Air National Guard
Environmental Restoration Program

COMMUNITY INVOLVEMENT PLAN

for the

147th Attack Wing

Texas Air National Guard
Ellington Field Houston,
Texas

February
2021

Prepared for the Air National Guard
3501 Fetchet Ave
Joint Base Andrews, Maryland 20762-5157

Contract No. W9133L-05-D-0009
Delivery Order No. 0078

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Environmental Restoration Program

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Submitted to:

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RECORD OF REVISIONS

This is the first Community Involvement Plan for the 147th Attack Wing. All future updates to the Plan will be documented in the table below.

Date Updated	Page Number	Remarks/Changes
November 2012	General Review Plan Wide	Mark Garcia
March 2013	General Review Plan Wide	Mark Garcia
September 2013	General Review Plan Wide	Mark Garcia
September 2014	General Review Plan Wide	Mark Garcia
June 2015	General Review, Wing Leadership Change	Mark Garcia
June 2016	General Review Plan Wide	Mark Garcia
March 2017	General Review Plan Wide	Mark Garcia
March 2018	General Review Plan Wide	Mark Garcia
March 2019	General Review, Wing Leadership Change	Mark Garcia
February 2020	General Review Plan Wide	Mark Garcia
February 2021	General Review, Wing Leadership Change	Mark Garcia

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Acronyms and Glossary

List of Acronyms

ºF	degrees Fahrenheit
147 ATKW	147th Attack Wing
AFB	Air Force Base
AFRIMS	Air Force Records Information Management System
ANG	Air National Guard
APA	Affected Property Assessment
APAR	Affected Property Assessment Report
AR	Administrative Record
AST	Aboveground Storage Tank
BaP	Benzo(a)pyrene
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
COC	Contaminant of Concern
CSE	Comprehensive Site Evaluation
DBA	dibenz[a,h]anthracene
DD	Decision Document
DERP	Defense Environmental Restoration Program
DoD	U.S. Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
FFS	Focused Feasibility Study
FS	Feasibility Study
FUDS	Formerly Used Defense Sites
FW	Fighter Wing
IR	Information Repository
JP-4	Jet Propellant-4
LTM	Long Term Monitoring
LULAC	League of United Latin American Citizens
MC	Munitions of Concern
MEC	Munitions and Explosives of Concern
MMRP	Military Munitions Response Program
MRA	Munitions Response Area
NASA	National Aeronautics and Space Administration
NFA	No Further Action
NFRAP	No Further Response Action Planned
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbons
PCL	Protective Concentration Levels
POL	Petroleum, Oil, and Lubricant

PP	Proposed Plan
PRACR	Post-Response Action Care Report
PST	Petroleum Storage Tank
QA/QC	Quality Assurance/Quality Control
ATKW	Attack Wing
RA	Remedial Action
RAB	Restoration Advisory Board
RAP	Response Action Plan
RD	Remedial Design
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RS	Records Search
SC	Site Characterization
SCI	Site Closure Investigation
SI	Site Inspection
TCEQ	Texas Commission on Environmental Quality
TPH	Total Petroleum Hydrocarbons
TRRP	Texas Risk Reduction Program
UPS	United Parcel Service
U.S.	United States
USAF	United States Air Force
UST	Underground Storage Tank

EXECUTIVE SUMMARY

This Community Involvement Plan (CIP) has been prepared for the 147th Attack Wing (147 ATKW) (hereafter referred to as the "Base") of the Texas Air National Guard (ANG) located at the Ellington Airport in Houston, Texas. This CIP is designed to facilitate two-way communication between the ANG and the communities surrounding the Base regarding its environmental cleanup program. The Base will utilize the community involvement activities outlined in this plan to keep residents and the public informed of environmental conditions on site and to provide the opportunity for public involvement.

The Defense Environmental Restoration Program (DERP) is a U.S. Department of Defense (DoD) wide effort to identify possible environmental contamination that may have resulted from past practices, accidents or incidents at DoD installations nationwide and abroad. The ANG executes its Environmental Restoration Program (ERP) in support of the overall DoD effort. The Texas Commission on Environmental Quality (TCEQ) supports the implementation of the DERP and this CIP. The overall administration of the DERP and the implementation of the community outreach steps outlined in the CIP are the responsibility of the ANG.

In support of its primary mission, the Base has stored and used various types of hazardous materials during its history, including fuels, oils, thinners, paints, and solvents. Although some of the ANG's historical operations have resulted in the storage and use of hazardous materials, not all of these operations relate to ERP sites.

The Base began conducting activities under the ERP with a Preliminary Assessment completed in 1987. There were a total of four ERP sites identified as part of ERP activities conducted in the past at the Base. Long Term Monitoring (LTM) is in compliance with the Post Response Action Care element which constitutes visual and physical monitoring each year. LTM is currently underway at the Former Base Landfill (Site 1). It has been determined by the TCEQ under its letterhead that the petroleum, oil, and lubricant (POL) Storage Area (Site 2), the Fuel System Repair Shop (Site 3), and the underground storage tanks (USTs) near Buildings 1380 and 1255 (Site 4) do not need further action as identified by letter from the TCEQ.

During the creation of this CIP, many members of the local community that were interviewed generally expressed positive feelings about having the Base in their community. A few respondents specifically commented that the Base is a vital economic aspect to the community and that the Base brings a sense of security to the community. Many respondents indicated their appreciation for the Base's efforts to inform local residents and businesses about the ongoing environmental investigation and cleanup efforts at the Base.

None of the 22 community respondents expressed environmental, safety and/or health concerns. Once respondents were made aware of ongoing cleanup activities at the Base, many were interested in learning more about the past contamination and details on the current cleanup activities. Based on respondent feedback, an appropriate outreach measure to take would be issuing targeted newsletters or E-mails. The community would also benefit from public access to a webpage with a static source of current basic information about the ERP.

