FINAL

PERFLUORINATED COMPOUNDS PRELIMINARY ASSESSMENT

FORMER PLATTSBURGH AIR FORCE BASE, PLATTSBURGH, NEW YORK

Contract FA8903-08-D-8766
Task Order 0177

Prepared for:

Air Force Civil Engineer Center
JBSA Lackland, Texas
4PAE08 Contract

September 2015

Submitted by:

amec foster wheeler

FINAL

PERFLUORINATED COMPOUNDS PRELIMINARY ASSESSMENT

FORMER PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

PROJECT NO. THWA20147242

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

Prepared by:
Amec Foster Wheeler Environment & Infrastructure, Inc.
Contract FA8903-08-D-8766
Task Order 0177

September 2015

This page left intentionally blank.

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS

ADCOCC	Air Defence Command Operational Control Center
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFCEE	Air Force Center for Engineering and the Environment
AFFF	Aqueous Film Forming Foam
AFHRA	Air Force Historical Research Agency
AFRL	Air Force Research Laboratory
AFSAS	Air Force Safety Automated System
AFSEC	Air Force Safety Center
AMEC	AMEC Environment & Infrastructure, Inc.
AR	Administrative Record
AST	Aboveground Storage Tank
ATSDR	Agency for Toxic Substances and Disease Registry
BEC	BRAC Environmental Coordinator
bgs	below ground surface
BRAC	base realignment and closure
BTEX	benzene, toluene, ethylbenzene, and xylenes
DoD	Department of Defense
DoDI	Department of Defense Instruction
EBS	Environmental Baseline Survey
EIS	Environmental Impact Statement
FDA	Fire Demonstration Area
ft	feet or foot
FOSL	Findings of Suitability to Lease
FTA	Fire Training Area
GWTP	Groundwater Treatment Plant
HAER	Historical American Engineering Record
HEF	High Expansion Foam
IA	Industrial Area
IC	Institutional Control
IRP	Installation Restoration Program
ISWPA	Installation Specific Work Plan Addendum
mg/kg	milligrams per kilogram
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
OSRTI	Office of Superfund Remediation and Technology Innovation
OWS	Oil Water Separator
PA	Preliminary Assessment
PARC	Plattsburgh Airbase Redevelopment Corporation
PFC	perfluorinated compound
PFOA	perfluorooctanoic acid

PFOS	perfluorooctane sulfonic acid
ROD	Record of Decision
SAC	Strategic Air Command
SFTA	Suspected Fire Training Area
SVE	Soil Vapor Extraction
TO	Task Order
µg/l	micrograms per liter
URS	URS Group, Inc./URS Consultants, Inc.
USAAC	United States Army Air Corps
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	volatile organic compounds
WSA	Weapons Storage Area

EXECUTIVE SUMMARY

This Perfluorinated Compounds (PFCs) Preliminary Assessment (PA) provides findings from research conducted to determine whether and where aqueous film forming foam (AFFF) containing PFCs was stored, handled, used or released at the former Plattsburgh Air Force Base (AFB), located in Plattsburgh, New York. Research was conducted for the years 1970 through the installation closure in 1995 using: 1) personnel interviews; 2) online research; and, 3) archival research at the Air Force Historical Research Agency (AFHRA) and the Air Force Safety Center (AFSEC). Since a fire training area (FTA; FT002P) known to have used AFFF is already being investigated for PFCs at the former Plattsburgh AFB (AMEC, 2014), this PA focuses on those areas exclusive of FT002P and the FT002P/Industrial Area (IA) Groundwater Operable Unit (OU) and Groundwater Treatment Plant (GWTP). The results of the FTA investigation will be reported under separate cover.

AFFF, containing PFCs, was used at the former Plattsburgh AFB for extinguishing petroleum fires and firefighting training activities; however, AFFF does not appear to have been used in fire suppression systems at the installation buildings. For the purposes of this report, areas where AFFF was stored, handled, used or released are referred to as "AFFF areas." AFFF areas can include:

- crash sites/aircraft fires;
- FTAs used after 1970 that are not already being investigated for PFCs by Amec Foster Wheeler[1];
- areas with underground storage tanks (USTs), aboveground storage tanks (ASTs), drums, buckets, etc. where virgin or spent AFFF was stored with or without secondary containment;
- areas where AFFF use or release was documented via personnel interviews, environmental reports, electronic or print media, etc.;
- areas where AFFF was handled, used/released indoors and fully contained; and,
- large fuel spills where AFFF may have been used to minimize the risk of fire.

Based on the research conducted, 10 AFFF areas were identified at former Plattsburgh AFB and may potentially require further action:

1) Building 601 (Former Fire Station): AFFF was stored and transferred into fire trucks within this former facility.
2) Building 2748 (Fire Station): AFFF was stored and handled in this building, fire trucks were washed within and outside of this building, and fire truck maintenance was conducted along the southwest side of the building that included the release of AFFF from fire trucks. Soil removal actions were conducted for petroleum contamination.

[1] AMEC Environment & Infrastructure, Inc. changed its name on 1 January 2015 to Amec Foster Wheeler Environment & Infrastructure, Inc., to reflect AMEC's acquisition of Foster Wheeler. Contract FA8903-08-D-8766 was modified on 26 March 2015 to reflect the name change. All resource documents created under AMEC Environment & Infrastructure, Inc. remain in place and are executed under Amec Foster Wheeler Environment & Infrastructure, Inc.

3) Building 2612 (Base Supply and Equipment Warehouse): AFFF was reportedly stored at unspecified locations within the base supply system; however, no AFFF releases were documented.

4) Buildings 2622 (Base Supply and Equipment Warehouse): AFFF was reportedly stored at unspecified locations within the base supply system; however, no AFFF releases were documented.

5) Flightline (Row 8): A KC-135 aircraft fire occurred in this area with documented use of AFFF.

6) Far Field Monitor Crash Site (OTH-3308): A B-57 aircraft crashed at the south end of the runway, and AFFF was potentially used to extinguish the resulting fire. Soil removal actions were conducted for petroleum contamination.

7) Calibration Hardstand (SPL-3210-1): Annual maintenance of fire trucks included testing/release of AFFF from fire trucks to this area. A documented 5-gallon discharge of firefighting foam also occurred in this area from a fire truck, which was cleanup up with absorbent materials.

8) North End of Flightline: AFFF was applied to this area on several occasions to minimize the fire potential from large fuel spills.

9) FT002P/IA Groundwater OU GWTP Sludge Disposal Area: Sludge removed from the FT002P/IA Groundwater OU GWTP, which may contain residual PFCs, was spread within an estimated 50- to 100-ft area around the GWTP.

10) Lowland Flooding Area: Lowland flooding in the former munitions maintenance area in the southwestern portion of the former base may have spread PFCs-contaminated effluent from the FT002P/IA Groundwater OU GWTP.

1.0 INTRODUCTION

This Perfluorinated Compounds (PFC) Preliminary Assessment (PA) for the former Plattsburgh Air Force Base (AFB) has been prepared by Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler)[2], on behalf of the Air Force Civil Engineer Center (AFCEC) under Contract No. FA8903-08-D-8766, Task Order (TO) 0177, PFCs Release Determination at Base Realignment and Closure (BRAC) Installations. The research is being conducted as part of United States Air Force (USAF) enterprise-wide response to possible release of PFCs per Department of Defense Instruction (DoDI) 4715.18, Emerging Contaminants, in general accordance with Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Furthermore, all research is being conducted proactively by the USAF outside of any regulatory requirements. This report provides findings from research conducted to determine whether and where aqueous film forming foam (AFFF), containing PFCs, was stored, handled, used or released at former Plattsburgh AFB, located in Plattsburgh, New York.

1.1 Background

PFCs are a large group of synthetic fluorinated compounds that are widely used to make everyday products more resistant to heat, stains, grease, and water, and are components in firefighting foams. The chemical structures of PFCs make them resistant to natural environmental degradation and, due to their persistence in the environment, bioaccumulation potential, and toxicity, PFCs have a potential impact on human health and the environment. Currently, the United States Environmental Protection Agency (USEPA) has no promulgated PFC criteria for the protection of human health and the environment; however, they have developed provisional health advisory guidelines for two PFCs (perfluorooctane sulfonic acid [PFOS] and perfluorooctanoic acid [PFOA]) to protect against potential exposure risk through drinking water (USEPA, 2009).

In 1970, the USAF began purchasing and using AFFF containing PFCs (PFOS and/or PFOA) for extinguishing petroleum fires and firefighting training activities (USAF, 2012). AFFF was used at USAF installations in and around fire training areas (FTAs). AFFF could have also been used at other areas within installations, such as in and around hangars that had AFFF fire suppression systems, plane crash and fire emergency response sites, firefighting equipment testing areas, wash racks, areas where fire trucks and/or emergency vehicles were washed, AFFF storage areas, and on large fuel spills to minimize the fire potential.

1.2 Objective

The objective of the PFC PA is to identify areas where AFFF was potentially stored, handled, used or released within the confines of the installation boundaries to aid the USAF in exercising due diligence to

[2] AMEC Environment & Infrastructure, Inc. changed its name on 1 January 2015 to Amec Foster Wheeler Environment & Infrastructure, Inc., to reflect AMEC's acquisition of Foster Wheeler. Contract FA8903-08-D-8766 was modified on 26 March 2015 to reflect the name change. All resource documents created under AMEC Environment & Infrastructure, Inc. remain in place and are executed under Amec Foster Wheeler Environment & Infrastructure, Inc.

protect human health and the environment. However, FTA FT002P[3], FT002P Source Operable Unit (OU), and FT002P/Industrial Area (IA) Groundwater OU and Groundwater Treatment Plant (GWTP), are excluded from this report since they are currently being investigated for the potential presence of PFCs (AMEC, 2014). The results of the investigation will be reported under separate cover.

This PFC PA focuses on other potential AFFF areas, presents results from the research and evaluation of potential use of AFFF at former Plattsburgh AFB, and concludes whether a reasonable basis exists to suspect PFC presence beyond those already under investigation at the FTA and associated FT002P/IA Groundwater OU and GWTP.

For the purposes of this report, areas where AFFF was stored, handled, used or released are referred to as "AFFF areas." The word "release" in this report refers to areas where AFFF was intentionally or unintentionally discharged.

1.3 Scope

To achieve the aforementioned objectives, research was conducted using: 1) personnel interviews; 2) online research of the Administrative Record (AR) and other general search engines; 3) documents requested and provided by the AFCEC; and, 4) archival research at the Air Force Historical Research Agency (AFHRA) and the Air Force Safety Center (AFSEC). Research was conducted to find information on potential AFFF areas on the installation property, exclusive of the FTA, for the years 1970 through the installation closure in 1995. Limited information was also obtained regarding the potential use of AFFF after installation closure and is provided in **Appendix A**.

[3] The FTA historically haves been addressed under the Installation Restoration Program (IRP) under site designation FT002. To manage and administer PFC-related site investigation, characterization, and mitigation activities, the USAF has modified the FTA site identifications by adding a "P" to the IRP site identification (i.e., FT002P). As such, this site identifications will be utilized throughout this document.

