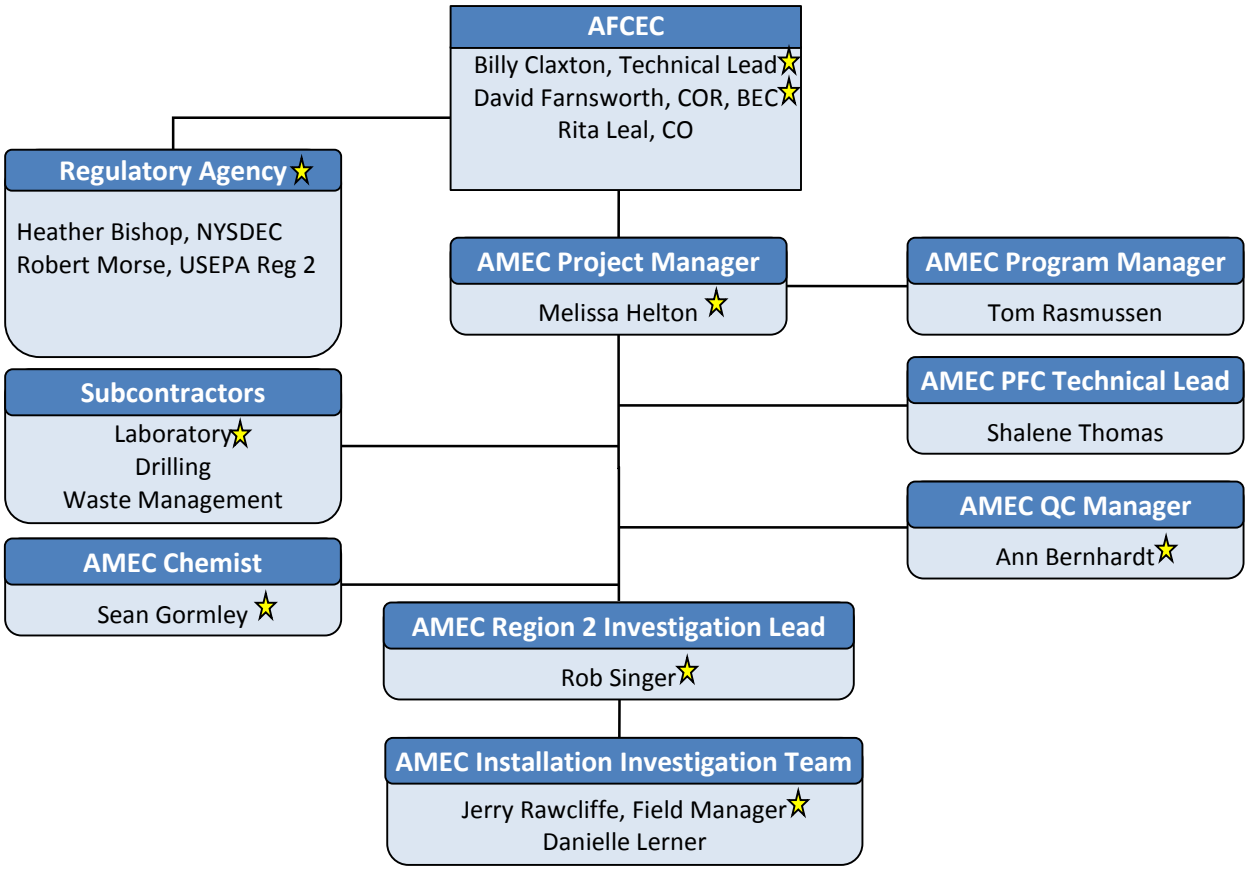
Relevant Plans and Reports from Previous Investigations:

None

QAPP Worksheet #3 & 5: Project Organization and QAPP Distribution



Notes:

☆ Indicates UFP-QAPP distribution List
BEC = BRAC Environmental Coordinator
CO = Contracting Officer
COR = Contracting Officer's Representative
NYSDEC = New York Department of Environmental Conservation
USEPA = United States Environmental Protection Agency

QAPP Worksheet #9: Project Planning Session Summary

Date of planning session: 25-26 March 2014

Location: Former Griffiss AFB, Rome, NY

Purpose: The purpose of the scoping visit was to: (1) review site information with the BEC; (2) understand site logistics so that they could be incorporated into this ISWPA; and, (3) understand existing conditions so that they could be used to develop the investigation strategy and be factored into this ISWPA and subcontractor scopes of work.

Attendees:	Mike McDermott, AFCEC *(BEC at time of Scoping Visit)*
	Sean Eldredge, AFCEC Contract Support
	Robert Singer, AMEC Region 2 Investigation Lead
	Jerry Rawcliffe, AMEC Field Manager

The two-day site visit included an initial meeting, a site reconnaissance, discussions with current site personnel, and a meeting with airport security staff. During the initial meeting in the AFCEC office, Mr. McDermott provided AMEC with an overview of the FT030P regulatory, investigation, and remediation history. Several site maps were reviewed and overall project objectives were discussed.

In conjunction with the meeting, AMEC met with Mr. Joe Wojonas from the United States Army Corp of Engineers who was formerly a Griffiss AFB Engineer. Mr. Wojonas provided information relative to aqueous film forming foam (AFFF) storage and use at various locations at the former AFB. AMEC also met with Mr. Rob Cowles, a current firefighter, who was stationed at Griffiss AFB during the last five years it was active. Mr. Cowles indicated that the only use of AFFF during the last 5-years of base operation occurred at FTA. The results of the interviews with Mr. Wojonas and Mr. Cowles will be documented and included in a research report that is currently being prepared by AMEC. This information will be evaluated separately and is not part of the current investigation.

After the initial meeting, Mr. Daniel Baldyga from FPM Group, Ltd. joined the attendees to perform a site reconnaissance at FT030P with a particular focus on areas and facilities associated with FT030P and the locations of historic sampling at the FT030P site. FT030P sits in an open grassed area within the airfield. The terrain is relatively flat. The only evidence of the former FTA is the former smokehouse (present west of the former FTA pit) and remnants of the former access road.

AMEC met with Mr. Ed Arcuri, the airport security manager, to discuss security/access requirements, work notifications, and logistics for working within the Griffiss International Airport airfield.

Following the site scoping visit, AMEC and AFCEC held a follow-up teleconference to review the site investigation approach in light of the scoping visit findings. During the teleconference, AMEC and AFCEC discussed the site investigation strategy and proposed sampling plan, which are discussed throughout this document.

QAPP Worksheet #10: Conceptual Site Model

The Conceptual Site Model (CSM) (provided on **Table 1**) provides a description of the facility and site, past site use history, site physical characteristics, chemical release and migration mechanisms and pathways, land use, and potential receptors. The purpose of the CSM is to provide background information to identify the most likely locations for PFCs to be present, and the media and receptors likely to be impacted. This information has been used to select the locations of samples that will be collected and analyzed to assess whether PFCs released during firefighting training are present in surface water, sediment, and groundwater at the site and if the PFCs have migrated offsite in surface water or groundwater. Information concerning land use and receptors will be used to evaluate potential impacts to human health and the environment. Based on data collected during this site investigation, the CSM will be updated in the Site Investigation Report.