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1.0 OVERVIEW OF COMMUNITY INVOLVEMENT PLAN

This Community Involvement Plan (CIP) has been prepared for the 147th Attack Wing (147 ATKW) stationed at Ellington Field Air National Guard Base (hereafter referred to as the "Base") of the Texas Air National Guard (ANG) located at the Ellington Airport, Houston, Texas. This CIP is designed to facilitate two-way communication between the ANG and the communities surrounding the Base regarding its environmental cleanup program. The Base will utilize the community involvement activities outlined in this plan to keep residents informed of environmental conditions on site and to provide the opportunity for public involvement.

Appropriate and effective communication, as well as the timely exchange of information, is necessary for maintaining community understanding and support for the ANG and to ensure the success of a community outreach program. Base personnel should utilize this CIP to keep residents and the surrounding communities informed of environmental cleanup activities at the Base. This CIP also outlines how the Base will provide the public with opportunities to express their concerns and receive feedback from the Base.

Section 2 of this CIP provides a Site Description, which includes background and history of the Base. Section 3 provides background on the Environmental Restoration Program (ERP) and an overview of investigation and cleanup activities that have occurred at the ERP sites at the Base. Section 4, Community Background, provides a community profile, history of community relations, community interview methodology and summary, and identifies priority issues that surfaced during the community interview process. Section 5, Community Involvement Objectives and Activities, presents the potential outreach activities intended to respond to community concerns and communication needs.

Appendices A - F provide information on available resources and community interview response data. Appendix A is a detailed summary of the 22 Community Interviews and Responses. Appendix B lists Key Contacts associated with community outreach activities. Appendix C provides the current Federal, State, and Local Elected Officials for the nearby community. Appendix D lists Media Contacts in the area. Appendix E provides the name and address of Meeting and Repository Locations; and Appendix F includes a Glossary to aid in understanding the different elements of this plan.

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2.0 SITE DESCRIPTION

2.1 Base History

The 147 ATKW of the Texas ANG is located at the Ellington Airport approximately 15 miles southeast of downtown Houston, Texas, as shown in Figure 1. The Base occupies approximately 213 acres of licensed federal land that has been granted by the Secretary of the Air Force to the State of Texas to use and occupy for year round training in support of the Texas ANG. The Base is a joint use civil military airport. The remainder of the Base was acquired by the City of Houston in 1984. Ellington Airport now supports the operations of military, commercial, and general aviation.

Ellington Field ANG Base construction began September 14, 1917. The first contingent of air service personnel (the 120th Aero Squadron) arrived in November of 1917. During World War I, Ellington Field served as a base for advanced flight training for the United States (U.S.) Army Air Service. By 1920, it was deactivated as an active duty airfield, and assigned a small caretaker unit for administrative duties. The Reorganization Act of 1920 led to the formation of aviation units within the National Guard. As such, the formation of the 111th Observation Squadron was officially activated in June of 1923, with the Base serving as its training ground. The base was on standby status until 1927, the year it was destroyed by fire and subsequently closed. With the onset of World War II, Congress appropriated funds to rebuild the Base. Shortly thereafter, the military began training pilots and bombardiers again for combat. Ellington Field became Ellington Air Force Base (AFB) in September 1947 when the United States Air Force (USAF) was designated a separate service. The Base was again fully activated in 1949 as the only post-war USAF navigator training school. When the Korean War began in 1950, the Base resumed its duties of training men for war. In 1955, the 147th Fighter Wing (FW) of the Texas ANG moved its operations to Ellington. In 1961, the National Aeronautics and Space Administration **(**NASA) identified Ellington AFB as the home for all astronaut flight training, and by 1967 it was the site of the Apollo lunar landing training program and continued as the site for USAF Reserve and Texas ANG flight operations. In 1986, Ellington AFB was officially deactivated, and the 147 FW was designated by the USAF to handle the phase-down transition.

Today's 147 ATKW provides (24 hours a day, 7 days a week) MQ-9 Remotely Piloted Vehicle (RPV) Systems combat support sorties which provide theater and national-level leadership with critical real-time Intelligence, Surveillance and Reconnaissance and Air-to-Ground Munitions precision strike capability. Also, the Air Support Operations Squadron provides terminal control for weapons employment in a Close Air Support scenario integrating combat air and ground operations.

In support of its primary mission, the Base has stored and used various types of hazardous materials during its history. Although some of the Base's historic operations have resulted in the storage and use of hazardous materials, not all of these operations relate to ERP sites.