2.0 INSTALLATION DESCRIPTION

The former Plattsburgh AFB is located in Plattsburgh, New York at approximate west longitude 73°27'56" and north latitude 44°39'14" (**Figure 1**). The installation was in operation from 1954 to 1995 and occupied approximately 3,447 acres.

2.1 Former Mission and Land Use

The Plattsburgh area has a long history of military tradition dating back approximately 400 years to the time when the area was discovered by Samuel de Champlain in 1609. The United States (U.S.) Government has maintained a facility in Plattsburgh since 1812, with the first permanent structures erected between 1838 and 1842. During the Civil War, Union army volunteers from Franklin and Clinton counties organized and departed from the post at Plattsburgh. In 1915, regular troops were stationed at the post, which came to be known as the "Training Camp for Young Business Men on Lake Champlain," the forerunner of the Reserve Officer Training Corps. The post was operated by the Army from 1865 until it was transferred to the Navy in 1944. The installation operated as an officer training station for the U.S. Navy between 1944 and 1945, during which time 2,000 men were commissioned (EC Jordan, 1990).

Plattsburgh became the site of the U.S. Army Air Corps (USAAC) Convalescent Hospital in 1945. One year later, the property covered by the old Army post was transferred to the state of New York; however, the Federal Government reserved the option to reclaim the property for national defense within a 10-year period. From 1946-1953, Champlain College operated at the Plattsburgh facility, educating G.I.'s returning from World War II (EC Jordan, 1990).

The Department of Defense (DoD) exercised its option to reclaim the post in 1954. The USAF announced plans to build an air base and include another 3,000 acres of newly purchased land. Groundbreaking for the Strategic Air Command (SAC) base was held in 1954. The 380th Bombardment Wing, Medium, was activated in July 1956 and included three B-47 squadrons and a KC-97 refueling squadron (EC Jordan, 1990).

In 1964, the B-47 force was augmented by Atlas missiles as the 380th became a Strategic Aerospace Wing. Both the Atlas missile and the B-47 were eventually phased out and the 380th became a Bombardment Wing again in 1966, this time flying the B-52G. The B-52s were moved to Fairchild AFB, Washington, in 1971, and the first FB-111 arrived in July 1971. In 1991, the Bombardment Wing was removed and operations were realigned to form the 380th Refueling Wing (EC Jordan, 1990).

Plattsburgh AFB was closed on September 30, 1995, as part of the third round of base closures under the Defense BRAC Commission.

A Former Fire Station (Building 601) was located in the northeastern portion of the former base from 1934 to 1995, and a Fire Station (Building 2748) is located along the southeastern side of the aircraft ramp (**Figure 2**).

Between the 1950s and 1989, firefighting training activities at the base were conducted in FT002P located approximately 500 feet (ft) west of the runway and 500 ft from the western base boundary. This FTA consisted of four fire training pits, each 50 to 100 ft in diameter, located within an approximate 8-acre area as shown in **Figure 2**. Prior to 1980, the fire pits consisted of sand and gravel, and waste fuel would be discharged onto the ground surface and ignited. Subsequent to 1980, two active fire training pits were retrofitted with a liner of cement-stabilized soil (USAF, 2001). Weekly fire training exercises consisted of filling the fire pit with approximately 10,000-gallons of water, then adding 75 to 100-gallons of fuel to the water and igniting the fuel. The fire was extinguished with water, and then re-ignited and extinguished four or five times. Residual unburned fuel may have totaled 30 to 40-gallons a day and may have seeped into the ground through leaks in the liner (Radian, 1985).

Contamination resulting from past practices at FT002P included the following: 1) free-phase product (i.e., primarily fuel, but also containing chlorinated hydrocarbons); 2) vadose zone soil contamination that was mainly confined to the area of four former fire training pits; 3) residual product adhering to soil in the zone of water table fluctuation that resulted from the horizontal and vertical movement of product in the subsurface; and 4) groundwater contamination that resulted from free-phase product and soil contamination. The first three elements of contamination are included in the FT002P Source OU; whereas, the fourth element is being addressed under the FT002P/IA Groundwater OU. Surface soils did not require remediation based on the results of human health risk and ecological risk assessment conducted previously (URS Group, Inc. [URS], 2014).

Removal actions were initiated in 1993 at the FT002P Source OU to recover free-phase product via a dual-phase remediation and treatment system. More than 20,000 gallons of free-phase product were recovered during system operation. A second removal action was initiated in 1996 to address soil contamination whereby the existing remediation system was upgraded to include soil vapor extraction (SVE) and bioventing. Groundwater extracted from the remediation system was treated at the FT002 Source OU GWTP and discharged into an unnamed stream located west of the flightline (**Figure 2**). The remediation system operated through July 2008, at which time it was deactivated, and periodic monitoring was initiated to determine whether or not free-phase product was reoccurring (URS, 2014).

The FT002P/IA Groundwater OU encompasses 980 acres of property in the central portion of the former Plattsburgh AFB, including approximately half the runway, a majority of the flightline, a portion of the base industrial area, and a portion of the base golf course (**Figure 2**). Source areas for the groundwater contamination include FT002P and six other IRP sites in the base's industrial area that formerly conducted aircraft maintenance and operations (URS, 2014). Groundwater contamination from FT002P has migrated over one mile downgradient (southeast) within the surficial unconfined aquifer. The FT002P/IA Groundwater OU consists of a dissolved-phase contaminant plume with two distinct, but overlapping, components; one composed of benzene, toluene, ethylbenzene, and xylenes (BTEX), and the other made up of chlorinated hydrocarbons (URS, 2013). The remedy for remediation of the FT002P/IA Groundwater OU includes a series of groundwater collection trenches (Runway/Flightline, East Flightline, and Idaho Avenue; **Figure 2**), groundwater extraction wells and Institutional Controls (ICs) (URS, 2014). The remediation system was activated incrementally beginning in 2003 and remains operational to date (URS, 2014). Groundwater extracted from the remediation system is treated at the

FT002/IA Groundwater OU GWTP and discharged into an unnamed stream located west of the flightline (**Figure 2**).

2.2 Current Land Use and Property Information

Since closure in 1995, portions of the former base have been subdivided and sold to various entities, with the transfer of the former base's remaining property occurring in 2012. Plattsburgh Airbase Redevelopment Corporation (PARC), the local authority responsible for managing redevelopment, currently has more than 60 tenants in the fields of aerospace, rail transportation, market research, manufacturing, warehousing and health care (PARC, 2014). The former base is also home to Plattsburgh International Airport, a multi-purpose airport servicing passengers in nearby Montreal, Vermont and Lake Placid.

2.3 Environmental Data

The following sections describe the environmental characteristics of the installation.

2.3.1 Geology and Soils

The surficial unconsolidated deposits in the region consist of sand, silt, and clay that form an unconfined aquifer overlying glacial till. Glacial and alluvial sands are the most widespread surficial deposits in the installation vicinity and include very fine to coarse-grained sand with interbedded sand and gravel. The underlying glacial till consists of poorly sorted sand, silt, clay, gravel and boulders (USAF, 1997).

Limestone and dolomite with interbedded layers of sandstone and shale form the bedrock underlying the glacial till. Carbonate bedrock outcrops are present on the northern portion and immediate vicinity of the installation (USAF, 1997).

Soils throughout the installation consist of well drained medium to coarse sands.

2.3.2 Surface Water

The former Plattsburgh AFB lies within the Lake Champlain drainage basin. A network of drainage ways, consisting of storm sewers and small, unnamed streams, transports surface water that ultimately discharges into three major surface water bodies: the Saranac River to the north, the Salmon River to the south, and Lake Champlain to the east (**Figure 3**). The two largest surface water drainage systems on base are the Golf Course and Weapons Storage Area (WSA) Drainage Systems, both of which are located generally downgradient (east and south) of FT002P (**Figure 3**).

The Golf Course Drainage System, located in the eastern portion of the base, consists of a series of storm sewer lines, small streams, and artificial ponds on the golf course that transmit surface water from the flightline ramp and industrial area into a single stream that discharges into Lake Champlain (**Figure 3**). Field observations have indicated that these storm sewer lines also intercept large quantities of groundwater flow, which is transported into the golf course drainage system (URS, 2001). Due to the

thinning unconfined sand aquifer in the southeastern portion of the base, groundwater discharges into the streams, ponds, and ground surface in the vicinity of the golf course.

The WSA Drainage System, located in the western portion of the former base, consists of a series of storm sewer lines and small streams that transmit surface water from the northern portion of the flightline, FT002P, and the former WSA, into a single stream that discharges into the Salmon River (**Figure 3**). Treated groundwater from the FT002P Source OU GWTP and FT002P/IA Groundwater OU GWTP also discharge(d) into the stream (URS, 2001).

2.3.3 Groundwater

Three aquifer units are encountered at the former Plattsburgh AFB, including the unconfined sand aquifer, the confined glacial till aquifer, and the bedrock aquifer. A clay confining layer separates the unconfined sand aquifer and confined glacial till aquifer. The unconfined sand unit ranges in thickness from approximately 100 ft in the northwestern portion of the former base to less than 5 ft along most of the eastern boundary of the former base (URS, 2014). The water table is located at depths ranging from 6 to 42 ft below ground surface (bgs) (AMEC, 2014).

Regional groundwater flow within the unconfined sand aquifer is generally east towards Lake Champlain (**Figure 4**). Within the Golf Course Drainage System, shallow groundwater discharges to wetlands, drainage channels and ponds, and ultimately into Lake Champlain (**Figure 3**). A groundwater divide is apparent in the underlying confined aquifer that generally bisects the flightline in a north-south trending direction. Groundwater flow on and west of the flightline is to the west-southwest and discharges into a Salmon River tributary that originated near the former WSA; whereas, groundwater flow on the eastern side of the flightline is to the east toward the golf course and Lake Champlain. Another drainage divide occurs at the northern end of the flightline and, although groundwater flow is primarily eastward toward Lake Champlain, there is a northward flow component towards the Saranac River which would serve as a local discharge area (USAF, 1997).

2.3.4 Drinking Water Supply

Potable water for the Plattsburgh AFB is supplied by the city of Plattsburgh via three upland gravity service water sources (Mead Reservoir, Westbrook Reservoirs, and Saranac River; City of Plattsburgh website accessed August 2014). Water is extracted from each reservoir and transferred to a water filtration plant located west of Plattsburgh prior to distribution to the former base.

Municipal supply wells were not identified downgradient (west, south, or east) of the installation; however, private potable supply wells were located immediately north (Kemp Lane residences), west (Runway Drive, Tammy Lane, and Debra Drive residences), and southeast (Route 9 residences) of the former installation (**Figure 4**) (URS, 2014). No groundwater contamination was known to have migrated beyond the installation boundaries as of 2014 (URS, 2014). Furthermore, based on groundwater modeling results, it was determined that contaminants (volatile organic compounds [VOCs]) will not migrate off base at levels exceeding applicable or relevant and appropriate requirements (URS, 2001).