Table 1. Preliminary Conceptual Site Model Summary

Facility Profile	Physical Profile	Release Profile	Land Use and Exposure Profile	Ecological Profile
Installation Description: • Years of operation: 1942 – 1998 (*last three years as an Air National Guard Base)* • Former Griffiss AFB ~ 3,552 acres • Investigation Area ~ 8 acres • Activities at the former base included activities dedicated primarily to two specific goals: (1) national defense (fighter and bomber missions) and (2) the research, testing and development of sophisticated electronic communication systems and the associated support activities. • Primary mission of the former Griffiss AFB was the maintenance and implementation of both air refueling operations and long-range bombardment capability (Air Force Logistics Command, Strategic Air Command, and Air Combat Command). **FT030P History:** • Located just west of the Taxiway 8, near the northwestern end of the main runway. • The FT030P was used from the 1960s through 1995. • Petroleum fires were set for burning and extinguishing practice approximately three times per year. • Prior to 1985, fire training activities occurred on bare soil. In 1985, fuel-contaminated soil was removed and a new clay lined concrete basin with a mock aircraft was constructed. A JP-4 UST was used to supply fuel through an underground pipeline to ignite fire. An O/WS was used to collect waste liquids generated during fire training. • The entire concrete basin, covering gravel, and surrounding asphalt along with impacted soils were removed in 1998. In 1999, remaining O/WSs, tanks, and superficial contaminated soils were removed and land farmed on Apron 1 and Apron 2 along with other contaminated soil from across the installation. The treated soil was then used as backfill across the installation; since these soils were excavated from	**Site Characteristics:** • FT030P is ~ 8 acres **Topography:** • The installation is relatively flat. • FT030P is relatively flat with a maximum relief of less than 1 ft. • Approximate site elevation is 490 ft above mean sea level. **Vegetation:** • FT030P has low grass vegetation. **Surface Water:** • FT030P is not located near natural surface drainage features. The Mohawk River is located approximately 3,900 ft west of the site. • Runoff is channeled into the base storm drain system which discharges to the Mohawk River. **Soils:** • Soils at FT030P are generally sand and gravel with varying amounts of silt and clay. **Geology:** • Bedrock at FT030P is encountered at approximately 30 ft below ground surface (bgs) and comprises Utica Shale, a gray and black carbonaceous unit with a high/medium organic content. • Deposits lying above the Utica Shale consist of clay, silt, sand, and gravel sediments laid down by glacial, fluvial, and lacustrine processes. A sheet of glacial till overlies the Utica Shale. Bedrock beneath the former AFB generally dips from the northeast to the southwest. **Hydrogeology:** • Depth to groundwater ranges from 11 to 12 ft bgs. • Unconfined conditions occur within the unconsolidated aquifer. • Groundwater flow is southwesterly towards the Mohawk River. • Hydraulic conductivity: 4.17×10^{-3} ft/minute. Hydraulic gradient: 0.008 ft/ft. Groundwater flow rate: 88 ft/year. **Meteorology:** • Average Annual Rainfall = 46 inches (in) per year. • Average rainfall per month is approximate 3.75 in with no distinct wet and dry season. • Continental climate characterized by warm, humid, moderately wet summers and cold winters with moderately heavy snowfalls. Average high temperature: 56°F. Average low temperature: 37°F.	**Contaminants of Potential Concern:** • PFCs are the contaminants of potential concern during this investigation. • Fuel-related compounds and chlorinated solvents are historic site contaminants. **Media of Potential Concern:** • Soil, groundwater, surface water run-off. **Confirmed AFFF Releases:** • FT030P – Fire training activities occurred approximately three times a year between 1970 and 1995. During this time, AFFF was used in undocumented quantities. (Law, 1995) **Primary Releases from FTA** • PFCs released onto the ground would most likely leach through the soil into groundwater. • Surface runoff could transport PFCs to the storm sewer. • Direct discharge into drains and plumbing infrastructure at the FTA (UST, O/WS, and later sewer system). • PFCs could also be adsorbed to soil particles and remain close to the source. **Secondary Releases:**	**Current Landowners:** • Griffiss International Airport is owned and operated by Oneida County, New York. **Current Land Use:** • FT030P site is currently part of the Griffiss International Airport. **Future Land Use:** • Land use is not expected to change in the future. • Current land use controls for site FT030P have been recommended for removal as part of the Site Closeout Report/ Recommendation that is currently pending regulatory concurrence. **Potential Receptors:** • Potential receptors associated with current and future land use include ground maintenance workers, utility workers, industrial workers, construction workers and biota.	**Potential Ecological Receptors:** • Inland plant species, reptiles, birds, soil invertebrates, and mammals that inhabit or migrate through the site. **Threatened and Endangered Species:** • Though some plant species present at the base are protected in the state of New York, these species have not been found in this portion of the base. Therefore, threatened or endangered species are not considered to be a concern at FT030P.

Facility Profile	Physical Profile	Release Profile	Land Use and Exposure Profile	Ecological Profile
the FTA, the soil may be impacted with PFCs. The final reuse of FTA soils was not documented. • Non-PFC site contaminants are being addressed under a separate Record of Decision that includes land use controls for soil vapor intrusion. The site has been recommended for close out (unrestricted use) and is awaiting regulator response. • Current land use controls (for soil vapor intrusion) at FT030P have been recommended for removal as part of the Site Closeout Report/ Recommendation that is currently pending regulatory concurrence.		• Fuel contaminated soil from the FTA was excavated in the late 1990s and land farmed on Apron 1 and Apron 2 along with other contaminated soil from across the installation. When analytical data indicated fuel compounds were below guidance values, this soil was used as backfill around the installation. This soil may have contained PFCs. No complete documentation has been identified regarding the final use of land farmed soils, however some of the land farmed soil was reportedly deposited in Landfill No. 1.		

QAPP Worksheet #11: Project/Data Quality Objectives

The following presents site-specific DQOs for the proposed investigation at FT030P. These DQOs were developed using USEPA *Guidance on Systematic Planning Using the Data Quality Objectives Process* EPA QA/G-4 (USEPA, 2006).

Step 1: State the Problem

AFFF, which contains PFCs, was used at FT030P from 1970 through 1995. PFCs are an emerging contaminant and may become subject to regulation in the future.

Step 2: Identify the Goals of the Study

The objectives of this investigation are to:

- Assess whether there are PFCs in surface soil, subsurface soil, and groundwater at FT030P from past use of AFFF at the site for fire-fighting training;
- Assess whether there are PFCs in groundwater downgradient of the fire training pit, within the airfield fence line; and
- Assess whether PFCs are present in water and sediment within the storm drain system at the FT030P.

Step 3: Identify Information Input

The following data and informational needs are required to achieve the project goals:

- Collection and laboratory analysis of soil samples from soil borings drilled at areas where fire-fighting training occurred and AFFF was likely to have been used;
- Collection and laboratory analysis of groundwater samples in areas where fire-fighting training occurred and AFFF was likely to have been used as well as downgradient of the fire training pit; and,
- Collection and laboratory analysis of surface water and sediment samples from the storm drain system.

Step 4: Define the Boundaries of Data Collection

The investigation boundaries are defined horizontally by the area where fire training occurred as well as the airfield fence line downgradient of the site. Data collection will be limited to unconsolidated, shallow groundwater.

Step 5: Develop the Analytical Approach

Analytical data will include the analysis of the following PFCs:

- Perfluorooctanoic Acid (PFOA),

- Perfluorooctanesulfonic Acid (PFOS),
- Perfluorohexanesulfonic acid,
- Perfluoroheptanoic acid,
- Perfluorononanoic acid, and
- Perfluorobutanesulfonic acid.

Sampling of soil, surface water, sediment, and groundwater is necessary to assess whether PFCs are present at the site and downgradient of the site. **Table 2** (below) and Worksheet 15 of the QPP identify the project action limits (PAL) for determining a release of PFCs in soil, sediment, and groundwater for PFOS and PFOA. The remaining PFCs do not have established PALs.

Table 2. Project Action Limits for PFOA and PFOS Analysis

Method/Instrument	Media	Target Reporting Limits
LC-MS-MS	Groundwater	PFOS 0.2 µg/L PFOA 0.4 µg/L
LC-MS-MS	Soil Sediment	PFOS 5 mg/kg PFOA 12 mg/kg

Notes:

The action levels were taken from the 27 August 2012 Air Force Guidance on Sampling and Response Actions for Perfluorinated Compounds at Active and BRAC Installations. The water action levels are based on the USEPA Office of Water Provisional Health Advisories for PFOS and PFOA. The soil and sediment levels were calculated based on the Office of Superfund Remediation and Technology Innovation (residential, direct contact) for PFOS and PFOA.

µg/L = micrograms per liter

mg/kg = milligrams per kilogram

LC-MS-MS = Liquid chromatography by tandem mass spectrometry

Step 6: Specify Performance or Acceptance Criteria

- Daily standardized PFC personal protective equipment (PPE)/equipment checklist (provided in the PFC protocol standard operating procedure [SOP]) will be completed daily for each installation. The quality assurance (QA) manager will review and accept the final checklist.
- QA manager or designee will verify field procedures defined in the QPP and installation-specific work plan are properly followed through field audits. Any deviations will be promptly addressed, documented, and addressed.

- The laboratories will analyze proficiency testing samples to demonstrate capability prior to the sampling program beginning. The laboratories will identify and quantify proficiency testing samples within acceptance limits to verify reporting of PFCs. Any findings or recommendations will be addressed prior to analysis of field samples.
- The project chemist will conduct an audit prior to sampling to evaluate laboratory procedures, quality program, and operations to verify the analytical procedure. Any findings or recommendations will be addressed prior to analysis of field samples.
- The laboratories will adhere to analytical performance/acceptance criteria per method as detailed in the Department of Defense Quality Systems Manual V5.0 and defined on Worksheet #12.
- PFCs by liquid chromatography/mass spectrometry/mass spectrometry (LC/MS/MS) will provide an acceptable detection limits to confirm presence of PFCs at concentrations defined in Step 5 and Worksheet 15.
- USEPA Stage 2B data verification will be conducted on 100 percent of the data and USEPA Stage IV data validation will be conducted on 10 percent of the analytical data by an experienced chemist to assess the data usability. The data usability will then be evaluated by the appropriate agencies for final approval. Data completeness of 90 percent usable data is required.

Step 7: Develop the Detailed Plan for Obtaining Data

The detailed plan for obtaining the data is presented in the following worksheets: 13, 14/16, 17, 18, and 20.