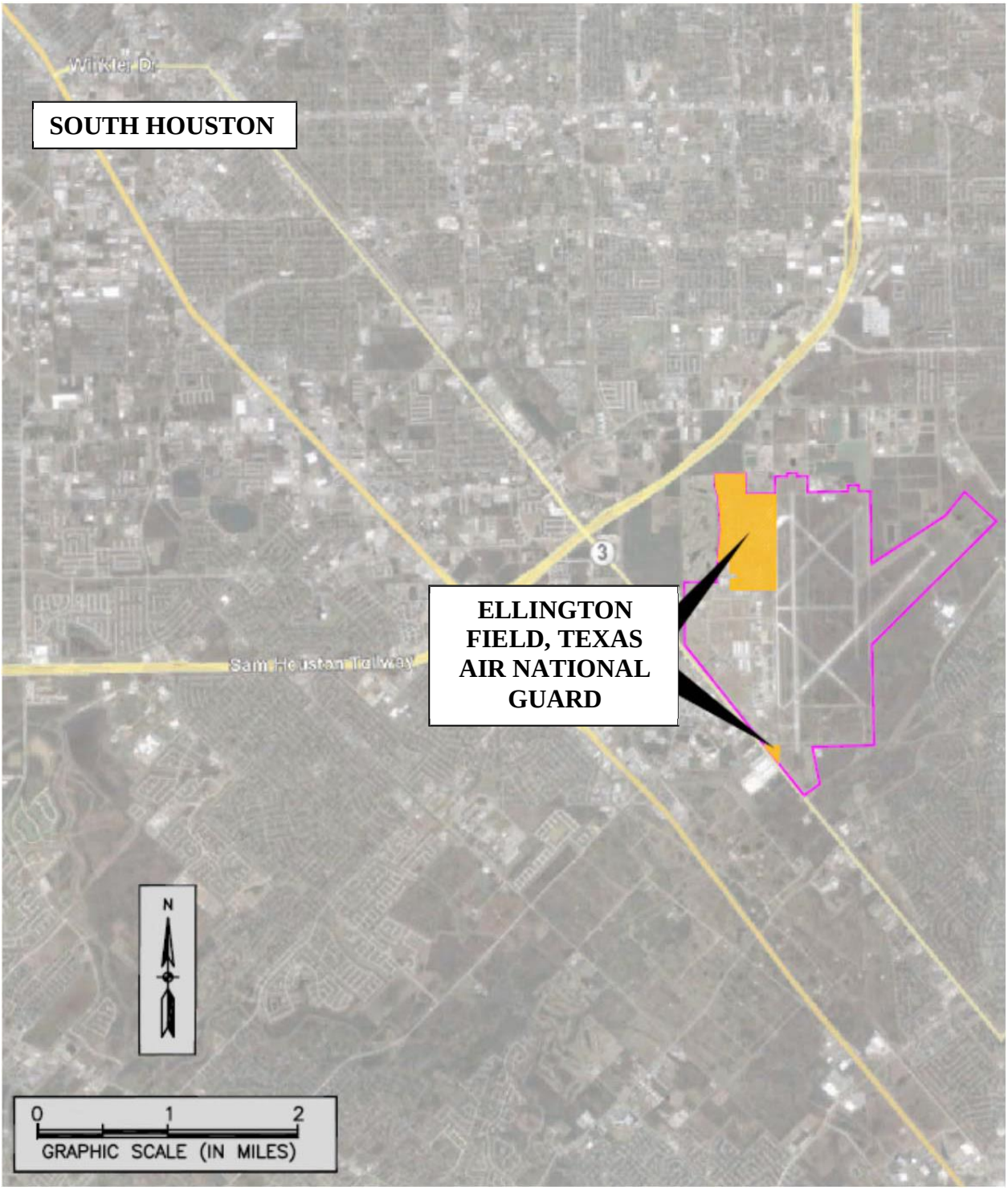


Figure 1. Location of the 147th Attack Wing at Ellington Field
(Source: Google Earth, 2011)
Current as of 12 February 2021

2.2 Site Location/Description

Ellington Field Air National Guard Base is located on the northwest side of the Ellington Airport, approximately 15 miles southeast of Houston. The area within a one-mile radius of the Base is sparsely populated and predominantly commercial; however, densely populated suburbs of Houston (Pasadena, Friendswood, Clear Lake City, South Houston, etc.) are located within five miles of the Base. The Base property at the north and south ends is separated by Ellington Field property owned and operated by the City of Houston and is bordered to the west by a golf course and commercial properties, to the east by open fields and a large commercial sand pit, and to the north and south by commercial properties. The location of the Base within Texas is provided in Figure 2.

Figure 2. Location of the 147th Attack Wing within Texas
(Source: www.destination360.com, 2011)

Ellington comprises 213 acres for its operations for the 147 ATKW and its Tenants; the remainder was acquired by the City of Houston from the USAF in 1986. Ellington Airport, a joint use civilian/military airport, now supports the operations of the U.S. military, NASA, and general

aviation businesses. There are 450 full-time personnel on Base with a once a month drill weekend surge to 1200 personnel.

Houston is located in southeastern Texas. Most of Houston is located on the gulf coastal plain, and its vegetation is classified as temperate grassland and forest. Much of the city was built on forested land, marshes, swamp, or prairie, which are all still visible in surrounding areas.

2.3 Base Environmental Setting

The Base is located within the West Gulf Coastal Plain physiographic province. The formations underlying the site are comprised of consolidated and unconsolidated sediments. The topography of the Base is typical of the Gulf Coastal Plain, which is characterized by gently gulfward sloping land. Surface elevations at the Base range from 25 to 40 feet above mean sea level.

Water-bearing units include the Chicot Aquifer, and the Evangeline Aquifer. Both aquifer systems consist predominately of intermixed sands and clays. No continuous confining layers overlie the Chicot, and the aquifer extends to the ground surface in some locations, suggesting that the aquifer is under water table conditions. Recharge to the Chicot is via direct infiltration of precipitation from the ground surface; recharge to the Evangeline is probably by slow percolation of groundwater through the overlying Pleistocene formations.

Available information indicates three municipal wells are currently located in the vicinity of the Base. There were formerly four wells, but Well 1 was removed in July of 1990 by the City of Houston. Use of Well 2 was discontinued by the City of Houston on July 15, 1990. Wells 3 and 4 are owned by the City of Pasadena and are used by the golf course located west of the Former Base Landfill. These wells all produced water from the lower unit of the Chicot Aquifer.

The Horsepen Bayou (impaired for bacteria), located near the Base, flows eastward approximately 10 miles into Armand Bayou, then into Pasadena and Mud Lakes, Clear Lake, and finally, Galveston Bay. Horsepen Bayou and its tributaries receive some overland drainage and runoff from drainage ditches on the Base. However, due to the relatively flat site topography, a great deal of surface water pools on site and either evaporates or percolates slowly to the groundwater through semipermeable surficial clays. There are no permanent surface water bodies or streams located on the Base property.

The climate of the region is subtropical and influenced primarily by the Gulf of Mexico. Winters are mild and summers are hot with high humidity. The average daily summertime high in Houston is 92.67 degrees Fahrenheit (^{o}F). The average daily low in the winter is 48.33^{o}F. The hottest month is July with an average daily high temperature of 94^{o}F. The coldest month is January with an average daily low temperature of 45^{o}F. Precipitation averages 53.96 inches per year. June is the wettest month with an average of 6.84 inches of precipitation. February is the driest month with an average of 3.01 inches of precipitation according to the Weather Channel (weather.com).