2.3.5 Biological/Ecological Profile

Numerous plants, birds, insects, soil invertebrates, and mammals are known to inhabit or migrate through the former Plattsburgh AFB. Approximately one-fourth of the installation is maintained in short vegetation consisting of grasses, sedges, legumes, and various weedy plants, including areas near the runways, taxiways, and aircraft parking aprons that are periodically mowed, and developed and landscaped areas comprise approximately one-third of the installation. The remainder of the installation is comprised of sizable stands of forest and shrubland in the western and southern portions and small stands of forest intermixed within the developed areas (USAF, 1995). There are no federally listed threatened or endangered species identified on the former Plattsburgh AFB; however, the following are the state listed threatened or endangered species at the installation (USAF, 1995):

- Northern harrier (*Circus cyaneus*) – Threatened
- Great blue heron (*Ardea herodias*) – Protected
- Osprey (*Pandion haliaetus*) – Threatened
- Grasshopper sparrows (*Ammodramus savannarum*) – Species of Special Concern

This page left intentionally blank.

3.0 PREVIOUS PFC INVESTIGATIONS

No previous PFC investigations have been conducted at the installation; however, an investigation is currently being conducted for FTA FT002P for the potential presence of PFCs as per the Installation-Specific Work Plan Addendum (AMEC, 2014). The objectives of this investigation are to:

- Assess whether PFCs are present in surface soil, subsurface soil, and groundwater at FT002P from past use of AFFF for firefighting training;
- Assess whether PFCs are present in groundwater that have migrated downgradient, following a similar path as the current FT002P/IA Groundwater OU plume;
- Assess whether PFCs are present in groundwater collected by the Runway Trench and the treated water from the FT002P/IA Groundwater OU GWTP that is discharged into the unnamed tributary north of the WSA that discharges into the Salmon River;
- Assess whether PFCs are present in surface water and sediments associated with the FT002P/IA Groundwater OU GWTP discharge;
- Assess whether PFCs are present in combined groundwater collected by the East Flightline Trench and Idaho Avenue Trench that is discharged into the golf course drainage system; and,
- Assess whether PFCs are present in surface water and sediments associated with the East Flightline Trench and Idaho Avenue Trench that is discharged into the golf course drainage system.

The results of this investigation will be presented under separate cover.

This page left intentionally blank.

4.0 RESEARCH ACTIVITIES

To initiate the research process, a general PFC information questionnaire for former Plattsburgh AFB was completed by Mr. David Farnsworth, the BRAC Environmental Coordinator (BEC) for the installation. This completed questionnaire provided general information on the installation and is included in **Appendix B**. The information provided includes: a summary of AFFF storage tank locations (both aboveground and underground), oil water separator (OWS) locations and use(s), and information regarding vehicle wash racks.

The following sections describe the research conducted through record and document reviews and interviews.

4.1 Summary of Interviews

AMEC conducted three interviews of past and present installation employees as part of this project. The employees were interviewed to document their knowledge of former AFFF use at Plattsburgh AFB. A summary of the interviewees (name, title, date and interview relevance) is provided in **Table 1** and information obtained from the interviews is documented on Telephone Interview Logs provided in **Appendix C**.

Table 1: Summary of Interviews

Person Interviewed	Title	Date	Relevance of Interview
David Farnsworth	BRAC Environmental Coordinator	1991 to present	Knowledge of environmental issues at the installation.
David Henderson	Former Fire Chief	1978-1984 1986-1994	Knowledge of AFFF use at the installation.
Paul Kempton	Former Fire Chief	1974-1976 1979-1981 1988-1990 1993-1995	Knowledge of AFFF use at the installation.

Interviewees identified locations of buildings or areas where AFFF may have been used, stored or handled, fire station locations (Building 601 (Former Fire Station) and Building 2748 (Fire Station), and areas where fire or emergency vehicles were cleaned.

Relevant information from the interviews concerning potential AFFF areas included the following:

- Fire stations were historically located at Buildings 601 and 2748 (**Figure 2**).
- AFFF was stored at Building 2748 (Fire Station), Building 601 (Former Fire Station), and in Buildings 2612 and 2622 (Base Supply and Warehouse) (Henderson, 2014 and Farnsworth, 2015).
- The washing of fire trucks and emergency vehicles occurred inside and/or in the vicinity of both fire stations (Farnsworth, Henderson, Kempton, 2014).
- Calibration of firefighting equipment occurred at the calibration hardstand (**Figure 2**) and in front of the fire station (Kempton, 2014).

- Fire suppression systems at facilities operated by the USAF were water deluge systems, and did not utilize AFFF (Farnsworth, Henderson, Kempton, 2014). Nose Dock 1 (Building 2741), Nose Dock 2 (Building 2766), and Nose Dock 5 (Building 2808) were retrofitted with high expansion foam (HEF) fire suppression systems by Clinton County in 2007 or 2012, subsequent to base closure and realignment (**Appendix A**).
- A B-57 airplane crashed less than one mile south of the runway on Plattsburgh AFB property on February 2, 1980, and AFFF may have been used to suppress the resulting fuel fire (Henderson, 2014).
- An airplane (KC-135) caught fire on Row 8 of the flightline on February 8, 1980, and AFFF may have been used to suppress the resulting fuel fire (Farnsworth, Henderson, Kempton, 2014).
- Sludge removed from the FT002P/IA Groundwater OU GWTP, which may contain residual PFCs, was spread within an estimated 50 to 100-ft area around the GWTP (Farnsworth, 2014).
- Lowland flooding in the former munitions maintenance area, located in the southwestern portion of the former base and downstream of the FT002P/IA Groundwater OU GWTP discharge point (**Figure 2**), may have spread PFCs-contaminated effluent from the FT002P/IA Groundwater OU GWTP (Farnsworth, 2014).

4.2 Review of Records

The internet was used to obtain records such as historical images and drawings, technical reports, property records, news articles, and other available or appropriate information to aid in documenting the use of AFFF at former Plattsburgh AFB. The AFCEC Administrative Record (AR) was the primary source of information as it included most environmental documents for the installation. The BRAC Document Repository (DR) was also reviewed and documents were provided by AFCEC for review. Other general search engines were also used to locate news articles and other information. After the internet research was completed, a review of available documents was conducted at: 1) the AFHRA at Maxwell AFB located in Montgomery, Alabama; and, 2) the AFSEC at Kirtland AFB located in Albuquerque, New Mexico. All research was documented using the Research Logs (**Appendix D**), with a summary of the research included in the following sections.

4.2.1 Administrative Record Document Review

The online AFCEC AR (http://afcec.publicadmin-record.us.af.mil/) was utilized to identify potential documents and reports relevant to AFFF usage at the installation. Keywords searched within the AR included "fire," "AFFF," "foam," and "wash racks." **Table 2** summarizes the five relevant documents identified during the search and subsequently reviewed. Additional supporting information, including the document Research Logs, is located in **Appendix D**.

Table 2: Summary of Relevant Reports from the Administrative Record

AR Document Number	Document	Date	Relevance
1107/1108	Basewide Environmental Baseline Survey	May 1997	Identified OWS in fire station (Building 2748), AFFF spill on runway hammerhead, and large fuel spills on the ramp.

AR Document Number	Document	Date	Relevance
1242	Finding of Suitability to Lease (FOSL) for Flightline, Navigational Aids, and Miscellaneous Structures	June 1998	Discussed site OTH-3308 as being the location of the 1979 aircraft crash site to be investigated in 1998.
1850	Fire Training Area (FT-002)/ Industrial Area Groundwater Operable Unit Remedial Investigation/Feasibility Study	June 2001	Identified downgradient off-base residents with potable supply wells.
451334	Fourth Five-Year Review Report	Nov 2014	Described the site investigation and remedial actions at FT002P and off-site potable supply wells.

Notes: AR – Administrative Record

AR Document Number 1107/1108 (USAF, revised 1997): The Environmental Baseline Survey (EBS) for the installation identified three OWSs (OWS-2748-1, OWS-2748-2 and OWS-2748-3) associated with Building 2748 (Fire Station), two of which were removed in 1994 (OWS-2748-2 and OWS-2748-3), and wash racks and wastewater systems. The EBS also identified a release of 5 gallons of AFFF onto runway hammerhead and listed several large fuel spills where typical USAF practice was to use AFFF to minimize the fire potential.

AR Document Number 1242 (USAF, 1998): This document provided information that confirmed that OTH-3308 was the location of a B-57 crash that occurred in 1979.

AR Document Number 1850 (URS Consultants, Inc., 2001): This document provided a figure showing the locations of downgradient off-base resident wells that are used for potable supply.

AR Document Number 451334 (URS Group, Inc., 2014): This document provides current and historical information regarding the site investigation and remedial actions of the FT002P/Source OU and FT002P/IA Groundwater OU, and includes the locations of downgradient off-base resident wells that are used for potable supply.

4.2.2 BRAC Document Repository Review

Research was initially conducted of the BRAC DR based on an index of documents for each installation. AFCEC subsequently conducted a keyword search of the BRAC DR using the following words and word combinations: “AFFF,” “aqueous film forming foam,” “crash,” “wash racks,” “perfluorinated,” and “PFC.” A total of 147 documents were provided by AFCEC for further review. The BRAC DR did not provide any new relevant documents identifying AFFF at former Plattsburgh AFB.

4.2.3 Internet/News Review

A general search of the internet was conducted utilizing the following keywords:

- “Fire Plattsburgh”
- “Crash Plattsburgh”

- "Plane Crash Plattsburgh"
- "Plane Mishap Plattsburgh"
- "Accident Plattsburgh"
- "Aqueous Foam Plattsburgh"
- "AFFF Plattsburgh"

A summary of relevant documents/websites is listed in **Table 3** and the associated research logs and supplemental information is included in **Appendix D**.

Table 3: Summary of Relevant Websites

Website and URL	Description	Relevance
Aviation Safety Network: http://aviation-safety.net/database/record.php?id=19800208-0	Database of aviation safety occurrences	Provided information concerning KC-135 ramp fire and B-57 crash.
Forgotten Jets, Amateur Aircraft Research: http://www.millionmonkeytheater.com/B-57.html	Web Blog-looking for information on crashed B-57 at Plattsburgh	Provided information concerning B-57 crash.
Document, Voices from an Old Warrior, Why KC-135 Safety Matters by Christopher Hoctor: http://www.theboomsignal.net/pdf/Voices_from_an_Old_Warrior.pdf	Book published January 2014 documenting KC-135 incidents and accidents.	Provided information concerning KC-135 ramp fire.

Relevant findings from the internet search included the following:

1) Comments on the February 8, 1980 airplane fire (KC-135) on the ramp (Aviation Safety Website, 2014) and indicated that a faulty fuel probe was the cause of the fire.
2) Information on the B-57 that crashed at Plattsburgh AFB on January 14, 1980. The actual location was not specified, nor was there a description of the emergency response (i.e., not known if AFFF used) (Forgotten Jets, 2014).
3) Comments on the February 8, 1980 airplane fire (KC-135) on the ramp during ground refueling operations (Hoctor, 2014).

4.2.4 Air Force Historical Research Agency, Maxwell AFB, AL

The online AFHRA Records Index was searched for the following keywords: "crash," "fire," "mishap," "AFFF," "aqueous film forming foam," "as-built," and "real property." Two documents were requested for review based on their abstract.