1

QAPP Worksheet #13: Secondary Data Uses and Limitations

Data type	Source	Data uses relative to current project	Factors affecting the reliability of data and limitations on data use
Location of Historic Soil Contamination	FPM Group, August 2007. *On-Base Groundwater AOCs Monitoring Program Former Griffiss Air Force Base Rome, New York. Monitoring Report (Spring 2007).*	Used to help determine sample locations and depth of samples.	None, data being used as guide only
Hydrogeologic data	Law Environmental, Inc. August 1995. *Volume 1 and Volume 28 Draft Primary Report Remedial Investigation Griffiss Air Force Base, New York.*	Used to help determine aquifer characteristics	None
Monitoring well sample/purge logs	FPM Group, August 2007. *On-Base Groundwater AOCs Monitoring Program Former Griffiss Air Force Base Rome, New York. Monitoring Report (Spring 2007).*	Used to help determine aquifer characteristics and drilling conditions	None
Expected Soil Lithology, Site History	Law Environmental, Inc. August 1995. *Volume 1 and Volume 28 Draft Primary Report Remedial Investigation Griffiss Air Force Base, New York.*	Used to determine drilling methods	None

2

QAPP Worksheet #14/16: Project Tasks & Schedule

Activity	Responsible party	Planned start date	Planned completion date	Deliverable(s)	Deliverable due date
Installation scoping visits	AMEC	25 March 2014	26 March 2014	Field notes (included in Site Investigation Report)	See schedule
Mobilization/demobilization	AMEC and subcontractors	See schedule*	See schedule	Field notes (included in Site Investigation Report)	See schedule
Soil boring advancement	AMEC and subcontractors	See schedule	See schedule	Field notes and boring logs (included in Site Investigation Report)	See schedule
Installation of temporary well points	AMEC and subcontractors	See schedule	See schedule	Field notes and boring logs (included in Site Investigation Report)	See schedule
Sample collection – surface soil	AMEC	See schedule	See schedule	Field notes (included in Site Investigation Report)	See schedule
Sample collection - subsurface soil	AMEC	See schedule	See schedule	Field notes (included in Site Investigation Report)	See schedule
Sample collection – surface water and sediment collected from storm drain	AMEC	See schedule	See schedule	Field notes (included in Site Investigation Report)	See schedule
Sample collection - groundwater from temporary wells	AMEC	See schedule	See schedule	Field notes and field measurements (included in Site Investigation Report)	See schedule
Abandonment of temporary well points	AMEC and subcontractors	See schedule	See schedule	Field notes and boring logs (included in Site Investigation Report)	See schedule
Analyses	CE2L Vista	See schedule	See schedule	Report of analyses/Data package (included in Site Investigation Report)	See schedule
Validation	AMEC	See schedule	See schedule	Validation Summary (included in Site Investigation Report)	See schedule
Environmental Resources Program Information Management System (ERPIMS) Data Submittal	AMEC	See schedule	90 days after Sampling Completed	Successful submittal of ERPIMS data for each installation and receipt of AFCEC ERPIMS Data Loading Notification	90 days after Sampling Completed
Site Investigation Report	AMEC	See schedule	See schedule	Site Investigation Report	See schedule

*The project schedule is provided as **Appendix B**.

Installation Scoping Visits

A scoping visit was held on 25-26 March 2014. See QAPP **Worksheet #9** for details.

Mobilization/Demobilization

One mobilization to the installation will be required to complete the work. Prior to the initial mobilization, the following activities will be conducted.

- QPP and Health and Safety Planning – AMEC field personnel will review the project SOPs, work plan and general and site specific health and safety requirements, as well as subcontractor HSPs and training records.
- Utility Clearances and Dig Permits – Fourteen days prior to mobilization of drilling equipment, Dig Safely New York will be notified to mark underground utilities. The presence of utilities near drilling locations will be verified using a hand-held magnetometer or utility probe by a private utility location contractor.

Environmental Sampling

To confirm releases of PFCs at FT030P, soil, storm water, and groundwater sampling will be conducted at pre-selected locations (**Figure 4**). **Worksheet #18** presents the sampling locations at FT030P. The general QPP provides the SOPs and description of sampling activities.

A summary of the proposed field sampling activities is provided in **Table 3** and are described in the following sections.

Table 3. PFC Release Determination Sampling Summary

Base	Site ID	Temporary Monitoring Well Installations	Soil Borings Advance	Soil	Ground water	Storm Sewer Surface Water	Storm Sewer Sediment	Laboratory-Supplied Water
Griffiss AFB, NY	FT030P	9	6	18	9	2	2	0
	QA/QC Samples	Field Duplicates (1 for every 10)		2	1	1	1	0
		Equipment Rinsates (1 per day per equipment setup)[a]		0	0	0	0	4
		Field Blank[b]		0	0	0	0	1
		MS/MSD (1 per 20)[c]		1	1	1	1	0
		Grand Totals		**21**	**11**	**4**	**4**	**5**

Notes:

MS/MSD Matrix spike/matrix spike duplicate.

(a) Equipment rinsates are samples of water poured over sampling equipment to assess potential for cross-contamination; one sample will be collected for every 10 primary samples.

(b) Field blank is a sample of PFC-free water. One sample per batch of laboratory provided water will be analyzed.

(c) Additional sample volume will be provided for MS/MSD analysis at a frequency of one sample for every 20 samples.

Soil Boring Advancement/Abandonment and Soil Sample Collection

Soil borings will be advanced using direct-push technology (DPT) in the FTA source area. Soil cores will be collected continuously to the top of the water table (approximately 12 ft bgs). Samples will be collected for PFC analysis at 5-ft intervals from 3-ft below grade to the soil-groundwater interface. Specific details and procedures related to soil sample collection can be found in SOP AMEC-02 (**Appendix C**) of the General QPP. Worksheets 17 and 18 provide further discussion of the sample locations and rationale.

Storm Sewer Surface Water and Sediment Sample Collection

Surface water and sediment samples will be collected from the storm drain by the immersing method specified in the SOP. Required equipment will include telescoping poles with sample collection containers. Specific details and procedures related to surface water and sediment sample collection can be found in SOPs AMEC-07 and 08 (**Appendix C**) of the General QPP. Worksheets 17 and 18 provide further discussion of the sample locations and rationale.

Temporary Monitoring Well Installation and Sampling

Nine temporary monitoring wells are scheduled for installation and sampling under this work plan. Temporary wells will be installed and sampled following SOP AMEC-04 and SOP AMEC-05. Due to their temporary nature, a bentonite seal will not be placed above the filter pack. Each of the wells will be

sampled within 24 hours of installation using a peristaltic pump to purge and sample the groundwater. During purging, field parameters including pH, specific conductance, temperature, oxidation reduction potential, dissolved oxygen, and turbidity will be measured in accordance with SOP AMEC-03. After sampling, the casing will be pulled and the borehole will be abandoned in accordance with SOP AMEC-06. Specific details and procedures related to temporary monitoring well installation and sampling can be found in **Appendix C** of the General QPP. Worksheets 17 and 18 provide further discussion of the sample locations and rationale.

PFC Sampling Considerations

Given the low detection limits associated with PFC analysis and the many potential sources of trace levels of PFCs, field personnel are advised to err on the side of caution by strictly following protocols to help mitigate the potential for false detections of PFCs. Specific details and procedures related to sampling for analysis of PFCs can be found in SOP AMEC-01 (**Appendix C**) of the General QPP.

Surveying

Soil, groundwater, and surface water/sediment sample locations will be surveyed by AMEC for horizontal control using a handheld 6000 series global positioning system (GPS) receiver.

Investigation-Derived Waste Management

Investigation-derived waste (IDW) will consist of soil cuttings from soil boring advancement, decontamination water, well purge water, disposable PPE, and general trash.

PPE and trash will be placed in plastic bags and placed into sanitary trash containers and disposed at a sanitary landfill. Field personnel will change gloves frequently to prevent cross-contamination between sampling equipment and plastic trash bags. Soil IDW will be containerized in Department of Transportation (DOT)-approved 55-gallon drums. Water IDW will be contained in DOT approved 55-gallon drums pending characterization.

Characterization analytical requirements and sample frequencies will be defined by historical knowledge and the individual waste disposal facility. The analyses for IDW characterization will be determined after the subcontract with AMEC's IDW subcontractor is executed. The Air Force will be notified of the requirements a minimum of one week prior to mobilization. Analytical requirements are expected to include volatile organic compounds, semi volatile organic compounds, and PFCs.

Sampling for waste characterization is expected to consist of two waste streams:

1. Composited samples of soil collected from each of the soil borings; and,
2. Composited water samples collected from decontamination water and well development/purge water.

Composited Soil Boring Samples:

During drilling, an aliquot of soil media will be collected from every 5 ft interval drilled as the borehole is progressed to total depth. All borehole cuttings will be grouped together to represent a composite IDW

sample. The cuttings will be disposed of as a single unit of IDW with appropriate waste characterization sampling. As such, each individual drum may contain cutting waste from multiple boreholes within the FTA. The composite IDW samples will be pulled from the soil cores. Composited soil for IDW analyses will be stored in an appropriately labeled 55-gallon drum or 5-gallon bucket with a designated lid. At the end of the drilling program, the drum or bucket that houses the IDW sample aliquots will be composited (ensuring appropriate representation of all collected media). The composite sample will be placed into laboratory supplied sample containers and shipped to the laboratory.

Composited Groundwater IDW:

During monitoring point purging and sampling it is anticipated that water IDW will be generated. IDW water will be containerized in 55-gallon drums. A single composite sample containing aliquots of water from each drum on site will be placed into laboratory supplied sample containers and submitted to the laboratory for analysis at the conclusion of water generating events.

Decontamination Water IDW:

Decontamination water generated during the course of the investigation will be segregated from the groundwater IDW generated during the investigation and will be clearly labeled. The water will be sampled however, as one composite waste stream with the groundwater IDW. Physical segregation of decontamination water from the groundwater waste stream will minimize impacts should the composited water IDW sample come back as anything other than non-hazardous. If it is determined that the IDW water is hazardous, AMEC will resample the decontamination water and well development water separately in an effort to reduce the volume of hazardous waste. Samples are expected to be collected from decontamination water using a bailer. The sample will be composited and then decanted into sample containers provided by the laboratory.

The IDW will be staged in the general vicinity of the former smokehouse structure. Based upon characterization results, IDW will be profiled and transported to an offsite disposal facility. Upon completion of procurement activities, AMEC will provide the AFCEC with the information on the selected transporter and disposal facility for approval. An AMEC representative with DOT Hazardous Materials Transportation training or applicable equivalent waste management training or certifications will oversee IDW loading for transport and disposal. The AMEC representative will sign manifests/bills of lading as an "Authorized Agent for the Air Force." Copies of bills of lading/manifests will be included in the individual site investigation reports.