3.0 ENVIRONMENTAL RESTORATION PROGRAM

3.1 Background

The ANG's ERP is a nationwide effort to identify possible environmental contamination that may have resulted from past practices, accidents or incidents at ANG Bases and other facilities. This contamination would have occurred many years ago when limited knowledge existed of the potential environmental consequences associated with the routine disposal or accidental spills of waste oils, cleaning solvents, fuels, paint, paint thinners and similar potentially harmful substances. If contamination is discovered that may pose a threat to human health or the environment, steps are taken to minimize, contain, control, or when necessary, clean up that contamination.

The Defense Environmental Restoration Program (DERP), which funds the ERP, established the Military Munitions Response Program (MMRP) in 2001 to manage any environmental issues arising from unexploded ordnances and discarded munitions. Many military installations have both ERP and MMRP sites that are undergoing response actions. The Base's six MMRP sites are discussed in Section 4.6 of this plan.

The ERP is divided into the following phases:

- Preliminary Assessment (PA); Completed
- Site Inspection (SI); Completed
- Engineering Evaluation/Cost Analysis (EE/CA); Completed
- Remedial Investigation (RI); Completed
- Focused Feasibility Study/Feasibility Study (FFS/FS); Completed
- Proposed Plan (PP) and Decision Document (DD) or Record of Decision (ROD);
- Remedial Design/Remedial Action (RD/RA);
- Long Term Monitoring (LTM) (if applicable);
- No Further Response Action Planned Decision Document (NFRAP DD); and
- Closure.

During a PA, it is determined if past operations may have contributed to some form of environmental contamination and where such contamination might exist. This determination is made primarily through interviews with past and present employees and an extensive review of historical and operational records.

If the PA indicates some form of contamination may exist, then an SI is conducted. This second phase involves actual on-site investigation, including analyses of soil, surface and groundwater samples. The purpose of the SI is to confirm the presence or absence of contaminants.

If at any time it is determined that contamination poses an immediate threat to human health or the environment, prompt action is taken to contain, control or minimize the contaminants. In the event that an immediate corrective action is necessary, a FFS or an EE/CA may be initiated to determine the appropriate rapid response measure to be taken.

If contamination is present and it does not pose an immediate threat, an RI is conducted. This phase involves far more detailed studies than those conducted in the SI. It is in the RI that an attempt is made to define the precise nature and extent of the contamination. During the RI, if groundwater is affected, extensive hydrogeological studies may be conducted to determine the direction and rate of contaminant migration. The FS establishes cleanup criteria and develops cleanup alternatives. A number of alternatives are evaluated according to technical feasibility, cost effectiveness, regulatory requirements, environmental impact, and community desires. The ultimate purpose of the FS is to identify alternative remediation methods and recommend a preferred remedial or cleanup alternative.

In a PP, all of the remedial alternatives identified in the FS are presented and the preferred alternative is proposed. The PP is a brief document that provides the rationale for implementing the preferred remedial alternative. At this stage, public comments are formally sought. If public comments are submitted, or if oral comments are made at a public meeting, those comments and responses to them are documented in a DD or ROD. These documents identify the selected alternative (cleanup action) based on the technical assessment of conditions at the site and the consideration of public comments.

The RD and RA phase comes after a decision has been made, with public participation, on which cleanup alternative to pursue. This is the phase where actual site cleanup is conducted to eliminate or, at a minimum, reduce the contamination to a level that will protect public health and the environment. Often, to ensure success, sites are monitored for an extended period of time, under a LTM program.

Once the ANG is confident that the cleanup has been successful and has the concurrence of state and/or federal regulatory officials, the site can be closed. Closing a site means that no further remedial action is required.

At the conclusion of any phase within the program, with the concurrence of the appropriate state and, at times, federal regulatory agency, a DD can be issued to indicate any of the following:

1) That no potentially contaminated sites were identified during the PA and no further action is warranted; or
2) That studies of the sites confirm that no contamination is present or, if present, that no threat to human health or the environment is posed – therefore no further action is warranted; or
3) Following remedial action (site cleanup), the site meets or exceeds federal and state environmental standards and no further action is required.

Public participation during this process is actively encouraged by the ANG and the 147 ATKW. The concerns of local residents are an integral part of the decision-making process throughout the ERP.

3.2 Role of the Federal, State, and Local Government

All ERP activities at the Base are designed to comply with the Texas Risk Reduction Program (TRRP) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) guidance.

At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for implementing the CERCLA regulations. The ANG is responsible for implementing the ERP which reflects, U.S. Department of Defense (DoD), USAF and ANG policies.

At the state level, the Texas Commission on Environmental Quality (TCEQ) provides direct regulatory oversight of the ERP program at the Base. The TCEQ is involved in all stages of the ERP. Appendix B provides contact information for the TCEQ representative involved in the ERP program at the Base.

At the local level, local officials may need to become involved in the ERP program in cases where compliance with local regulations is needed. Otherwise, local officials are generally involved in the ERP program in terms of facilitating community awareness.

3.3 Site History and Cleanup Activities

Past and present operations at the Base have involved use and disposal of hazardous materials, including fuels, oils, paints, and solvents. There were a total of four ERP sites identified as part of ERP activities at the Base. The ERP sites are the Former Base Landfill (Site 1), the petroleum, oil, and lubricant (POL) Storage Area (Site 2), the Fuel System Repair Shop (Site 3), and the underground storage tanks (USTs) near Buildings 1380 and 1255 (Site 4).

LTM is currently underway at Site 1. It has been determined by the TCEQ that Sites 2, 3, and 4 do not need further investigation. The locations of Sites 1, 2, 3, and 4 at the Base are provided in Figure 3.

A PA/Records Search (RS) conducted by the Hazardous Materials Technical Center between December 1985 and October 1987 identified three sites at the Base which were potentially contaminated with hazardous materials. Although three sites were identified, only two, the Former Base Landfill (Site 1) and the POL Storage Area (Site 2), were investigated as part of the 1989/1990 SI. This was due to the initial determination by the ANG that potential contamination at the third site, the Fuel System Repair Shop (Site 3), would be the result of activities occurring after January 1984 and; therefore, not subject to ERP investigation (but would be subject to another hazardous management program that is focused on current compliance rather than cleanup of past releases of potentially hazardous materials). Site 3 was later investigated to confirm it was not affected by contamination.