AMEC conducted a file review at AFHRA at Maxwell AFB in Montgomery Alabama on 7 and 8 April 2014; however, none of the requested documents were available for review.

4.2.5 Air Force Safety Center at Kirtland AFB, Albuquerque, NM

Colonel Jeffrey Slagle, AFSEC Staff Judge Advocate, conducted a search within the Air Force Safety Automated System (AFSAS) and legacy safety records using the following words and word combinations: "foam;" "foam fire;" "foam crash;" "perfluorinated;" and, "PFC". No records were identified for Plattsburgh AFB.

4.2.6 Additional Documents

The Historical American Engineering Record (HAER) at the Library of Congress was also reviewed. The HAER includes photographs of Plattsburgh AFB Building 2748 and discusses the uses of the building prior to becoming a fire station. **Table 4** provides a summary of the additional document and records evaluated.

Table 4: Summary of Additional Document

Document	Date	Relevance
Historic American Engineering Record: NY-326-CL http://www.loc.gov/pictures/collection/hh/item/ny1954/	Visited 6/7/2014	Discussion and photographs of Building 2748 (Fire Station)

4.3 Data Quality

As discussed in Section 1, the goal of the PFC research is to identify potential AFFF areas where PFCs may be present as a result of the use of AFFF during firefighting activities, emergency responses, fire suppression system testing or releases, or any other activities conducted at the installation. In order to ensure that research activities were conducted sufficiently to fulfill these project objectives, a PFC Research Checklist was used as a data quality tool to summarize the research activities discussed in Sections 4.1 and 4.2. The completed PFC Research Checklist is included in **Appendix E**.

This page left intentionally blank.

5.0 SUMMARY AND CONCLUSIONS

The information obtained during the research was evaluated to determine which areas at the former Plattsburgh AFB potentially stored, handled, or used AFFF. The areas were classified as either: storage areas; handling areas; or, usage/release areas, which are defined below.

Storage Area: An area where AFFF was stored in bulk. Storage containers/areas contained:

- Virgin AFFF for use, and
- Spent AFFF/water mixture.

Handling Area: An area where AFFF was transferred from or to storage either manually or by pipeline.

Usage/Release Area: An area where AFFF was discharged intentionally or unintentionally, including instances when:

- AFFF was discharged intentionally (fire training exercises or equipment testing);
- AFFF was released unintentionally (e.g. discharge from fire suppression system); and,
- AFFF was released through transport mechanisms (overland flow to surface water bodies).

The AFFF areas can include:

- crash sites/aircraft fires;
- FTAs used after 1970 that are not already being investigated for PFCs by Amec Foster Wheeler;
- USTs/ASTs where virgin or spent AFFF was stored without secondary containment;
- areas where AFFF use or release was documented via personnel interviews, environmental reports, electronic or print media, etc.;
- areas where AFFF was handled, used/released indoors and fully contained; and,
- large fuel spills where AFFF may have been applied to minimize the fire potential.

Based on the research conducted on the use of AFFF at the former Plattsburgh AFB, ten potential areas were identified, in addition to FT002P and the associated FT002P/IA Groundwater OU and GWTP that are currently under investigation. **Table 5** summarizes the potential AFFF areas and potential media/receptors identified during the research. Based on the results of the research, Table 5 provides justification for potential future action at each area. **Figure 5** illustrates the potential AFFF areas.

This page left intentionally blank.

Table 5. Summary of Potential AFFF Areas and Justification for Potential Future Action

AFFF Area No.	Potential AFFF Area	Area Type	Date	Drainage System/ Receiving Water Body	Downgradient Drinking Water Wells	Potentially Affected Media	Justification for Potential Future Action
1	Building 601 (Former Fire Station)	Storage and Handling	1934-1995	Not Applicable	None	Soil and Groundwater	AFFF was stored and transferred into fire trucks within this former facility.
2	Building 2748 (Fire Station)	Storage, Handling, and Usage/ Release	1956 to Present	Floor drains lead to OWS and sanitary sewer system, and Golf Course Drainage System.	Route 9 Residences	Soil and Groundwater	AFFF was stored and handled in this building, fire trucks were washed within and outside of this building, and fire truck maintenance was conducted along the southwest side of the building that included the release of AFFF from fire trucks. Soil removal actions were conducted for petroleum contamination.
3	Building 2612 (Base Supply and Warehouse)	Storage	Unknown	Golf Course Drainage System	Route 9 Residences	Soil and Groundwater	AFFF was reportedly stored at unspecified locations within the base supply system; however, no AFFF releases were documented.
4	Building 2622 (Base Supply and Warehouse)	Storage	Unknown	Golf Course Drainage System	Route 9 Residences	Soil and Groundwater	AFFF was reportedly stored at unspecified locations within the base supply system; however, no AFFF releases were documented.
5	Flightline (Row 8)	Usage/Release	1980	Runoff flows into storm drains which flow into Golf Course Drainage System.	Route 9 Residences	Soil, Groundwater, and Surface Water	A KC-135 aircraft fire occurred in this area with documented use of AFFF.
6	Far Field Monitor Crash Site (OTH-3308)	Usage/Release	1979	Unknown	Route 9 Residences	Soil and Groundwater	A B-57 aircraft crashed at the south end of the runway, and AFFF was potentially used to extinguish the resulting fire. Soil removal actions were conducted for petroleum contamination.
7	Calibration Hardstand (SPL-3210-1)	Usage/Release	1980 to Present and 1991	Golf Course Drainage System	Route 9 Residences	Soil and Groundwater	Annual maintenance of fire trucks included testing/release of AFFF from fire trucks to this area. A documented 5-gallon discharge of firefighting foam also occurred in this area from a fire truck, which was cleaned with absorbent materials.

AFFF Area No.	Potential AFFF Area	Area Type	Date	Drainage System/ Receiving Water Body	Downgradient Drinking Water Wells	Potentially Affected Media	Justification for Potential Future Action
8	North End of Flightline	Usage/Release	Unknown	Overland flow into the Saranac River and runoff into storm drains which flow into Golf Course Drainage System.	None	Soil and Groundwater	AFFF was applied to this area on several occasions to minimize the fire potential from large fuel spills.
9	FT002P/IA Groundwater OU GWTP Sludge Disposal Area	Release	2004-present	WSA Drainage System	None	Soil/Sediment and Groundwater	Sludge removed from the FT002P/IA Groundwater OU GWTP, which may contain residual PFCs, was spread within an estimated 50- to 100-ft area around the GWTP.
10	Lowland Flooding Area	Release	2004-present	WSA Drainage System	None	Sediment Surface Water	Lowland flooding in the former munitions maintenance area in the southwestern portion of the former base may have spread PFCs-contaminated effluent from the FT002P/IA Groundwater OU GWTP.

6.0 REFERENCES

AAM, 2014. Forgotten Jets, Amateur Aircraft Research website: http://www.millionmonkeytheater.com/B-57.html, visited June 7.

AMEC, 2014. *Final Perfluorinated Compounds Release Determination at Multiple BRAC Bases, Installation Specific Work Plan Addendum, Former Plattsburgh Air Force Base*, September.

ASN, 2014. Information from Aviation Safety Network website http://aviation-safety.net/database/record.php?id=19800208-0, visited May 7.

Farnsworth, 2014. *Telephone interview with David Farnsworth, BRAC Environmental Coordinator for the former Plattsburgh AFB*, May 1.

HAER, 2014. Historic American Engineering Record: NY-326-CL website: http://www.loc.gov/pictures/collection/hh/item/ny1954/,visited 7 June.

Henderson, 2014. *Telephone interview with David Henderson, former Plattsburgh AFB Fire Chief*, September 29.

Hoctor, 2014. *Document, Voices from an Old Warrior, Why KC-135 Safety Matters* from the website: http://www.theboomsignal.net/pdf/Voices_from_an_Old_Warrior.pdf

Kempton, 2014. *Telephone interview with Paul Kempton former Plattsburgh AFB Fire Chief*, September 29.

PARC, 2014. Plattsburgh Airbase Redevelopment Corporation website: http://www.parc-usa.com/About_Parc/About_PARC_Frameset.htm, visited November 14.

Radian, 1985. Radian Corporation, *Installation Restoration Program, Phase I – Records Search, Plattsburgh AFB, New York,* April.

URS Consultants, Inc., 2001. *Fire Training Area (FT-002)/Industrial Area Groundwater Operable Unit Remedial Investigation/Feasibility Study,* June.

URS Consultants, Inc., 2010. *Operations Summary and Progress Assessment, 2008, FT-002 Source Area Operable Unit, Former Plattsburgh AFB, Plattsburgh, New York,* June.

URS Consultants, Inc., 2013. *Semi-Annual Operations Report (July-December 2012) and 2012 Operations Summary and Progress Assessment, FT-002/Industrial Area Groundwater Operable Unit Including the East Flightline Collection Trench and the Idaho Avenue Collection Trench, Former Plattsburgh AFB, Plattsburgh, New York,* June.

URS Group, Inc., 2014. *Fourth Five-Year review Report (2009-2014) for the Plattsburgh Air Force Base, Plattsburgh, New York,* November.

USAF, 1995. US Air Force, *Final Environmental Impact Statement, Disposal and Reuse of Plattsburgh Air Force Base, New York,* November.

USAF, 1997. US Air Force, *Basewide Environmental Baseline Study*, May.

USAF, 1997a. US Air Force, *Basewide Environmental Baseline Study*, May.

USAF, 1998. US Air Force, *Finding of Suitability to Lease (FOSL) for Flightline, Navigational Aids, and Miscellaneous Structures*, June.

USAF, 2001. US Air Force, *Site FT-002 Fire Training Area Source Operable Unit, Record of Decision, Plattsburgh Air Force Base, Installation Restoration Program,* March.

USEPA, 2009. US Environmental Protection Agency, Provisional Health Advisories for two PFCs (perfluorooctane sulfonic acid [PFOS] and perfluoroctanoic acid [PFOA]). (http://water.epa.gov/action/advisories/drinking/upload/2009_01_15_criteria_drinking_pha-PFOA_PFOS.pdf). January.

Versar Inc., 2004. *Closure Report, Washrack Area,* April.