QAPP Worksheet #17: Sampling Design and Rationale

Based on discussions between AMEC and AFCEC during the scoping meeting on 25-26 March 2014 and a follow-up scoping phone call on 12 May 2014, as well as review of the document sources referenced throughout this ISWPA, AMEC has developed a sampling program that is designed to evaluate the potential for a PFC release at the former Griffiss AFB. The sampling plan is based on the following general conditions known to exist at the site.

Condition 1: PFCs may have leached through the soil into groundwater and may be present in the groundwater zone beneath the site.

Resulting Sampling Rationale: Install temporary well points for groundwater sample collection within the FTA footprint to assess whether impacted groundwater is present. Install temporary well points at varying distances between the FTA dish and the airfield fence line to assess whether PFCs, if present, have migrated off the FTA site as well as off the airfield.

Condition 2: AFFF was applied to the ground surface at the FTA during training excises.

Resulting Sampling Rationale: Install soil borings and collect soil samples in and around the area of the former FTA dish.

Condition 3: Groundwater intersects the storm water drain that traverses across the FT030P site. Historical documents suggest that groundwater enters the storm drain system through faults in the storm drain piping.

Resulting Sampling Rationale: Collect one upgradient sample and one downgradient sample (both water and sediment if present) through catch basins in the storm sewer to assess whether PFCs are present in water entering the storm drain system from the FTA. If the comparative results between the up and downgradient samples are outside the range of uncertainty defined by the laboratory control limits, then the difference will be considered to be a potential indication of contribution from the FTA. Likewise, PFC results will be used to assess whether the storm sewer represents a pathway for transport of PFCs off site.

Condition 4: The former O/WS located northeast of the FTA dish location separated the petroleum and aqueous wastes. The O/WS reportedly overfilled on at least one occasion (FPM 2007).

Resulting Sampling Rationale: Install two soil borings and collect soil samples in the area of the former O/WS and aqueous waste storage tanks (UST 6365-1, UST 6365-3 on **Figure 4**). Install one temporary well point immediately downgradient of the aqueous waste storage/treatment area.

QAPP Worksheet #18: Sampling Locations and Methods

All sample locations are illustrated on **Figures 4 through 6** and are described on the following table.

Station ID	Sample ID	Matrix	Start/End Depth, ft[a] bgs[b]	Method	New or Existing Location	Rationale
GRIFS[c]-FT030P-001	GRIFS-SO[d]-001	Soil	0'-1'	DPT	New	Assess PFC presence in former aqueous waste handling area surface soils
GRIFS-FT030P-001	GRIFS-SO-002	Soil	3'-5'	DPT	New	Assess PFC presence in former aqueous waste handling area soils
GRIFS-FT030P-001	GRIFS-SO-003	Soil	8'-10'	DPT	New	Assess PFC presence in former aqueous waste handling area soils
GRIFS-FT030P-002	GRIFS-SO-004	Soil	0'-1'	DPT	New	Assess PFC presence in former aqueous waste handling area surface soils
GRIFS-FT030P-002	GRIFS-SO-005	Soil	3'-5'	DPT	New	Assess PFC presence in former aqueous waste handling area soils
GRIFS-FT030P-002	GRIFS-SO-006	Soil	8'-10'	DPT	New	Assess PFC presence in former aqueous waste handling area soils
GRIFS-FT030P-003	GRIFS-SO-007	Soil	0'-1'	DPT	New	Assess PFC presence in FTA source area surface soils
GRIFS-FT030P-003	GRIFS-SO-008	Soil	3'-5'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-003	GRIFS-SO-009	Soil	8'-10'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-004	GRIFS-SO-010	Soil	0'-1'	DPT	New	Assess PFC presence in FTA source area surface soils
GRIFS-FT030P-004	GRIFS -SO-011	Soil	0'-1'	DPT	New	Field Duplicate
GRIFS-FT030P-BLK[g]	GRIFS-FT030P-BLK01	Rinsate Blank	N/A	Rinsate Blank	New	Soil Sampling Equipment Rinsate Blank

Station ID	Sample ID	Matrix	Start/End Depth, ft[a] bgs[b]	Method	New or Existing Location	Rationale
GRIFS-FT030P-004	GRIFS-SO-012	Soil	3'-5'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-004	GRIFS-SO-013	Soil	8'-10'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-005	GRIFS-SO-014	Soil	0'-1'	DPT	New	Assess PFC presence in FTA source area surface soils
GRIFS-FT030P-005	GRIFS -SO-015	Soil	3'-5'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-005	GRIFS -SO-016	Soil	8'-10'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-006	GRIFS-SO-017	Soil	0'-1'	DPT	New	Assess PFC presence in FTA source area surface soils
GRIFS-FT030P-006	GRIFS -SO-018	Soil	3'-5'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-006	GRIFS -SO-019	Soil	8'-10'	DPT	New	Assess PFC presence in FTA source area soils
GRIFS-FT030P-006	GRIFS -SO-020	Soil	8'-10'	DPT	New	Field Duplicate/MS/MSD
GRIFS-FT030P-BLK	GRIFS-FT030P-BLK02	Rinsate Blank	N/A	Rinsate Blank	New	Soil Sampling Equipment Rinsate Blank
GRIFS-FT030P-002	GRIFS -GW[f]-001	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in former aqueous waste handling area groundwater
GRIFS-FT030P-002	GRIFS -GW-002	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Field Duplicate/MS/MSD
GRIFS-FT030P-003	GRIFS -GW-003	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in FTA source area groundwater
GRIFS-FT030P-004	GRIFS -GW-004	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in FTA source area groundwater
GRIFS-FT030P-005	GRIFS -GW-005	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in FTA source area groundwater
GRIFS-FT030P-006	GRIFS -GW-006	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in FTA source area groundwater

Station ID	Sample ID	Matrix	Start/End Depth, ft[a] bgs[b]	Method	New or Existing Location	Rationale
GRIFS-FT030P-007	GRIFS -GW-007	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in groundwater downgradient of FTA dish
GRIFS-FT030P-008	GRIFS -GW-008	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in groundwater downgradient of FTA dish, near airfield fence line
GRIFS-FT030P-009	GRIFS -GW-009	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in groundwater downgradient of FTA dish, near airfield fence line
GRIFS-FT030P-010	GRIFS -GW-010	Groundwater	11' (8'-18' screen interval)	Peristaltic pump	New	Assess PFC presence in groundwater downgradient of FTA dish, near airfield fence line
GRIFS-FT030P-BLK	GRIFS-FT030P-BLK03	Rinsate Blank	N/A	Rinsate Blank	New	Groundwater Sampling Equipment Rinsate Blank
GRIFS-FT030P-011	GRIFS-SW[e]-001	Surface Water	Surface	Grab	Existing	Upgradient sampling point in storm water drain
GRIFS-FT030P-011	GRIFS-SD[h]-001	Sediment	Surface	Grab	Existing	Upgradient sampling point in storm water drain
GRIFS-FT030P-012	GRIFS-SW-002	Surface Water	Surface	Grab	Existing	Downgradient sampling point storm water drain
GRIFS-FT030P-012	GRIFS-SD-002	Sediment	Surface	Grab	Existing	Downgradient sampling point storm water drain
GRIFS-FT030P-012	GRIFS-SW-003	Surface Water	Surface	Grab	Existing	Field Duplicate/MS/MSD
GRIFS-FT030P-012	GRIFS-SD-003	Sediment	Surface	Grab	Existing	Field Duplicate/MS/MSD

Station ID	Sample ID	Matrix	Start/End Depth, ft[a] bgs[b]	Method	New or Existing Location	Rationale
GRIFS-FT030P-BLK	GRIFS-FT030P-BLK04	Field Blank	N/A	Field Blank	New	Field Blank (PFC-Free Water)

[a] ft – feet
[b] bgs – below ground surface
[c] GRIFS – installation identification
[d] SO – soil
[e] SW – surface water
[f] GW – groundwater
[g] BLK – blank water
[h] SD - sediment

1

QAPP Worksheet #20: Field QC Summary

Site	Matrix	Analytes	Regular Samples	Field Duplicates (1:10)	Equipment Rinsates (1:10 per equipment setup)	Field Blanks (1 per lot of PFC-free water)	MS/MSDs (1:20)	Total Samples
FT030P	Soil	PFCs	18	2	0	0	1	21
	Groundwater	PFCs	9	1	0	0	1	11
	Surface Water	PFCs	2	1	N/A	0	1	4
	Sediment	PFCs	2	1	N/A	0	1	4
		PFCs	0	0	4	1	0	5