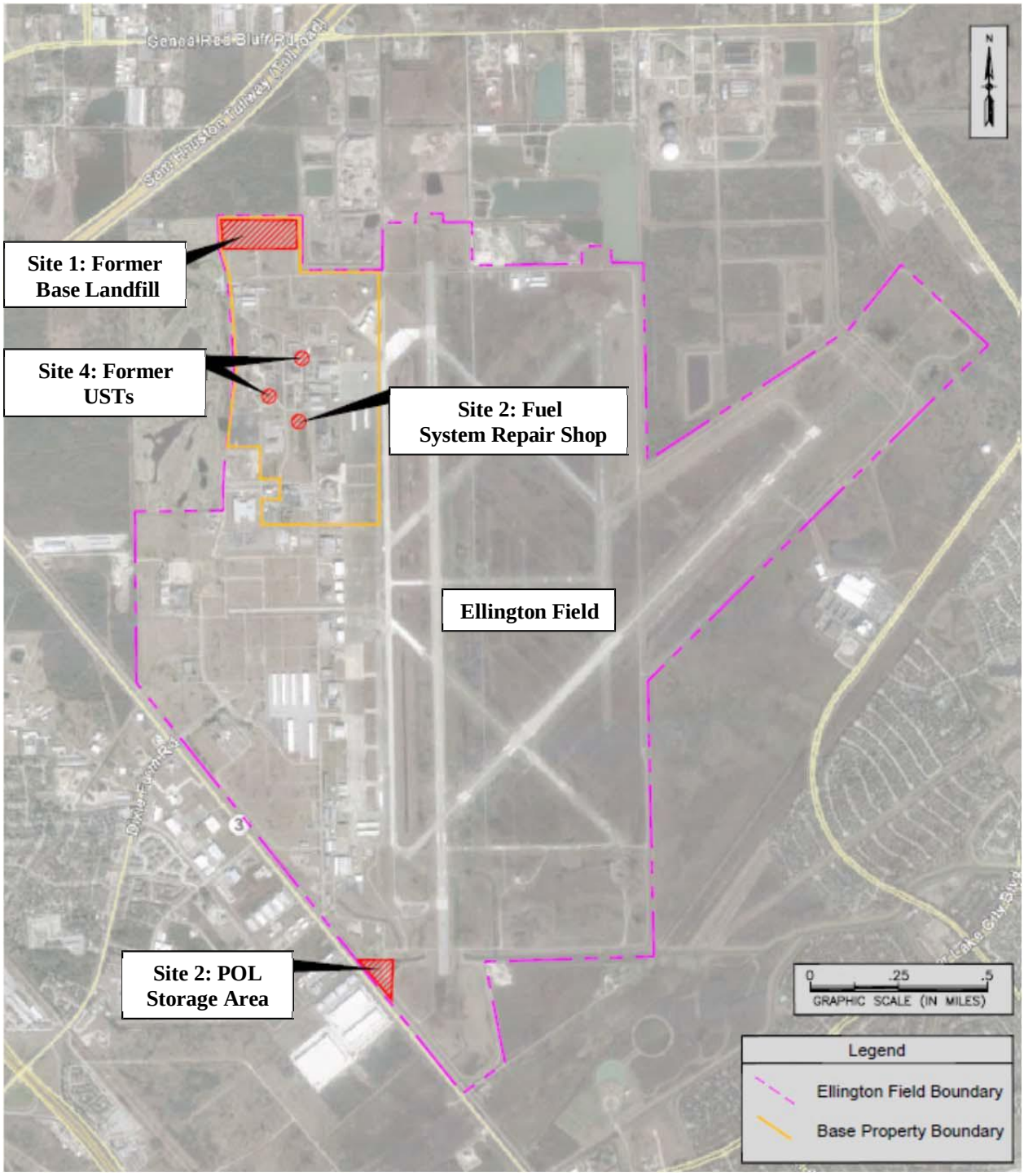


Figure 3. Location of the Identified ERP Site at the 147th Attack Wing within Houston, Texas
(Source: Google Earth, 2011)

Also in 1991, two USTs at Site 4 were excavated and removed. The tank closure report concluded additional excavation was not necessary based upon the analytical results and discussions with the Texas Water Commission, the predecessor of the TCEQ.

A Site Characterization (SC) was performed for Site 2 in 1993-1994. Due to all sample detections being below their cleanup limits, no further action (NFA) was recommended for the site. However, TCEQ identified deficiencies in the SC work conducted at Site 2. In 2001, TCEQ also identified deficiencies in the 1989/1990 SI conducted at Site 1. Affected property assessments (APAs) were subsequently conducted in 2003 at both Sites 1 and 2 to collect additional information to further define soil and groundwater impacts at these sites. After completion of the 2003 APAs at each site, Affected Property Assessment Reports (APARs) were prepared based on previously collected soil and groundwater data, as well as data collected during the APAs. APARs for Site 1 and Site 2 were each submitted to TCEQ in 2004. In 2006, TCEQ concurred with the APARs that Site 2 met the Petroleum Storage Tank (PST) program closure requirements and that no further action was necessary.

At Site 1, TCEQ requested that an additional groundwater sampling event be conducted. The March 2006 sampling results at Site 1 were consistent with the APAR results, and TCEQ concurred with the APAR conclusion stating that once institutional and physical controls were completed, landfill closure actions at Site 1 could be initiated. In 2006, a Response Action Plan (RAP) was reviewed and approved by the TCEQ in an October 2009 letter, which also approved the Post-Response Action Care Report (PRACR). The letter also stated that the USAF had conditionally completed response actions in accordance with state regulations and actions described in the 2006 RAP. Site 1 is currently undergoing annual landfill inspections. The first annual inspection of Site 1 was conducted and a report was submitted to TCEQ in March 2010. The 2011 thru 2019 reports were compiled and submitted to TCEQ as required. All reports to date have been approved by TCEQ with no changes being required. The next inspection and report shall be submitted in January of 2021 with the next submission to TCEQ in January of 2022.