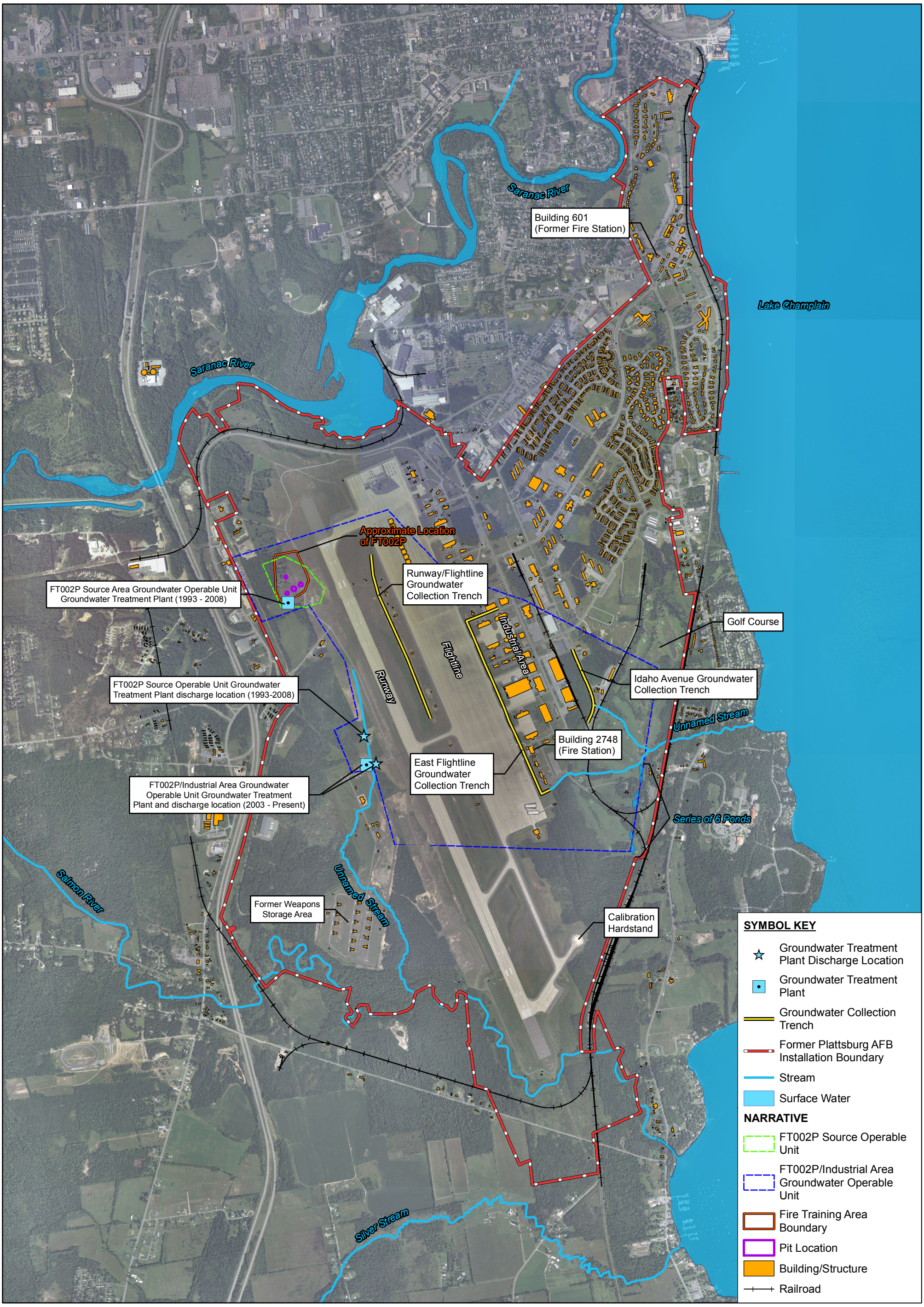
FIGURES

This page left intentionally blank.

NOTES:
Base map data obtained from ESRI Online Services.

Air Force Civil Engineer Center 2261 Hughes Avenue Building 171, Ste 155 JBSA Lackland, Texas 78236	N	**FIGURE 1** **Site Location Map** PFC Preliminary Assessment Former Plattsburgh Air Force Base, Plattsburgh, New York	
0 375 750 1,500 2,250 3,000 3,750 Meters 0 3,000 6,000 9,000 12,000 Feet		10/16/2014	Plattsburgh_AFB_Install_Loc_WP
		PROJ: 775290177	Drawn: MJW

This page left intentionally blank.



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

FIGURE 2
Site Layout Map
PFC Preliminary Assessment
Former Plattsburgh Air Force Base, Plattsburgh, New York

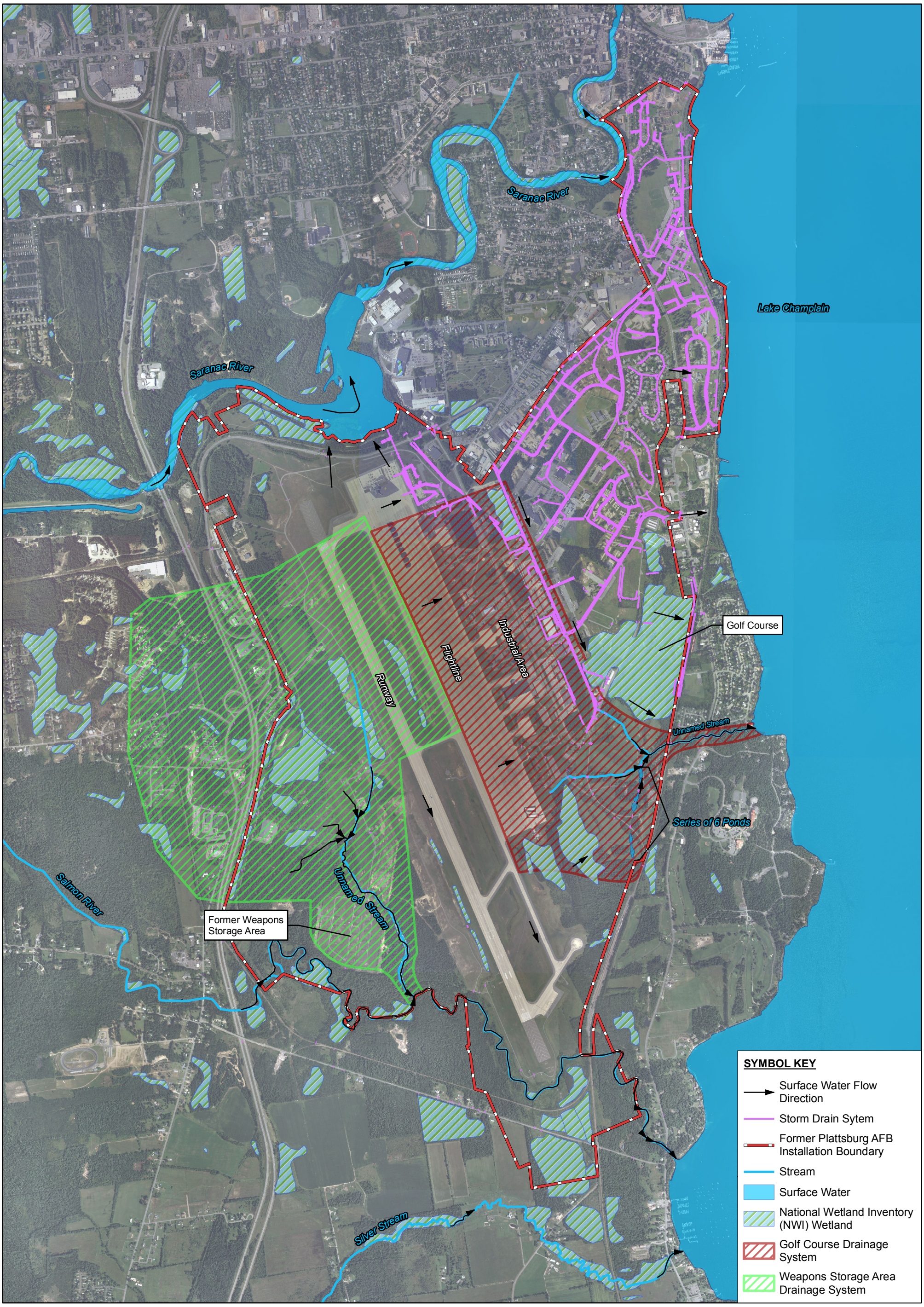
0 250 500 1,000 1,500 2,000 2,500 Meters
0 1,000 2,000 4,000 6,000 8,000 Feet

N

NOTES:
2008 Aerial Imagery: USGS, The National Map (http://nationalmap.gov/viewer.html)

04/22/2015	Rev: 01	Plattsburg_Base_Site_Layout_research_REV1	
Drawn: MJW	Chk: RS	PROJ: 775290177	

This page left intentionally blank.



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

FIGURE 3
Surface Water Features
PFC Preliminary Assessment
Former Plattsburgh Air Force Base, Plattsburgh, New York

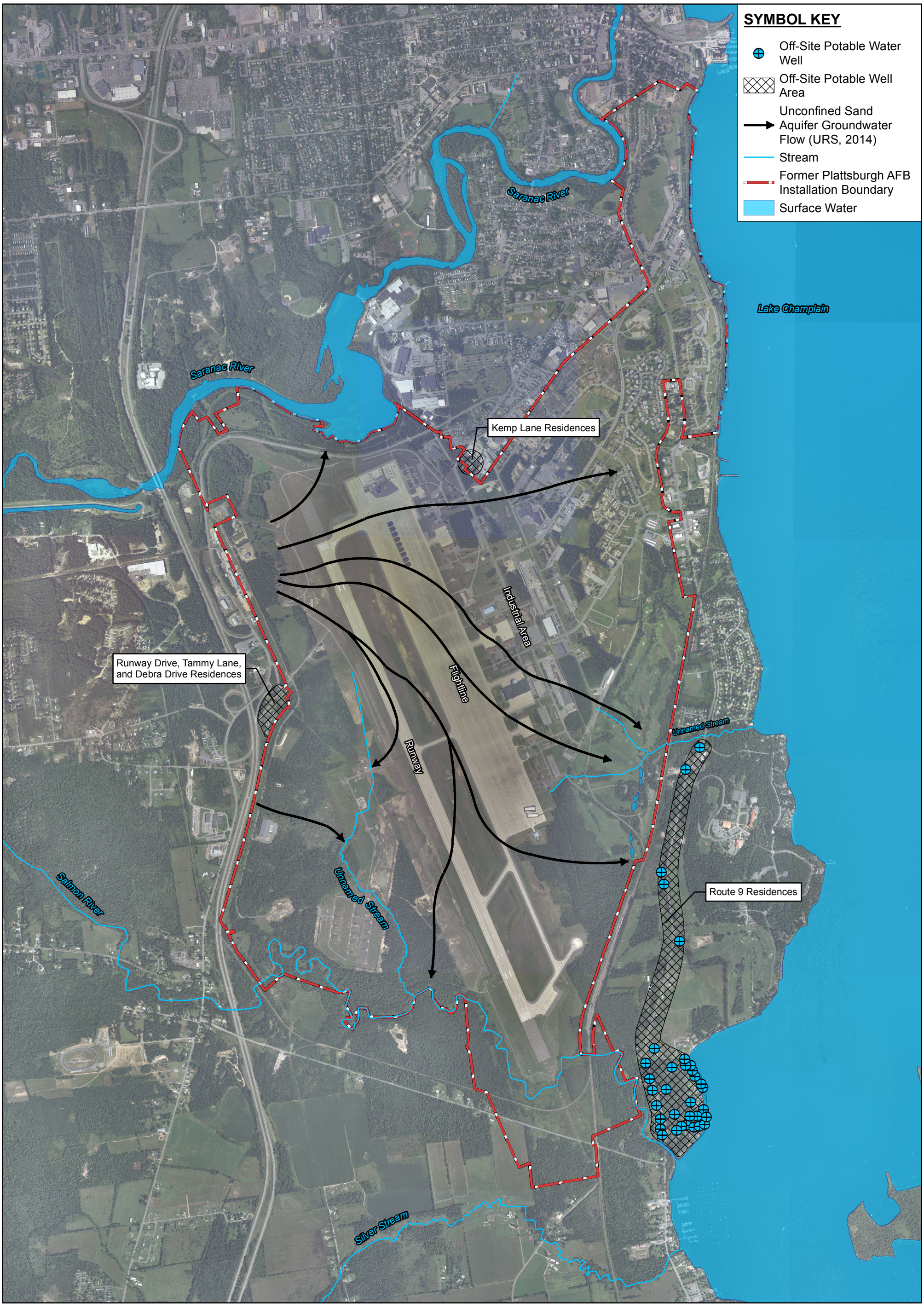
0 250 500 1,000 1,500 2,000 2,500 Meters
0 1,000 2,000 4,000 6,000 8,000 Feet

N

NOTES:
2008 Aerial Imagery: USGS, The National Map (http://nationalmap.gov/viewer.html)

04/22/2015	Rev: 01	Plattsburg_Base_Site_Surface_Water_Features	
Drawn: MJW	Chk: RS	PROJ: 775290177	

This page left intentionally blank.