2

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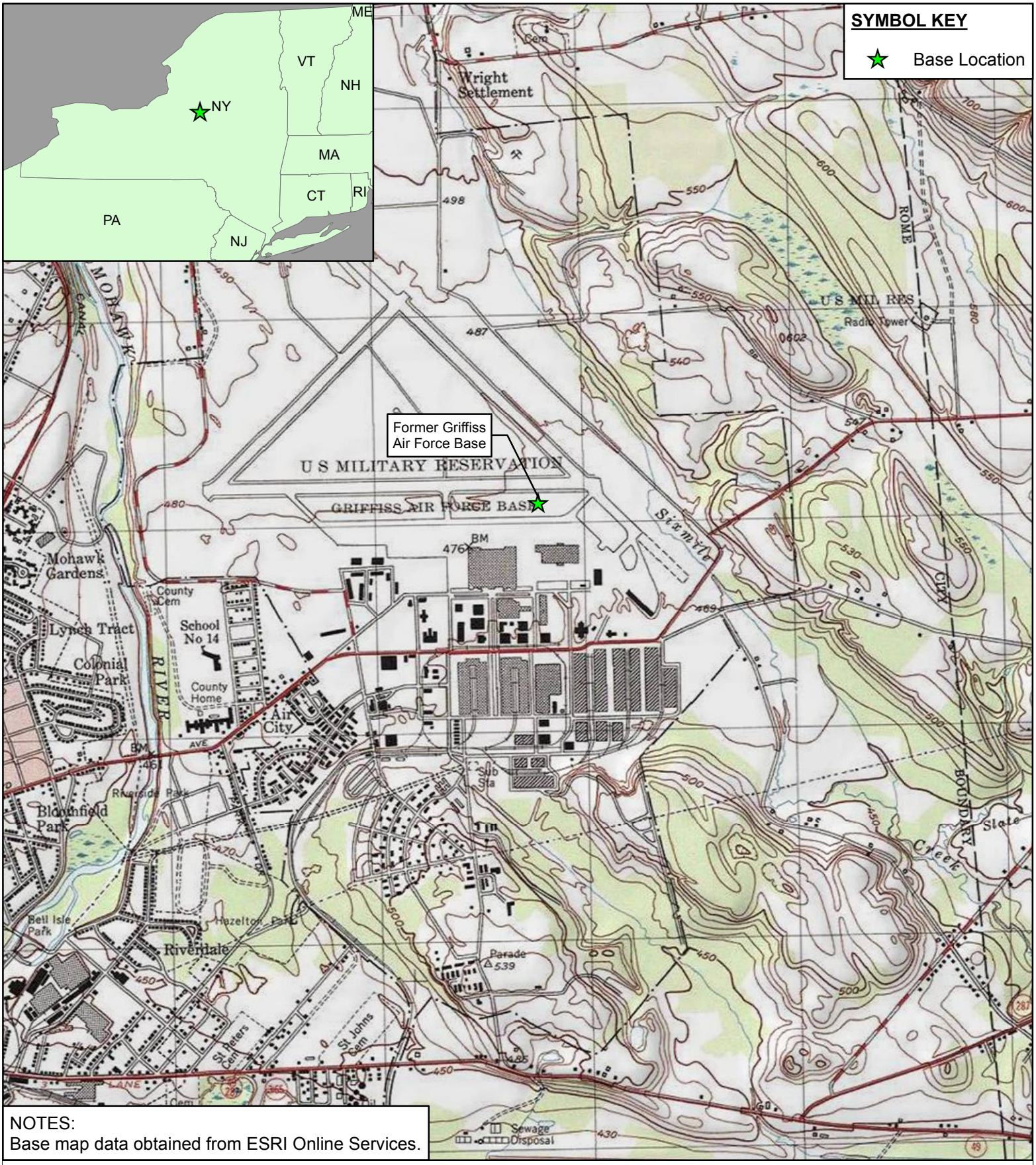
Figures



NOTES:
Base map data obtained from ESRI Online Services.

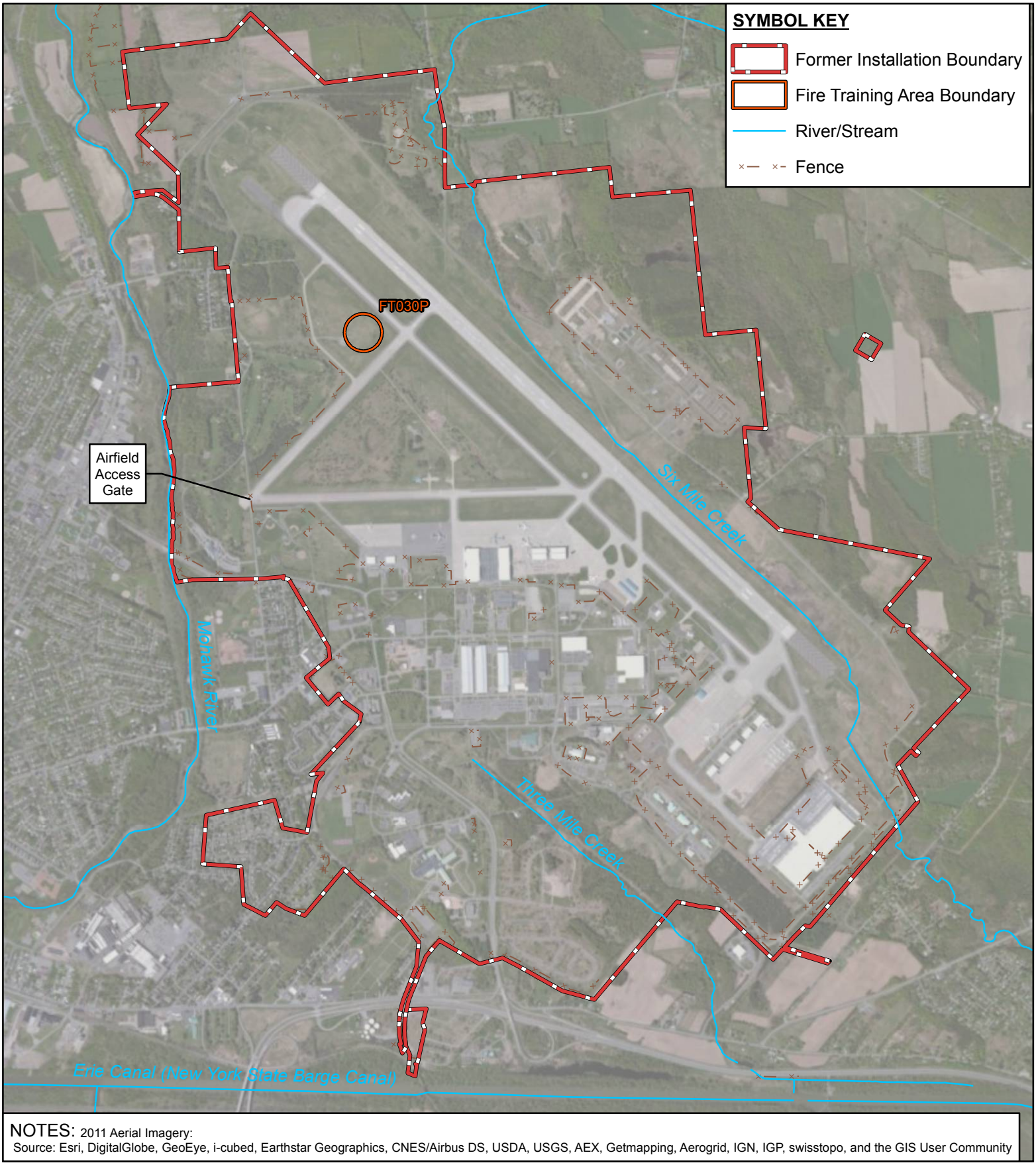
Air Force Civil Engineering Center
2261 Hughes Avenue
Building 171, Ste 155
JBSA Lackland, Texas 78236

N

FIGURE 1
Installation Location
Installation-Specific Work Plan Addendum
Former Griffiss Air Force Base
Rome, New York

0 250 500 1,000 1,500 2,000 2,500 Meters
0 2,000 4,000 6,000 8,000 Feet

06/24/2014	Griffis_Site_Installation_Loc	
PROJ: 775290177	Drawn: BRP	



NOTES: 2011 Aerial Imagery:
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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JBSA Lackland, Texas 78236

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FIGURE 2
Fire Training Area Location
Installation-Specific Work Plan Addendum
Former Griffiss Air Force Base
Rome, New York