In December 2005, a Site Assessment was conducted at Site 3 which consisted of collecting soil samples for analysis to determine the presence or absence of contamination at the site. Since no contaminants were detected, TCEQ concurred that the site was not subject to the TRRP in a letter dated 24 July 2006, and was therefore closed.

The 2009 Site Closure Investigation (SCI) for Site 4 was initiated to fill in data gaps necessary to support site closure. Soil and groundwater samples were collected as part of the SCI. Based upon the SCI findings and previous results, no further site assessments were recommended for the site and a request for closure of Site 4 was submitted to the TCEQ and approved in April 2010 for no further action resulting in closure.

3.3.1 Site 1: Former Base Landfill – Status: Closed with Long Term Annual Inspections

The Former Base Landfill, Site 1, is located at the northwest corner of the Base. The landfill site is approximately nineteen acres and is bordered by a golf course to the west and an undeveloped wooded area to the north, a commercial sand pit to the east, and additional ANG property to the south. Two munitions storage igloos (Buildings 1412 and 1413) were constructed on the south central portion of the site and are secured by a chain link fence. A chain link fence coincidental with the Base property line also surrounds the site on the north, east, and west sides.

The landfill was used by the USAF from 1942 until 1974. Although no documentation exists of the types and amounts of wastes landfilled over the years, verbal reports by past and present

personnel indicate the landfill was used only for the disposal of municipal solid waste generated on the Base. The landfill was not capped or lined, and no leachate collection system was implemented. The earthen cover placed over the waste was graded with clean soil to improve stormwater drainage, to reduce water from absorbing into the soil cover, and to prevent potential exposure to the landfill waste materials and the impacted soils.

The 1987 PA recommended further investigation of Site 1 due to the unknown wastes placed in the landfill during its operation.

An SI for Site 1 was initiated in 1989 and completed in 1990, and included geophysical surveys, drilling of boreholes, and the installation of monitoring wells. Also, groundwater and soil samples were collected and slug tests were performed.

The geophysical survey identified likely locations for buried objects, such as drums. No volatile organics were detected in groundwater at the site. Two pesticides, alpha-BHC and methoxychior, were detected at very low concentrations in samples collected from two groundwater wells. Petroleum hydrocarbons were also detected in one well at extremely low levels. Aluminum, barium, calcium, chromium, and vanadium were detected in one or more wells at concentrations above reported background levels. Potential compounds of concern in impacted soils identified at this time included polycyclic aromatic hydrocarbons (PAHs), DDT, arsenic, and metals (lead, mercury, and zinc). The 1991 SI Report was prepared and submitted to TCEQ.

In a 2001 letter, TCEQ identified deficiencies in the 1989/1990 investigation work and requested the Air National Guard conduct an additional investigation to define the soil and groundwater impacts, in accordance with the TRRP, and to provide a basis for future site closure activities. The deficiencies were the lack of characterization of the landfill wastes and leachate, missed holding times and other Quality Assurance/Quality Control (QA/QC) concerns, use of data not representative of the current conditions, non-site-specific background data, and a limited number of wells and sampling rounds of groundwater.

In 2003, an APA was conducted at Site 1 to address the deficiencies. The investigation consisted of an electric conductivity survey, drilling and sampling of boreholes, and the installation and sampling of monitoring wells.

After completion of the 2003 field investigation, an APAR was prepared based on the soil and groundwater data collected during 1989/1990 and 2003 investigations. The APAR identified benzo(a)pyrene (BaP) as the soil contaminant of concern (COC) and manganese as the groundwater COC at the site. Since the soil and groundwater COCs were at the concentrations below the TRRP Tier 1 commercial/ industrial protective concentration levels (PCLs) and the anticipated future land use for the site is commercial/industrial, the APAR concluded that there were minimal existing impacts to soil and groundwater and the COCs did not present a threat to human health and the environment. TCEQ concurred with the APAR conclusion that, because waste was left in place, the site should be closed under Remedy Standard B for commercial/industrial land use. This includes institutional controls and physical controls, including: grading the site to minimize surface water ponding and to improve the surface water

drainage at the landfill site. Site grading is intended to reduce the amount of water absorbed through the top of the landfill from precipitation. This, in turn, reduces water contact with waste and potential impact to groundwater. Since the waste was to remain onsite, the institutional controls would consist of land and shallow groundwater use restrictions to prevent potential exposure to waste and waste constituents. The TCEQ approved the APAR and concurred with the proposed remedy in a letter dated May 30, 2005.

Also, following the review of the 2004 APAR, TCEQ requested an additional groundwater sampling event be conducted. Sampling was conducted in March 2006. The analytical results of the sampling event were consistent with the APAR results and conclusions.

In 2006, a RAP was reviewed and approved by the TCEQ. The proposed response action included grading the site with clean soil and deed recordation of the site.

In October 2009, a letter from the TCEQ approved the PRACR and stated the USAF had conditionally completed response actions at Site 1 in accordance with state regulations and actions described in the 2006 RAP.

As part of the landfill closure process, grading of the earthen cover was performed, as documented in the March 2009 Response Action Completion Report. After grading was completed, the landfill must be inspected annually for 30 years, and an inspection report must be submitted every three years. The annual inspections have been completed as required and detailed above.

3.3.2 Site 2: POL Storage Area – Status: Closed

The POL Storage Area, Site 2, is isolated from the main portion of the Base, at the south end of the City of Houston property. The site is surrounded by a chain-link fence which approximates the ANG property line and is bordered by Union Pacific Railroad right-of-way property to the southwest, Horsepen Bayou to the north, the Ellington Airport to the west, and undeveloped land to the east.

Three aboveground Jet Propellant-4 (JP-4) fuel storage tanks (Tanks 39, 164, and 165) and a fuel pump station (Building 160) are located at the site. The fuel tanks are within a concrete diked area. A cul-de-sac driveway runs north-south between the diked area and the pump station and allows passageway for refueling tanker trucks. A railroad spur used for the delivery of JP-4 to the site is situated between the driveway and the diked area. Six fuel feed standpipes are located just east of the railroad spur, with an underground 8-inch diameter fuel loading pipeline leading to the storage tanks.