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

FIGURE 4
Groundwater Flow and Off-Site Potable Supply Wells
PFC Preliminary Assessment
Former Plattsburgh Air Force Base, Plattsburgh, New York

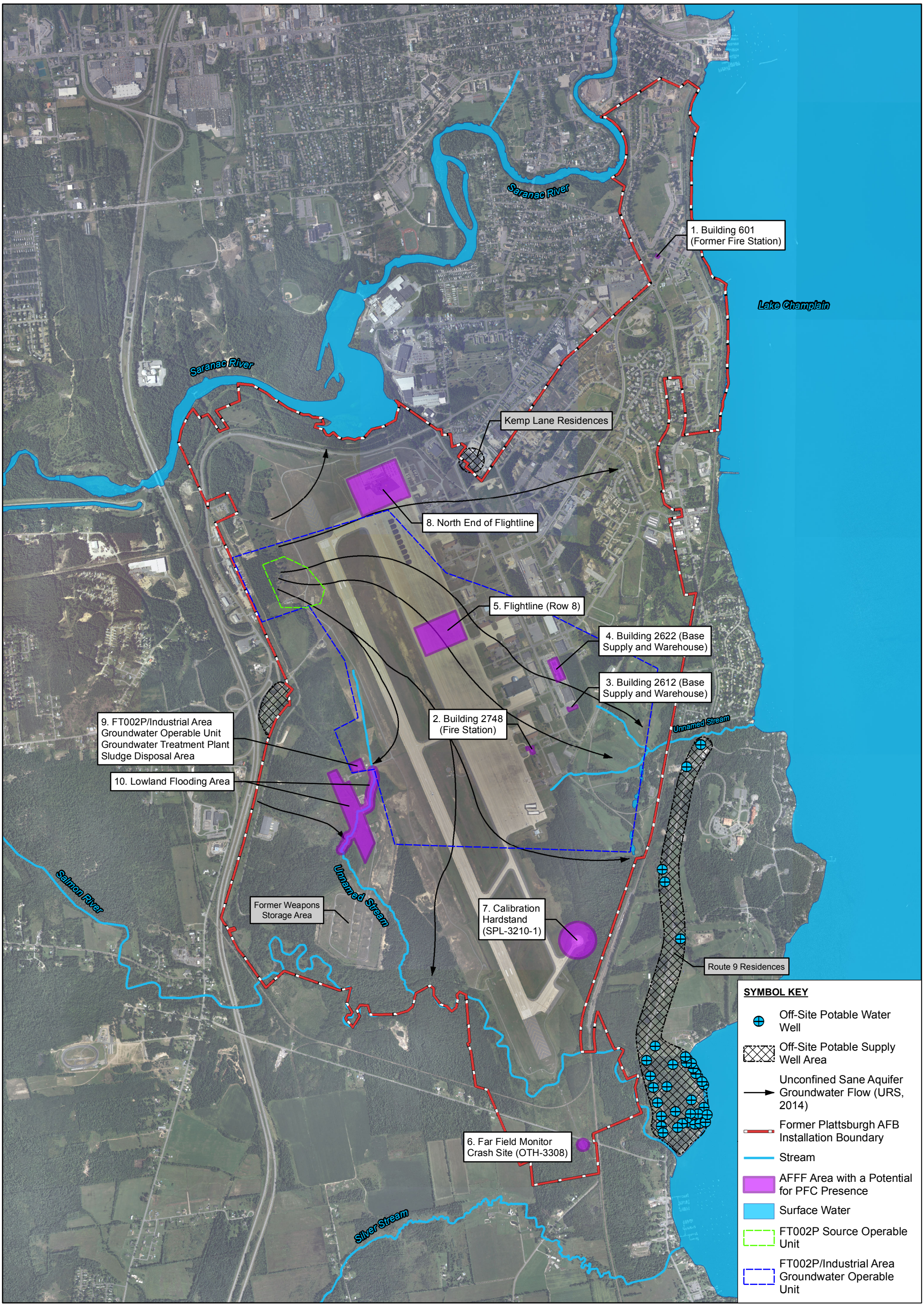
0 250 500 1,000 1,500 2,000 2,500 Meters
0 1,000 2,000 4,000 6,000 8,000 Feet

N

NOTES:
2008 Aerial Imagery: USGS, The National Map (http://nationalmap.gov/viewer.html)

04/22/2015	Rev:	Plattsburg_Off-Site_Wells_research_Rev1
Drawn: MJW	Chk: RS	PROJ: 775290177

This page left intentionally blank.



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

FIGURE 5
Potential AFFF Areas
PFC Preliminary Assessment
Former Plattsburgh Air Force Base, Plattsburgh, New York

0 225 450 900 1,350 1,800 2,250 Meters
0 1,000 2,000 4,000 6,000 8,000 Feet

N

NOTES:
1. The location of 8. Installation Supply System is unknown and is not indicated on the figure.
2. 2008 Aerial Imagery: USGS, The National Map (http://nationalmap.gov/viewer.html)

04/22/2015	Rev:	Plattsburg_AFFF_Areas_research_REV1
Drawn: MJW	Chk: RS	PROJ: 775290177

This page left intentionally blank.

APPENDIX A

SUPPLEMENTAL INFORMATION ON AFFF USE AFTER INSTALLATION CLOSURE

This page left intentionally blank.

Appendix A: Supplemental Information on AFFF use after Installation Closure

The intent of this appendix is to provide information on the use of AFFF after base closure. This appendix presents information obtained during the research, if any, and includes two interviews. No other effort has been made to identify the use of AFFF at the base after closure.

Mr. Dave Farnsworth, BRAC Environmental Coordinator, and Mr. Jim Hack, Deputy Airport Manager at Plattsburgh International Airport, were interviewed regarding the use of AFFF after closure of Plattsburgh Air Force Base. The telephone interviews were conducted by Mike Washburn on 1 May 2014 and 3 June 2015. The questions and associated responses are summarized below.

1. Question: Are there AFFF systems today?
   Response: Yes

2. Question: Are these new or AF vintage?
   Response: New (Farnsworth, 2014)

3. Question: Is AFFF used today?
   Response: Yes (Farnsworth, 2014)

4. Question: Is product left over from Air Force Inventory?
   Response: Initially yes, but it was replaced in the summer of 2014 (Farnsworth, 2014).

5. Question: Were any of the building fire suppression systems modified after base closure?
   Response: Yes. Three nose docks were retrofitted with high expansion foam (HEF) fire suppression systems by Clinton County as follows (Hack, 2015):

   - Nose Dock 1 (Building 2741) retrofitted with HEF in 2012;
   - Nose Dock 2 (Building 2766) retrofitted with HEF in 2012; and,
   - Nose Dock 5 (Building 2808) retrofitted with HEF in 2007.

   There are currently no plans to retrofit any other nose docks (Hack, 2015).

This page left intentionally blank.

APPENDIX B

PFC GENERAL QUESTIONNAIRE

This page left intentionally blank.

General PFC Information Questionnaire

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases
Contract FA8903-08-8766 Task Order 0177

Plattsburgh AFB, NY	
BEC (name and phone)	David Farnsworth - 518-563-2871
BEC preferred contact method (phone, e-mail)	email
Installation support staff (name and phone)	Sean Eldredge - 210-395-8198
List of potential interviewees and contact information	Mike Carabella

	General Installation Information	Comment
1.	In what years was the installation operational?	1954 through 1995
2.	Please briefly describe installation mission.	SAC Base (ICBMs from 1963-1965, Helicoptors until mid 1980s, Bomber Aircraft until 1991, Tanker Aircraft until 1994; base has very large aircraft parking ramp).
3.	Current property owner/land use	Primarily located on County Airport property (everything west of Arizona Ave), area immediately east of Arizona Ave has been subdivided into several small parcels (2-4 acres each) and used/zoned as commercial/industrial.
4.	List FTAs	FTA-002
5.	List hangars with fire suppression systems	Main hangar, B/2763 (demolished in 2012, foundation is still in place), had a "deluge" (mass water) system supported by a 600,000 gallon resevoir and pump station (Facilities 2777 and 2779) which was demolished in 2011/2012. The county/airport has installed new water storage tanks and a pump station and hooked it up to several of the "Nose Docks" but I do not know if the system usees anything beyond water (this would not be the Air Force's responsibility but we might want to be aware of it).
6.	Are there known spill/crash sites at the base where AFFF could have been used?	There is a crash site (Compliance Site OTH3308) just off the south end of the runway (was base property). There was also a explosion/fire at Pumphouse #3 (Facility 3240) but this occurred in 1968, but there are GW monitoring wells at this location being monitored as part of the ongoing FT002 GW OU activities. Recommend checking the spill list (Table G-3) in the Basewide EBS (AR#1107/1108.\
7.	Was AFFF stored and/or disposed at the installation?	Probably but do not any documentaion that indicated that it was specifically used or at what specific locations.
8.	Was there an on-base fire station?	Yes - Fire crash station (B/2748) is located near the southeast edge of the ramp; there was also a second (satilite) fire station for the admin and housing areas.
9.	Was there a truck washing station/area at the base?	Not sure. May have been in B/2540 (should check basewide EBS, AR#1107/1108) or elsewhere in the vehicle maint./ops. Complex (B/2540-2558). There was an enclosed aircraft washrack inside B/2763 (has been demo'd but foundation is still there).
10.	Is there a Federal Facilities Agreement in place?	Yes (AR #260) - PFCs are not considered a CERCLA contaminant, but FFA should be checked for any discussion of addressing emerging contaminants.
11.	Are there specific relevant documents available (include AR document number if possible)?	General documents are the Basewide EBS (AR#1107/1108), The 2009 Five Year Review (AR#2442), Vol III of the FT002/IA GW OU 2001 RI/FS (Contains regional drainage and hydrogeological information).
12.	Are relevant as-builts available?	As builts for airport owned buildings should be available via the airport people (I can provide contact info). As-builts for non-airport buildings will be "hit or miss".
13.	Are Historic Maps of the Installation available? Specifically with Building Numbers/Function?	Yes, information is readily avaialable in the Basewide EBS (AR#1107/1108).
14.	Are Shape files of the Installations available?	Shape files are available but will most likely be limited (base property & deeded property boundaries, IRP site/LUC-IC boundaries, wells, remediation systems).
15.	Are Accident and/or Fire Reports available?	I am only familiar with the spill reports, which are in the Baseide EBS (see Item 6).
16.	Is there a nearby drainage system or body of water that may have received AFFF?	Yes - 1. Saranac River, immediately north of the airfield (received drainage from former alert area). 2. Several small streams near former weapons storage area (received discharge from FT002 Source OU 1993-2008 and FT002 GW OU WWTP 2004-present) which drains into the Salmon River and inturn runs along/through the southern base boundary. 3. Golf Coarse streams (receive dscharge from two of the FT002 GW OU collection trencnes, 2003/2005-present) and flow into a larger stream that runs along Cliff Haven Residential Area. 4. Lake Champlain is on Base's eastern boundary and is receiving water for the other three water bodies.
17.	Additional comments?	There is a terminal expansion project starting this summer which will complicate logistics.