0 275 550 1,100 1,650 2,200 2,750 Meters

0 2,300 4,600 6,900 9,200 Feet

08/14/2014	Griffis_Site_FTA_Loc_PFCs_WPadd	
PROJ: 775290177	Drawn: BRP	

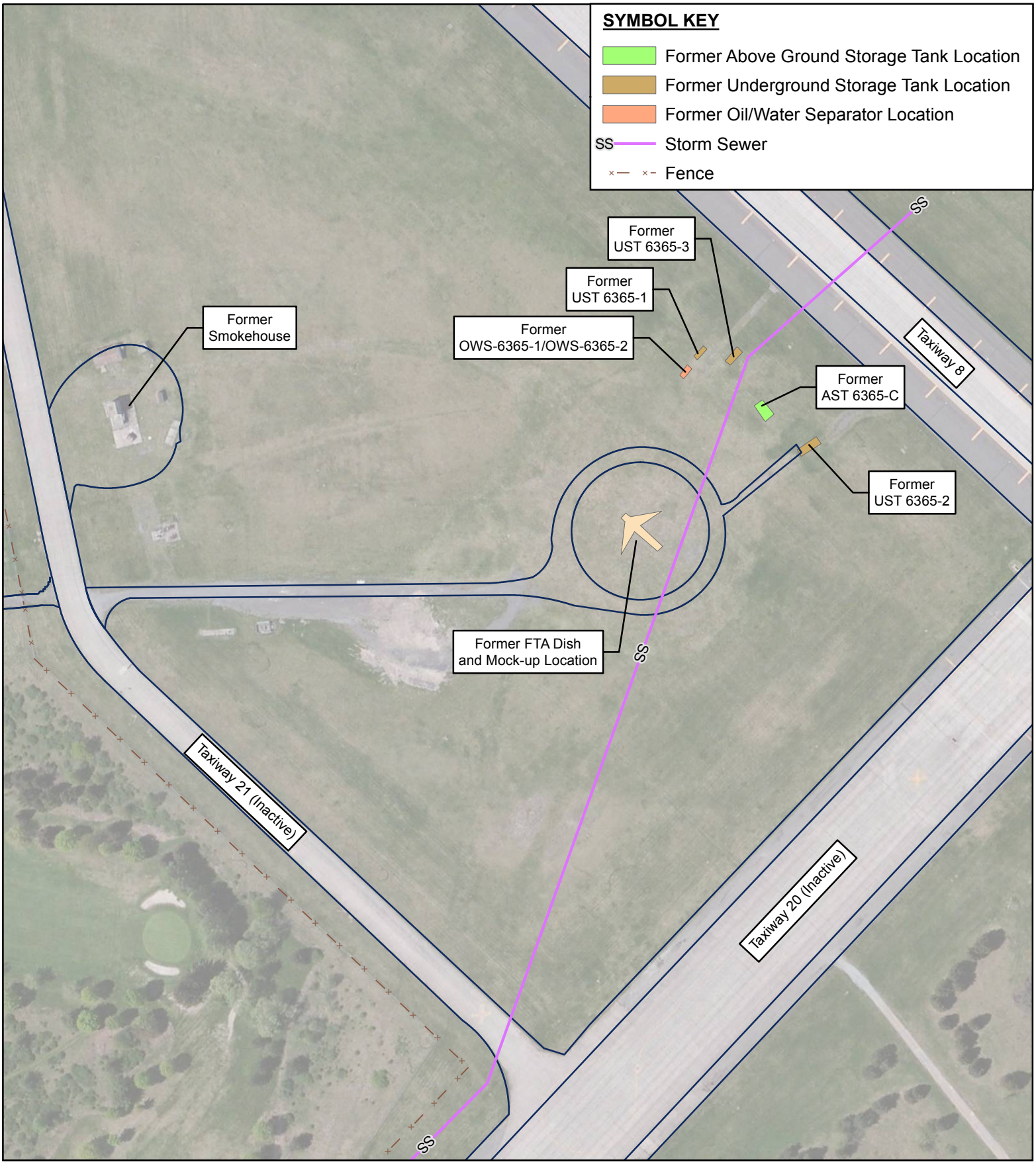

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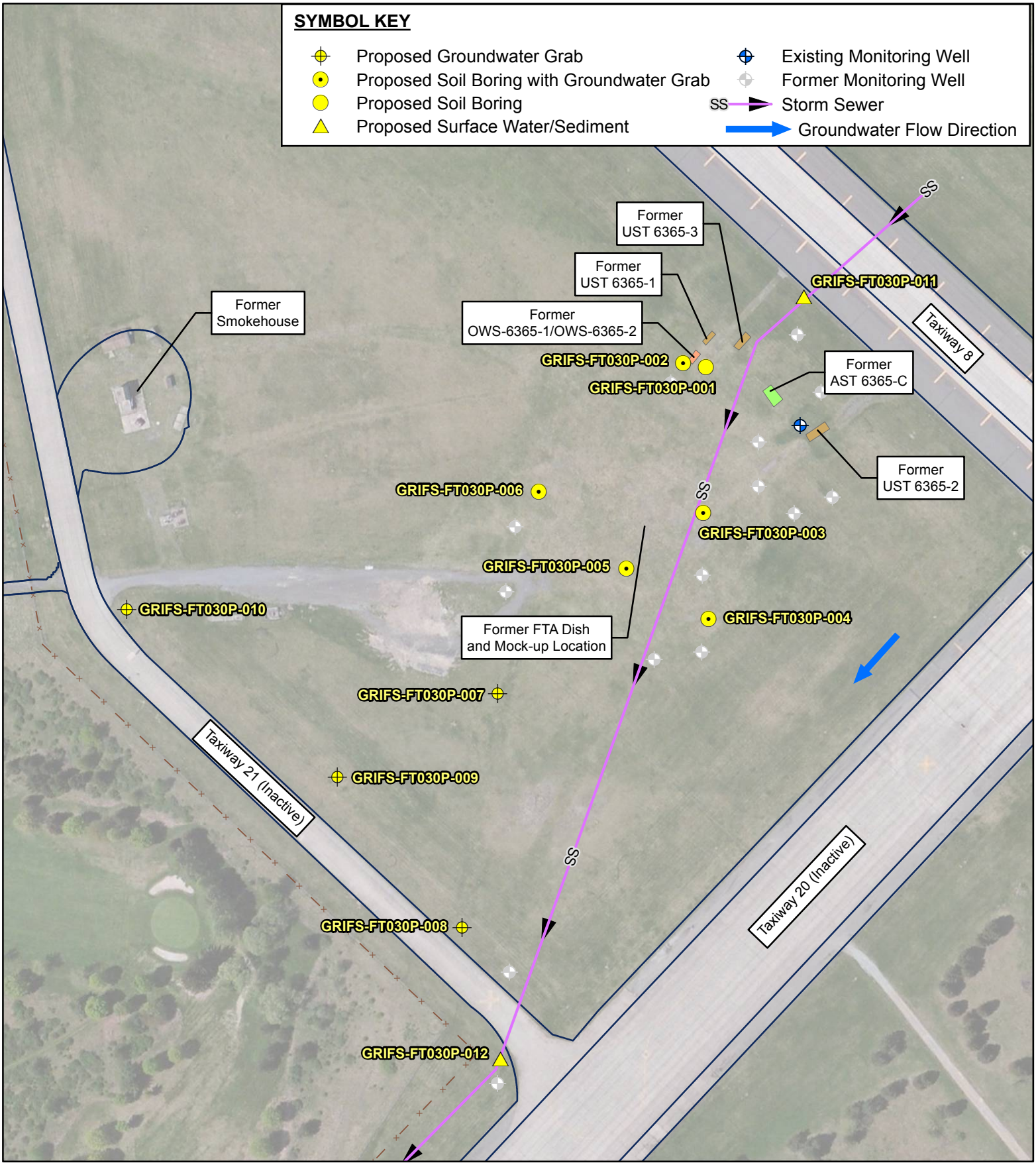
FIGURE 3
Fire Training Area Site Layout
Installation-Specific Work Plan Addendum
Former Griffiss Air Force Base
Rome, New York

0 25 50 100 150 200 250 Meters
0 200 400 600 800 Feet

08/14/2014	Griffis_Site_FTA_Layout_PFCs_WPadd
PROJ: 775290177	Drawn: BRP



Air Force Civil Engineering Center
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Building 171, Ste 155
JBSA Lackland, Texas 78236

N

FIGURE 4
Fire Training Area Proposed Sample Locations
Installation-Specific Work Plan Addendum
Former Griffiss Air Force Base
Rome, New York

0 25 50 100 150 200 250 Meters
0 200 400 600 800 Feet

08/14/2014	Griffiss_Site_Soil_GW_Sample_Locs_PFCs_WPadd	
PROJ: 775290177	Drawn: BRP	

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APPENDIX A

Installation-Specific Health and Safety Considerations

The site-specific health and safety considerations provided in this appendix supplement the General HSP included as Appendix A to the QPP. Refer to the HSP and QPP for all job hazard analyses, site control requirements, personal protective equipment needs, safety mitigation measures, and standard operating procedures.

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Site: Former Griffiss AFB, Rome, NY

Prepared by: Rob Singer Date: 4/22/14

Reviewed by: Jerry Rawcliffe 4/22/14

Dates of Required Training and Medical Surveillance:

Name	Jerry Rawcliffe	Rob Singer	Danielle Lerner	
Job duties	Field Team Lead/HSO	Regional Lead	Field Team	
First Aid	2/14/14	-	-	
CPR	2/14/14	-	-	
Hazard Communication	12/1/13	12/1/13	-	
HAZWOPER	5/17/85--7/12/13	6/23/95 – 6/13/12	9/3/2013	

At least one worker must be trained in First Aid/CPR and should receive blood borne pathogen training
Required for Field Lead and Site Health and Safety Officer

Known or Suspected Contaminants (include permissible exposure limits [PELs]/threshold limit values [TLVs]):

Contaminants of Concern (COC) (Attach Fact Sheets*)	Maximum Concentrations		PEL/TLV
	Soil (mg/kg)	Water/Groundwater (µg/L)	
Perfluorinated Compounds	Unknown	Unknown	N/A
Benzene	<Remediation Goals	<Remediation Goals	1 ppm[a]
Toluene	<Remediation Goals	<Remediation Goals	200 ppm
Ethylbenzene	<Remediation Goals	<Remediation Goals	100 ppm
Xylenes	<Remediation Goals	<Remediation Goals	100 ppm
cis 1,2-Dichloroethene	<Remediation Goals	<Remediation Goals	100 ppm
Trichloroethene	<Remediation Goals	<Remediation Goals	100 ppm
Vinyl Chloride	<Remediation Goals	<Remediation Goals	1 ppm

[a] ppm – parts per million

1 EMERGENCY CONTACTS

NAME	TELEPHONE NUMBERS		DATE OF PRE-EMERGENCY NOTIFICATION (if applicable)
Fire Department:	911		
Hospital: **Rome Memorial Hospital** **1500 N. James St.** **Rome, NY 13440**	(315)338-7000		
Police/Ambulance/Fire:	911		
Client Contact: **David Farnsworth**	(O): 518-563-2871	(C): 518-420-2179	
Griffiss International Airport Security: **Ed Arcuri**	(O): 315-356-1180	(C): 315-734-5406	
Regional Lead: **Rob Singer**	(O): 207-828-2643	(C): 207-272-0989	
Site Health And Safety Officer: **Jerry Rawcliffe**	(O): 207-828-3614	(C): 207-415-6211	
Group HSE Manager: **John Mazur**	(O): 910-452-1185	(C): 910-431-2330 (H): 910-681-0538	