In 1973, there was a release of 8,000 gallons of JP-4 into a drainage ditch over the period of one weekend. The drainage ditch is located on the railroad right-of-way and flows northwest into Horsepen Bayou, which subsequently flows eastward into Armand Bayou, Pasadena and Mud Lakes, Clear Lake and, finally, Galveston Bay. Water that had collected in the storage tank sump was being pumped into the drainage ditch. The pump was inadvertently left on and fuel was allowed to discharge into the ditch. Although attempts were made to contain the spill, most

of the fuel was able to reach Horsepen Bayou. There is no documentation of regulatory involvement in spill reporting, containment, or countermeasure activities related to this spill.

In August 1989, JP-4 was found seeping through and over the site's south bank into Horsepen Bayou. Absorbent booms were used to collect the fuel. As a result of the spill, the absorbent booms and 1,700 cubic yards of soil were removed and disposed of off-site in order to limit the spill impact to the environment.

Due to the history and evidence of fuel-contaminated soils at the site, further investigation was recommended by the 1987 PA for the entire POL Storage Area, not just the 1973 spill site. Site 2 was investigated as part of the 1989/1990 SI, and included geophysical surveys, drilling of boreholes, and the installation of monitoring wells. Also, groundwater and soil samples were collected and slug tests were performed. Petroleum hydrocarbons were detected in subsurface soil and groundwater samples. In order to determine the extent of soil contamination at Site 2, additional investigation was recommended.

An SC was performed for Site 2 from 1993 to 1994 in order to acquire additional information about extent of impacted soil and groundwater at the site. As part of the SC, soil borings were drilled, groundwater monitoring wells were installed, and soil and groundwater samples were collected and analyzed. Total petroleum hydrocarbons (TPH), 2-butanone, benzene, and toluene were detected in soil samples but were below the cleanup limits. TPH was detected in groundwater samples but below its cleanup limit, while benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected at all. Due to all detections in both soil and groundwater samples being below the cleanup limits, NFA was recommended for the site. However, TCEQ noted deficiencies in the work performed so additional investigation was required.

In 2003, an APA was conducted to collect additional information to further define soil and groundwater impacts at the site. After completion of the 2003 APA, an APAR was prepared based on previously collected soil and groundwater data, as well as data collected during the APA, and submitted to TCEQ in 2004. In a letter dated 13 September 2006, TCEQ concurred that Site 2 met the PST program closure requirements and that no further action was necessary and site was officially closed.

3.3.3 Site 3: Fuel System Repair Shop – Status: Closed

Site 3 is near the north end of the Base, off of Wagner Avenue, adjacent to the Fuel System Repair Shop. In November 1985, a waste fuel/oil leak, consisting of a degreasing solvent (PD-680), JP-4, and water, occurred from a 500-gallon aboveground storage tank (AST) adjacent to the Fuel System Repair Shop (Building 1287). The release was contained with booms. While it is unknown how full the AST was at the time of the leak, records indicate approximately 100 gallons were recovered. Vegetative damage and discolored soil was visible at the site as a result of the spill.

Soil sampling and analysis were conducted in November 1985 after the spill. Analysis for volatile aromatics and volatile halocarbons indicated no contamination; however, the samples were not analyzed until January 1986. There was a possibility that there may have been no volatiles remaining in the samples by the time they were analyzed. Due to the visible

environmental stress, high water table in the area, and the fact that the spill reached the drainage ditch system, further investigation was recommended by the 1987 PA.

No actions were taken after the 1987 PA until December 2005. In December 2005, a Site Assessment was conducted at Site 3 which consisted of collecting soil samples for analysis to determine the presence or absence of contamination at the site. There were no detections of contaminants during the sampling analysis. The Site Assessment Report was submitted to TCEQ for review in March 2006. The TCEQ, in a letter dated 24 July 2006, concurred with the Base that Site 3 should not be included in the TRRP since the concentrations of contaminants were not above their respective PCLs.

3.3.4 Site 4: Underground Storage Tanks near Buildings 1380 and 1255 – Status: Closed

Site 4 is located in the northwestern portion of the Base and consists of two former UST sites: one at Building 1380 (Tank 1) and one adjacent to Building 1255 (Tank 2). Each was registered with the Texas Water Commission (predecessor to the TCEQ).

Tank 1, a 2,000-gallon UST, was used to store gasoline. Historical information indicates this UST was installed in 1962. In 1982, Tank 1 was taken out of service after water was discovered inside the tank. The UST was emptied and then filled with water to prevent flotation. No investigation was performed to identify the hole in the tank that would have allowed water to infiltrate the tank.

Tank 2, an 8,500-gallon UST, was used to store diesel fuel and was located approximately 8 feet east of the foundation of Building 1255. Several underground utility lines, including gas, water, and sewer, were located adjacent to the tank location. A concrete sidewalk and concrete paved parking area were located immediately along the south end of Tank 2. Along the east side of the tank location was a 6-inch diameter sewer line that was buried approximately 2 feet below ground surface. Fuel in Tank 2 was removed before it was taken out of service in 1979.

Both tanks were excavated and removed from the ground in 1991. Based on the information provided in the 1991 tank closure report, each tank was cleaned and fluids purged prior to removal. Approximately 2,300 gallons of wastewater was removed from Tank 1 and 1,465 gallons was removed from Tank 2. The wastewater was transported off-site for disposal. An additional 9,320 gallons of wastewater was removed from the excavation pits following removal of the USTs and was also disposed of off-site.

Once removed, each tank was inspected for signs of corrosion and/or structural damage. During the assessment, only small (0.25 to 0.50-inch in diameter) corrosion pits were noted on the sides of both tanks. Each excavation was extended an additional 2 feet beyond the walls and floor of each tank pit. There were no visible signs of impacted soil in the excavated pits.

For Tank 1, all associated piping and the pump island pad were removed and disposed off-site. Soil samples were collected along the pipe trench and beneath the pump island. Piping associated with Tank 2 was abandoned in-place using a cement grout in order to prevent damage

to existing utilities and the adjacent building. Prior to the abandonment, residual fuel was drained from the distribution lines and disposed of at an off-site treatment and recycling facility.