This page left intentionally blank.

APPENDIX C

TELEPHONE LOGS

This page left intentionally blank.

Telephone Interview Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 5/1/2014 Installation: Plattsburgh

Name: Dave Farnsworth Position/Rank: BRAC Environmental Coordinator

Contact Information (phone, e-mail): (518) 563-2871

Years at or familiar with Installation (# and dates): 1991-Present 23 years

Was Aqueous Film Forming Foam (AFFF) used/stored on-base outsi Unknown

If so, where?

Were there hangars on-base with fire suppression systems? Water deluge system

If yes, was AFFF used in these systems? No

Was there a fire station on-base? Yes

If yes, where was it located? Building 2478 (South end of the Ramp) and Building 601 (North near base housing)

If no, what local fire station was on call for emergencies? NA

Were there any planes crashes or fires on base? Yes.

If so, where were they located? Aircraft explosion on ramp.

Was there a truck washing area for fire trucks or emergency vehicles on-base? Yes

If yes, where was it located? At the fire station

Was there an area used for annula calibration and testing of fire fighting equipment that may have contained AFFF?

If yes, where was it located? Calibration hardstand - either onto the ramp or on the hard stand

Is there an additional contact that could provide information of AFFF (name and contact info)?

none

Additional Comments: Mike Carabello getting additional names

Last fire chief - Dave Henderson retired to local area

Oil/water separator @ fire station - replaced @ closure (1994)

3 oil/water separator associated with crash station

Interviewer: Date: 5/1/2014

Telephone Interview Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 9/29/2014 Installation: Plattsburgh

Name: Dave Henderson Position/Rank: Former Fire Chief

Contact Information (phone, e-mail): (516) 834-9617

Years at or familiar with Installation (# and dates): 1978-1984 1986-1994

Was Aqueous Film Forming Foam (AFFF) used/stored on-base outsi Yes.

If so, where? 1) Fire Station (Bldg 2478) 2) Fire Station (Bldg 601) 3) Base Supply

Were there hangars on-base with fire suppression systems? Water deluge system

If yes, was AFFF used in these systems? No

Was there a fire station on-base? Yes

If yes, where was it located? Building 2478 (South end of the Ramp) and Building 601 (North near base housing)

If no, what local fire station was on call for emergencies? NA

Were there any planes crashes or fires on base? Yes.

If so, where were they located? KC-135 explosion at Row 8 of the ramp and B-57 south of the runway

Was there a truck washing area for fire trucks or emergency vehicles on-base? Yes

If yes, where was it located? Area around the fire station or inside the fire station.

Was there an area used for annula calibration and testing of fire fighting equipment that may have contained AFFF?

If yes, where was it located? May used the ramp or at the training area.

Is there an additional contact that could provide information of AFFF (name and contact info)?

Scott Kempt - Scott AFB

Additional Comments: None

Interviewer: Date: 9/29/2014

Telephone Interview Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 9/29/2014 Installation: Plattsburgh

Name: Paul Kempton Position/Rank: Former Fire Chief

Contact Information (phone, e-mail): (618) 256-5130

Years at or familiar with Installation (# and dates): 1974-1976 1979-1981 1988-1990 1993-1995

Was Aqueous Film Forming Foam (AFFF) used/stored on-base outsi Yes.

If so, where? Used on large fuel spills on the ramp

Were there hangars on-base with fire suppression systems? Water deluge system

If yes, was AFFF used in these systems? No

Was there a fire station on-base? Yes

If yes, where was it located? Building 2478 (South end of the Ramp) and Building 601 (North near base housing)

If no, what local fire station was on call for emergencies? NA

Were there any planes crashes or fires on base? Yes.

If so, where were they located? KC-135 explosion at Row 8. Used lots of foam.

Was there a truck washing area for fire trucks or emergency vehicles on-base? Yes

If yes, where was it located? Inside and outside the fire station.

Was there an area used for annula calibration and testing of fire fighting equipment that may have contained AFFF?

If yes, where was it located? Usually out in front of the fire station

Is there an additional contact that could provide information of AFFF (name and contact info)?

none

Additional Comments: None

Interviewer: Date: 9/29/2014

APPENDIX D

RESEARCH LOGS

This page left intentionally blank.

Research Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 6/7/14 Installation: Plattsburgh AFB, Plattsburgh, NY

Researcher: Mike Washburn

Type of research:

X	Online - BRAC AR		AF Historical Research Agency
	Online - General Engine Search		AF Safety Center
	BRAC DR/ER		Misc. Document Review

Document Name: Basewide Environmental Baseline Survey (EBS), Vol I and II

Document Author: USAF

Document Date: May 1997

Was copy of title page obtained?: X Yes ____ No (provide reason)

Notes: AR Document #1107/1108

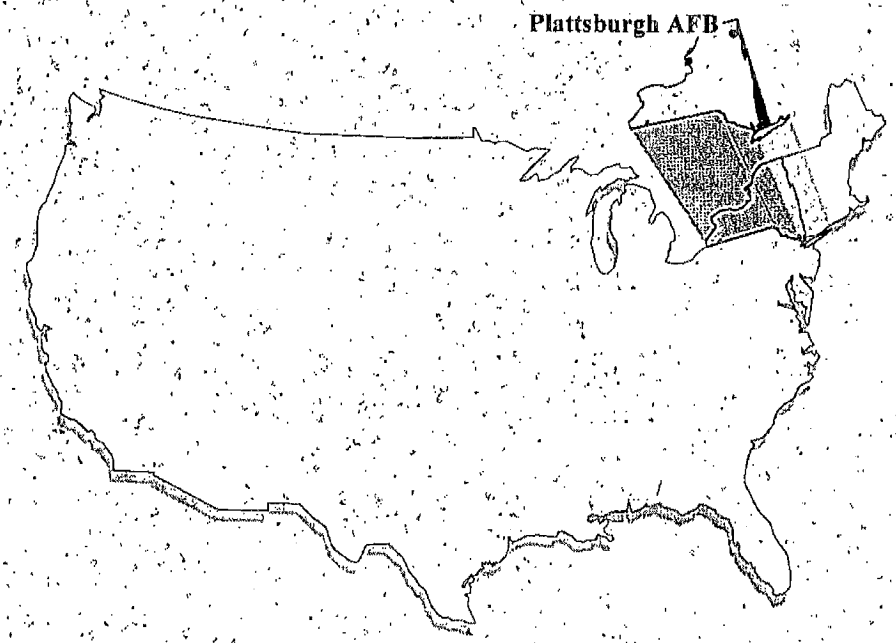
The Environmental Baseline Survey (EBS) for the installation identified three OWSs (OWS-2748-1, OWS-2748-2 and OWS-2748-3) associated with Building 2748 (Fire Station), two of which were removed in 1994 (OWS-2748-2 and OWS-2748-3), and wash racks and wastewater systems. The EBS also identified a release of 5 gallons of AFFF onto runway hammerhead and listed several large fuel spills where typical USAF practice was to use AFFF to minimize the fire potential.

BASEWIDE ENVIRONMENTAL BASELINE SURVEY

MAY 1997

DATA UPDATED TO SEPTEMBER 1996

VOLUME I

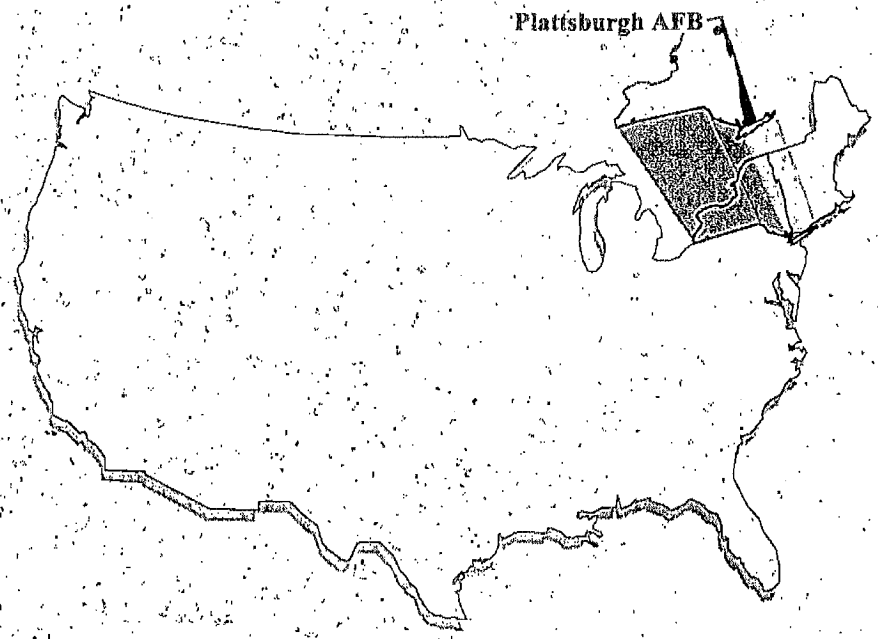


PLATTSBURGH AIR FORCE BASE, NEW YORK

BASEWIDE ENVIRONMENTAL BASELINE SURVEY

MAY 1997
DATA UPDATED TO SEPTEMBER 1996

VOLUME II
APPENDICES



PLATTSBURGH AIR FORCE BASE, NEW YORK

Research Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 6/7/14 Installation: Plattsburgh AFB, Plattsburgh, NY

Researcher: Mike Washburn

Type of research:

X	Online - BRAC AR		AF Historical Research Agency
	Online - General Engine Search		AF Safety Center
	BRAC DR/ER		Misc. Document Review

Document Name: Finding of Suitability to Lease (FOSL) for Flightline, Navigational Aids, and Miscellaneous Structures

Document Author: USAF

Document Date: June 1998

Was copy of title page obtained?: X Yes [ ] No (provide reason)

Notes: AR Document #1242

This document provided information that confirmed that OTH-3308 was the location of a B-57 crash that occurred in 1979.