2

EMERGENCY PROCEDURES

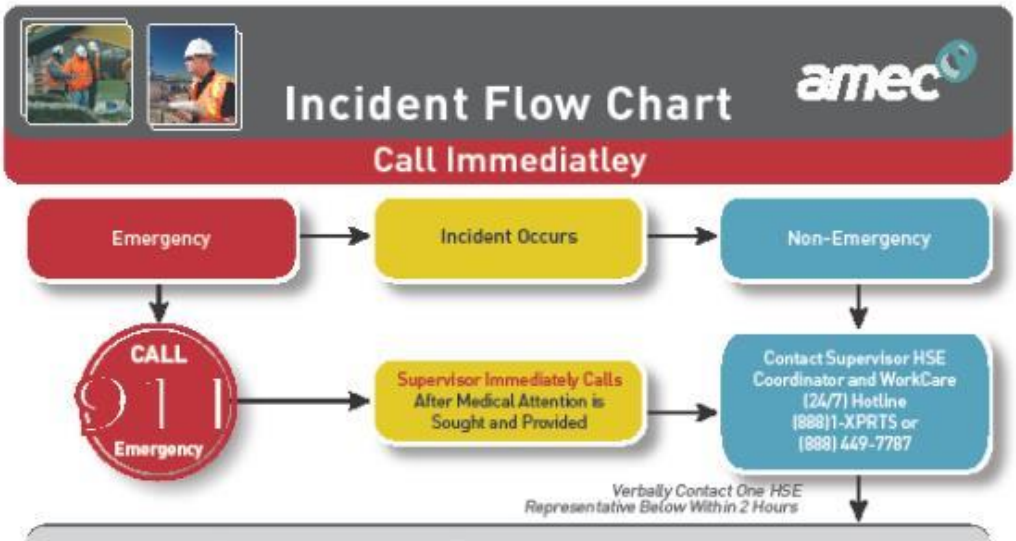
- The health and safety officer (HSO) or alternate should be immediately notified via the on-site communication system. The HSO assumes control of the emergency response.
- The HSO notifies the project manager and client contact of the emergency. The HSO shall then contact the group health, safety and environment (HSE) manager who will then contact the corporate HSE manager.
- If applicable, the HSO shall notify off-site emergency responders (e.g. fire department, hospital, police department, etc.) and shall inform the response team as to the nature and location of the emergency on-site.
- If applicable, the HSO evacuates the site. Site workers should move to the predetermined evacuation point (labeled as "Airfield Access Gate on Figure 2\).
- For small fires, flames should be extinguished using the fire extinguisher. Large fires should be handled by the local fire department.
- In an unknown situation or if responding to toxic gas emergencies, appropriate PPE, including self-contained breathing apparatus (SCBA) if available, should be donned. If appropriate PPE is unavailable, site workers should evacuate and call in emergency personnel.
- If chemicals are accidentally spilled or splashed into eyes or on skin, use eyewash and wash affected area. Site worker should shower as soon as possible after incident.
- If a worker is injured, first aid shall be administered by certified first aid provider. See AMEC Triage Program below
- If the emergency involves toxic gases, workers will back off and reassess. Prior to re-entering the work zone, the area must be determined to be safe. Entry will be using Level B PPE and utilize appropriate monitoring equipment to verify that the site is safe.
- Within 24 hours after any emergency response, the Incident Analysis Report (and Vehicle Incident Report if vehicle incident) shall be completed and returned to the group HSE manager, who will forward a copy to the corporate HSE manager. Injuries requiring medical treatment beyond first aid (as well as work-related vehicle incidents) will require the employee to submit a post incident drug and alcohol test.

AMEC WorkCare Program

- If the emergency involves an injury to an AMEC employee, the local HSE coordinator, field lead are to implement the AMEC WorkCare program. Employees whose injuries are true emergencies and who need immediate medical attention will initially bypass this program and are to be immediately sent/taken to the hospital identified in the routes to emergency medical facilities section below.
- For non-emergency injuries, the supervisor field lead and the injured employee will contact the AMEC WorkCare 24/7 Hotline at 1-888-449-7787 and speak to a nurse case manager. The nurse case manager will perform the intake process and ask for information including the following:
    - Explain the process to the caller
    - Determine the nature of the concern
    - Provide appropriate medical advice to the caller
    - Determine the appropriate path forward with the caller
    - Maintain appropriate medical confidentiality
    - Help caller to execute path forward – including a referral to the appropriate local medical facility
    - Send an email notification to the corporate safety contact
- From this, a collaborative decision will be made between the nurse case manager and the injured employee on the most appropriate place for treatment; either the hospital, the clinic, or onsite first aid
- If the employee is to be sent to a clinic or hospital, the nurse will call ahead to explain the situation, the need for testing, and advises options to avoid OSHA recordable & considerations for return to work & transitional/modified duty. The nurse will also arrange for drug and alcohol testing to be conducted at the hospital/clinic. If the employee is to be treated on site (First Aid), the nurse will advise the employee to call if injury gets worse. Attached is a flow diagram that describes this procedure.

1

AMEC PROGRAM FLOW DIAGRAM



E&I Corporate HSE Department Contact List

Name/Email	Office Location	Contact Information
Bruce Voss bruce.voss@amec.com	Catherdral City, CA	760.202.3737 (office) 951.897.6381 (cell)
Chad Barnes chad.barnes@amec.com	Phoenix, AZ	602.733.6000 (office) 480.495.9846 (cell)
Cindy Sundquist cynthia.sundquist@amec.com	Portland, ME	207.828.3309 (office) 207.650.7593 (cell) 207.892.4402 (home)
Don Kubik don.kubik@amec.com	Oakland, CA	510.663.4100 (office) 510.368.6433 (cell)
Gabe Sandholm gabe.sandholm@amec.com	Minneapolis, MN	612.252.3785 (office) 206.683.9190 (cell)
John Mazur john.mazur@amec.com	Wilmington, NC	910.452.1185 (office) 910.431.2330 (cell) 910.681.0538 (home)
Lori Dowling lori.dowling@amec.com	Prince George, BC	250.564.3243 (office)
Philip Neville philip.neville@amec.com	Thorold, ON	905.687.6616 (office) 905.380.4465 (cell)
Tim Kihn tim.kihn@amec.com	Edmonton, AB	780.944.6363 (office) 780.717.5058 (cell)
Vlad Ivensky (can call 24/7) vlad.ivesky@amec.com	Plymouth Meeting, PA	610.877.6144 (office) 484.919.5175 (cell) 215.947.0393 (home)

*High potential near misses, subcontractor incidents, regulatory inspections, spills, and property damage greater than $1000, should be reported within 60 minutes to one of the above HSE Representatives.

Revised 17 July 2012-hb

2

Name:		Date:	
Name:		Date:	
Name:		Date:	
Name:		Date:	
Name:		Date:	

FIELD TEAM REVIEW: I acknowledge that I understand the requirements of this HSP, and agree to abide by the procedures and limitations specified herein. I also acknowledge that I have been given an opportunity to have my questions regarding the HSP and its requirements answered prior to performing field activities. Health and safety training and medical surveillance requirements applicable to my fieldactivities at this site are current and will not expire during on-site activities.

ROUTES TO EMERGENCY MEDICAL FACILITIES

HOSPITAL (for immediate emergency treatment):

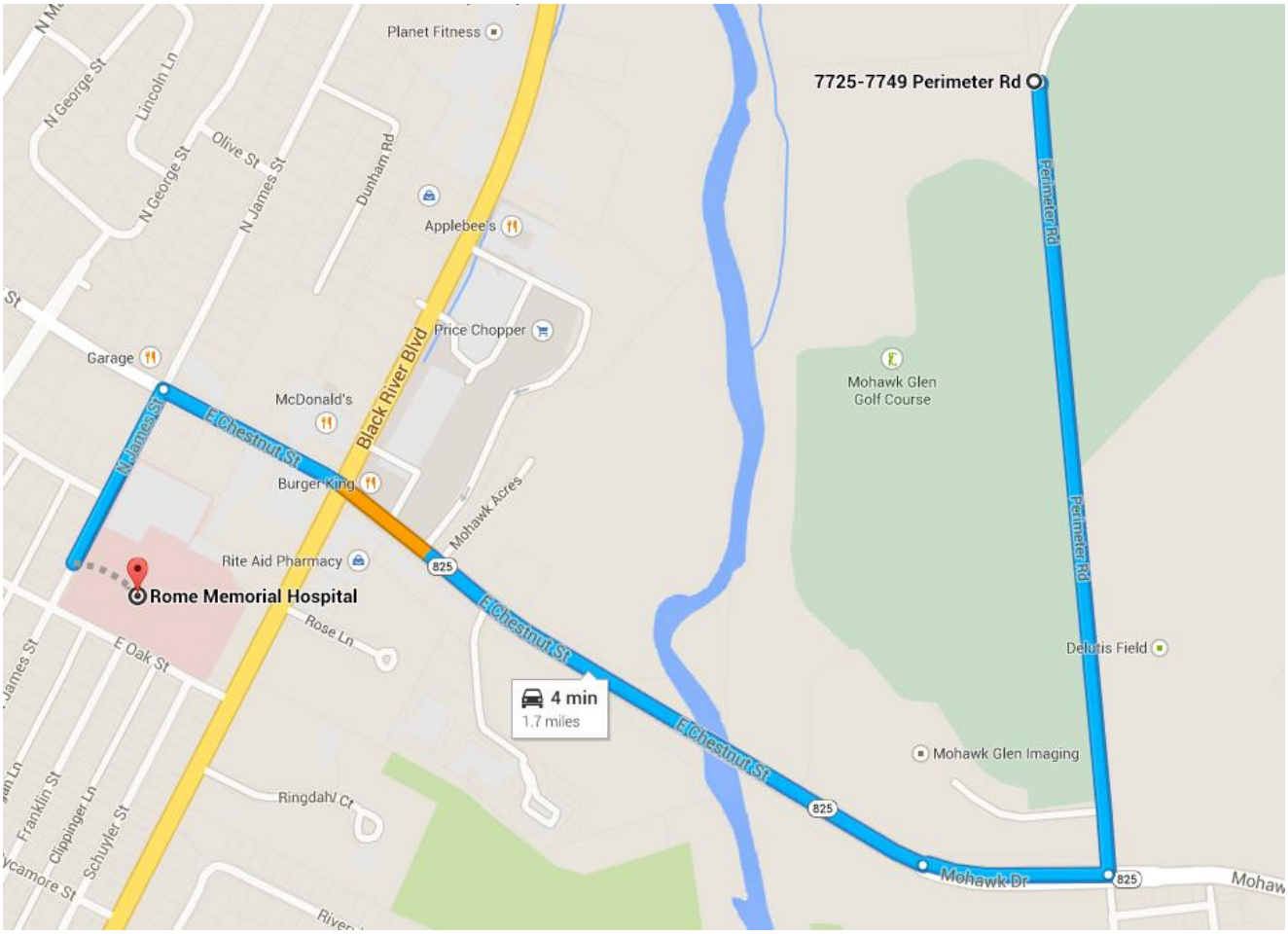
Facility Name: Rome Memorial Hospital

Address: 1500 N. James St, Rome, NY 13440

Telephone Number: 315-338-7000

DIRECTIONS TO PRIMARY HOSPITAL

- Head south on Perimeter Rd toward Mohawk Dr
- Turn right onto Mohawk Dr
- Continue onto E Chestnut St
- Turn left onto James St



APPENDIX B

Project Schedule

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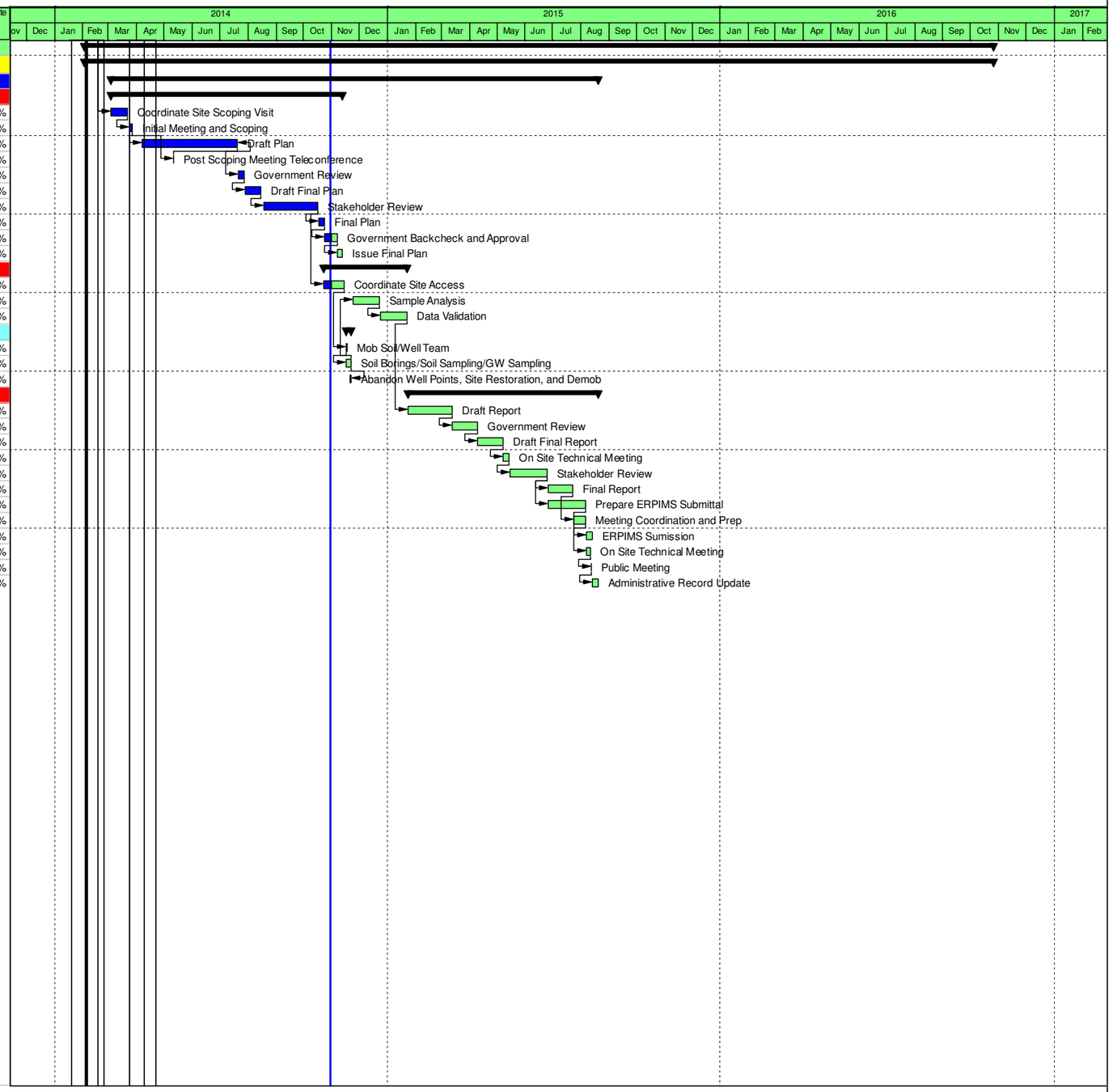
Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases

Contract FA8903-08-8766 Task Order 0177

Activity ID	Activity Name	Original Duration	Rem Duration	Start	Finish	Activity % Complete
Region 2		690	515	03-Feb-14 A	26-Oct-16	
Team 2A - Portland Field Team		690	515	03-Feb-14 A	26-Oct-16	
Griffiss AFB, NY		379	205	03-Mar-14 A	19-Aug-15	
Installation Specific Work Plan		183	9	03-Mar-14 A	12-Nov-14	
425	Coordinate Site Scoping Visit	15	0	03-Mar-14 A	21-Mar-14 A	100%
426	Initial Meeting and Scoping	4	0	24-Mar-14 A	27-Mar-14 A	100%
427	Draft Plan	30	0	07-Apr-14 A	21-Jul-14 A	100%
984	Post Scoping Meeting Teleconference	1	0	12-May-14 A	12-May-14 A	100%
428	Government Review	6	0	21-Jul-14 A	28-Jul-14 A	100%
429	Draft Final Plan	14	0	29-Jul-14 A	15-Aug-14 A	100%
431	Stakeholder Review	30	0	18-Aug-14 A	16-Oct-14 A	100%
432	Final Plan	5	0	17-Oct-14 A	23-Oct-14 A	100%
433	Government Backcheck and Approval	10	5	24-Oct-14 A	06-Nov-14	50%
434	Issue Final Plan	4	4	07-Nov-14	12-Nov-14	0%
Investigations Monitoring and Sample Collection		62	56	23-Oct-14 A	22-Jan-15	
435	Coordinate Site Access	17	11	23-Oct-14 A	14-Nov-14	35.29%
454	Sample Analysis	20	20	24-Nov-14	23-Dec-14	0%
455	Data Validation	20	20	24-Dec-14	22-Jan-15	0%
Soil Sampling and Groundwater Sampling		5	5	17-Nov-14	21-Nov-14	
437	Mob Soil/Well Team	1	1	17-Nov-14	17-Nov-14	0%
438	Soil Borings/Soil Sampling/GW Sampling	5	5	17-Nov-14	21-Nov-14	0%
443	Abandon Well Points, Site Restoration, and Demob	1	1	21-Nov-14	21-Nov-14	0%
Studies/Designs and Documentation		149	149	23-Jan-15	19-Aug-15	
457	Draft Report	35	35	23-Jan-15	12-Mar-15	0%
458	Government Review	20	20	13-Mar-15	09-Apr-15	0%
459	Draft Final Report	20	20	10-Apr-15	07-May-15	0%
460	On Site Technical Meeting	5	5	08-May-15	14-May-15	0%
461	Stakeholder Review	30	30	15-May-15	25-Jun-15	0%
462	Final Report	20	20	26-Jun-15	23-Jul-15	0%
463	Prepare ERPIMS Submittal	30	30	26-Jun-15	06-Aug-15	0%
465	Meeting Coordination and Prep	10	10	24-Jul-15	06-Aug-15	0%
464	ERPIMS Sumission	5	5	07-Aug-15	13-Aug-15	0%
466	On Site Technical Meeting	3	3	07-Aug-15	11-Aug-15	0%
467	Public Meeting	1	1	12-Aug-15	12-Aug-15	0%
468	Administrative Record Update	5	5	13-Aug-15	19-Aug-15	0%



Remaining Level of Effort | Actual Work | Critical Remaining Work | Summary
Actual Level of Effort | Remaining Work | Milestone | WBS Summary