FINDING OF SUITABILITY TO LEASE (FOSL)
FOR
FLIGHTLINE, NAVIGATIONAL AIDS, AND MISCELLANEOUS STRUCTURES
Former Plattsburgh Air Force Base, New York
June 1998

1. PURPOSE

This Finding of Suitability to Lease (FOSL) documents the environmentally related findings and the suitability to lease of the airfield pavements, twenty-eight (28) navigational aids, twelve (12) aircraft support structures, two (2) miscellaneous structures, and adjacent vacant lands on the former Plattsburgh AFB, New York. The buildings, structures, and associated land are described in Section 2 below and are referred to as "the property" in this FOSL. The Air Force proposes to lease this property to the Plattsburgh Airbase Redevelopment Corporation (PARC) on an interim basis for a period up to five (5) years. This property will be subleased by PARC for aviation and aircraft support uses.

This FOSL is a result of a thorough analysis of information contained in the following documents: (1) the Final Environmental Impact Statement (FEIS) for the Disposal and Reuse of Plattsburgh AFB, November 1995; (2) the Basewide Environmental Baseline Survey (EBS) for Plattsburgh AFB, Revised May 1997 (data updated to September 1996); (3) the BRAC Cleanup Plan for Disposal and Reuse of Plattsburgh AFB, Revised May 1997; (4) the Supplemental Environmental Baseline Survey (SEBS) for the Flightline, Navigational Aids, and Miscellaneous Structures, May 1998; (5) Visual Site Inspection (VSI) conducted May 1998; (6) the April 1997 Closure Report for the Removal of Underground Storage Tanks, Oil/Water Separators, Septic Tanks, and Aboveground Storage Tanks (six (6) volumes) prepared by OHM Remediation Services Corporation; (7) the January 1997 Draft Site Characterization Report (Volumes 1 and 2) prepared by Fanning, Phillips, and Molnar; and (8) the February 1994 Habitat Assessment and Wetlands Delineation Report performed by URS Consultants (9) Record of Decision (ROD) for Landfills LF-021 and LF-022.

2. PROPERTY DESCRIPTION

This property is located in the center of the "Main Base," and consists of 1,793,566 square yards of aircraft pavement, navigational aids (also referred to as facilities), various aircraft support facilities, and vacant grassed areas totaling approximately 1,386 acres. The structures/facilities/buildings, with their usage, sizes, and construction dates, are listed in Table 2(A) below. In addition, former buildings/structures/facilities associated with this property are listed in Table 2(B) below, along with the dates of their demolition/removal. This entire area was consistently used for aircraft operations by the Air Force. Detailed historic land use of this area can be found on pages 9, 10, and 11 of Table B-1 in the Basewide EBS. The area is shown on Attachments 1A through 1F.

Research Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 6/7/14 Installation: Plattsburgh AFB, Plattsburgh, NY

Researcher: Mike Washburn

Type of research:

X	Online - BRAC AR		AF Historical Research Agency
	Online - General Engine Search		AF Safety Center
	BRAC DR/ER		Misc. Document Review

Document Name: Fire Training Area (FT-002)/Industrial Area Groundwater Operable Unit Remedial Investigation/ Feasibility Study

Document Author: URS Consultants, Inc.

Document Date: June 2001

Was copy of title page obtained?: X Yes [ ] No (provide reason)

Notes: AR Document #1850

Identified downgradient off-base residents with potable supply wells.

FIRE TRAINING AREA (FT-002)/INDUSTRIAL AREA GROUNDWATER OPERABLE UNIT REMEDIAL INVESTIGATION/FEASIBILITY STUDY

VOLUME I
TABLE OF CONTENTS, TEXT, AND REFERENCES

PLATTSBURGH AIR FORCE BASE
CLINTON COUNTY, NEW YORK

PREPARED FOR:

AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
CONTRACT F41624-94-D-8054, DELIVERY ORDER 0013

PREPARED BY:

URS CONSULTANTS, INC.

FINAL

JUNE 2001

Research Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 6/7/14 Installation: Plattsburgh AFB, Plattsburgh, NY

Researcher: Mike Washburn

Type of research:

X	Online - BRAC AR		AF Historical Research Agency
	Online - General Engine Search		AF Safety Center
	BRAC DR/ER		Misc. Document Review

Document Name: Fourth Five-Year Review Report

Document Author: URS Group, Inc.

Document Date: November 2014

Was copy of title page obtained?: X Yes [ ] No (provide reason)

Notes: AR Document #451334

This document provides current and historical information regarding the site investigation and remedial actions of the FT002P/Source OU and FT002P/IA Groundwater OU, and includes the locations of downgradient off-base resident wells that are used for potable supply.

PLATTSBURGH AFB
NEW YORK

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 451334

United States Air Force
Environmental Restoration Program

Fourth Five-Year Review Report

Former Plattsburgh Air Force Base
Plattsburgh, New York

November 2014

G4676EE

Research Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 5/7/14 Installation: Plattsburgh AFB, Plattsburgh, NY

Researcher: Mike Washburn

Type of research:

	Online - BRAC AR		AF Historical Research Agency
X	Online - General Engine Search		AF Safety Center
	BRAC DR/ER		Misc. Document Review

Document Name: http://aviation-safety.net/database/record.php?id=19800208-0

Document Author: Aviation Safety Network

Document Date:

Was copy of title page obtained?: X Yes ____ No (provide reason)

Notes:

Provided information concerning KC-135 ramp fire and B-57 crash.

Hull-loss description
Last updated: 1 April 2014

Status:	
Date:	Friday 8 February 1980
Type:	Boeing KC-135Q Stratotanker
Operator:	United States Air Force - USAF
Registration:	60-0338
C/n / msn:	18113/452
First flight:	1961-03-03 (18 years 12 months)
Total airframe hrs:	8015
Engines:	4 Pratt & Whitney J57-P/F-59W
Crew:	Fatalities: 0 / Occupants:
Passengers:	Fatalities: 0 / Occupants:
Total:	Fatalities: 0 / Occupants:
Airplane damage:	Damaged beyond repair
Location:	Plattsburgh AFB, NY (PBG) (United States of America) show on map
Phase:	Standing (STD)
Nature:	Military
Departure airport:	-
Destination airport:	-

Narrative:
Burned out on ramp following an explosion of the aft body fuel tank during ground refueling operations. A faulty fuel probe was found to be the cause of the explosion.

Events:

Sources:
» NTSB/AAR-00/03

Photos

Research Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 6/7/14 Installation: Plattsburgh AFB, Plattsburgh, NY

Researcher: Mike Washburn

Type of research:

	Online - BRAC AR		AF Historical Research Agency
X	Online - General Engine Search		AF Safety Center
	BRAC DR/ER		Misc. Document Review

Document Name: http://www.millionmonkeytheater.com/B-57.html

Document Author: Forgotten Jets, Amateur Aircraft Research

Document Date:

Was copy of title page obtained?: X Yes ____ No (provide reason)

Notes:

Provided information concerning KC-135 ramp fire.

Martin B-57 Canberra series

Last updated on: **August 21, 2014**

403 total Canberras were produced, all models are listed here in order of Serial Numbers.

This is a work in progress and any help would be appreciated. Information on these planes is rather difficult to locate online and this work will remain incomplete unless you the readers offer to help me. Please feel free to pass along any information that you might have.

At the end of this page is a list of people who have graciously offered their help. Thank you all very much!

B-57A-MA s/n 52-1418

---

*7/20/1953: First flight of a Martin B-57.
*6/1957: Bailed to NACA as "218".
*1968: Scrapped at the AMARC bone yard.
Photo of 52-1418

B-57A-MA s/n 52-1419

HOME PAGE

USAF Fighters

P-59 AIRACOMET

P-80 SHOOTING STAR

F-84 THUNDERJET (A TO E)

F-84F THUNDERSTREAK

F-84G THUNDERJET

RF-84F THUNDERFLASH

F-86 SABRE (DAY-FIGHTERS)

F-86 SABRE (ALL-WEATHER FIGHTERS)

F-89 SCORPION

F-94 STARFIRE

F-101 VOODOO

F-102 DELTA DAGGER

F-105 THUNDERCHIEF

F-4 PHANTOM II

USAF Bombers

B-45 TORNADO

B-47 STRATOJET

B-57 CANBERRA

B-66 DESTROYER

A-7D CORSAIR II

Research Log

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

Date: 6/7/14 Installation: Plattsburgh AFB, Plattsburgh, NY

Researcher: Mike Washburn

Type of research:

	Online - BRAC AR		AF Historical Research Agency
X	Online - General Engine Search		AF Safety Center
	BRAC DR/ER		Misc. Document Review

Document Name: Voices from and Old Warrior: Why KC-135 Safety Matters

Document Author: Christopher J. B. Hoctor

Document Date:

Was copy of title page obtained?: X Yes ____ No (provide reason)

Notes: http://www.theboomsignal.net/pdf/Voices_from_an_Old_Warrior.pdf

Provided information concerning B-57 crash.

Voices from an Old Warrior

Why KC-135 Safety Matters

CHRISTOPHER J. B. HOCTOR

Foreword by General Paul Selva

GALLEON'S LAP PUBLISHING

2ND EDITION, FIRST PRINTING

APPENDIX E

RESEARCH CHECKLIST

This page left intentionally blank.

PFC Site Assessment/Research Checklist

Perfluorinated Compounds (PFCs) Release Determination, Delineation, and Remediation at Multiple BRAC Bases, Contract FA8903-08-8766, Task Order 0177

POC/Personnel Interviews	Yes	No (include reason)
Did installation POC complete PFC General Information Questionnaire?	X	
Was additional contact personnel provided by POC (i.e. Fire chief, longtime base employee). If yes, provide names and contact information (position/rank, phone number, e-mail address) below.	X	
Contact information:	Dave Henderson-Former Fire Chief-(516)834-9617	
Contact information:	Paul Kempton-Former Fire Chief-(618)256-5130	
Was Telephone Interview Log completed for each person contacted?	X	

Online Research	Yes	No (include reason)
Searched for the following key words in online AF BRAC Administrative Record and general search engine?		
"crash"	X	
"fire"	X	
"accident"	X	
"mishap"	X	
"AFFF" and "aqueous film forming foam"	X	
List additional words searched in online AR:	"suppression", "spill", "safety", "foam"	
Reviewed Environmental Baseline Survey?	X	
Located and reviewed Environmental Impact Statements and/or Environmental Assessments?		Not located
Were Real Property Records (as-built drawings) located?		No
Were installation maps with building functions located?	X	
Located and reviewed additional reports suggested by POC?	X	
Located historic aerial surveys (1970 - present)?		None identified - reviewed old installation drawing

Archival Repository Research	Yes	No (include reason)
Searched for the following key words in online Air Force Historical Research Agency Records Index?		
"crash"	X	
"fire"	X	
"mishap"	X	
"accident"	X	
"as-built" and/or "as built"	X	
"real property"	X	
"AFFF" and "aqueous film forming foam"	X	
List additional words searched in Index:		
Conducted file review at the Air Force Historical Research Agency Records at Maxwell AFB?	X	Unable to access requested files
Conducted file review at the Air Force Safety Center at Kirtland AFB?	X	No files applicable to Plattsburgh

Signature: _____ Date: 10/15/2014

This page left intentionally blank.