Soil samples were collected from the excavation pit and soil stockpiled during Tank 1 and Tank 2 removals. This soil was analyzed and no soil contamination was detected. The 1991 tank closure report concluded additional excavation was not necessary based upon the analytical results and discussions with the Texas Water Commission. Based on the findings, the excavations were backfilled with clean soil brought in from off-site.

In 2005, the Texas ANG sought to remove the two USTs from their database of active sites; however, there was no letter confirming site closure had been approved by the TCEQ. In order to fulfill the closure process, the 2009 SCI was initiated and designed to fill in data gaps necessary to support site closure. This included collection of additional soil and groundwater samples.

Based upon results from the SCI, only a small number of soil samples contained detectable concentrations of chemical compounds. Only two PAH compounds (BaP and dibenz[a,h]anthracene (DBA)) were detected at concentrations above their respective TCEQ PST Program action levels for surface soil at the Tank 2 site. These detections occurred in the same sample collected from a location approximately 20 feet north of former Tank 2. The two compounds appear limited to the surface soil at this location since they were not detected in the two deeper sample intervals from the same location. Due to the distance from former Tank 2 and the chemical presence on the surface, concentrations of PAHs in surface soil at the sample location were not likely related to the UST. While the concentrations exceeded the TCEQ PST Program action levels from a 2009 guidance document, they did not exceed the applicable action levels for commercial/industrial soils which apply to the Base. There were no exceedances of the TCEQ PST Program action levels at the Tank 1 site. No chemical compounds were detected in groundwater samples collected from monitoring wells installed at the site. It was concluded that groundwater was not impacted from operation of the USTs at either tank site.

Based upon the SCI findings and previous results, no further site assessments were recommended for the site. A request for closure of Site 4 was submitted to the TCEQ and approved in April 2010.

4.0 COMMUNITY BACKGROUND

4.1 Community Profile

The City of Houston is the county seat of Harris County in southeastern Texas. As of the 2009 census estimate, the city had a population of 2.3 million, making it the fourth-largest city in the U.S. It is the economic center of the Houston–Sugar Land–Baytown metropolitan area; the sixth-largest metropolitan area in the US with a population of 5.9 million.

The City of Houston was founded on land along the Buffalo Bayou in August 1836 by two real estate entrepreneurs from New York City. In 1837, Houston was the temporary capital of the Republic of Texas. By 1860, Houston had emerged as a commercial and railroad hub for the export of cotton. The City of Houston was a port-driven economy until the 1970's when employment opportunities abounded in the petroleum industry, established as a result of the Arab Oil Embargo.

Today, Houston is recognized for its energy industry (oil and natural gas) as well as for biomedical research and aeronautics. Some of the main employers in the region are Conoco Phillips, Marathon Oil, Sysco, Halliburton, and National Oilwell Varco. The City's attractions include the Lyndon B. Johnson Space Center, the Houston Grand Opera, the Houston Verizon Wireless Theater, NRG Stadium, and Rice University.

The median household income in Houston was $42,950 in 2009 and the unemployment rate was 8.8% in January 2011 according to the U.S. Department of Labor.

4.2 History of Community Involvement

The Base has engaged in limited community outreach in the past. The majority of interviewees did not have an understanding of the operations conducted at the Base. Some members of the surrounding community have had opportunities to visit the Base, and several noted that they had participated in Air Shows, Family Day, the 90th Anniversary of the Base, welcome home and deployment ceremonies, car shows, safety fairs, and the yearly Christmas party.

4.3 Community Relations

Communication is essential to a community outreach program. Information in this section was obtained through in-person, anonymous interviews with local residents, public officials, business and organization professionals, and others.

The results presented in this Plan reflect community views on environmental issues in general and the ERP at the Base in particular. The interviews were conducted during 9-11 February 2011. A total of 22 community members were interviewed. See Appendix A for the list of interview questions and a detailed summary of the responses.

Eighteen of the 22 respondents expressed positive feelings about the Base in the community. These respondents specifically commented that the ANG is an important economic asset to the community, and the ANG brings a sense of security to the community. Four of the 22

respondents provided neutral responses; explaining that they have never thought about the presence of the Base.

Of the 22 total respondents, 16 reported that they or a member of the family have been involved in Base public participation events. Participation included events such as those noted in 4.2 above.

4.4 Key Community Concerns

None of the community respondents expressed concerns with regard to environmental, safety and/or health. Of the 22 respondents, eight were aware of the environmental cleanup efforts underway at the Base prior to the community interview.

When asked who they would turn to if they had concerns, ten respondents indicated that they would contact the Base directly with their concerns; several specifically mentioned they would contact the Base Wing Commander or the Environmental Manager with questions and concerns. Other resources that respondents would turn to included: the Administrative Office of the City of South Houston, their Congressman, the Ellington Field Airport Operations office, the City of Houston, the local police, the local fire department, the Emergency Coordinator for the City of South Houston, and Houston Police Department Officer Gerald Wimmer.

4.5 Summary of Communication Needs

Twenty-two members of the community in and around the Base were interviewed to update the Base's understanding of the community's familiarity with ERP issues. Another goal of the update is to determine what methods of communication would be most effective with the greatest variety of people. The results of the interviews are provided in a detailed summary in Appendix A of this plan.

Although none of community respondents expressed environmental, safety and/or health concerns; based on respondent feedback, an appropriate outreach measure to take would be distributing targeted newsletters or E-mails. The community also asked for public access to a website with a static source of basic information. These activities would greatly improve the awareness level of the community at large.

4.6 Non-ERP Issues

During the interview process, interviewees are intentionally asked open ended questions. This is done to help them think about a variety of issues and to bring out thoughts they have with regard to the Base, the environment, and their interest in receiving information. Because individuals have little to no familiarity with the ERP in particular, they occasionally touch on topics outside of the program. No notable non-ERP issues were identified during the interview process.

4.6.1 Military Munitions Response Program Sites

Separate from the ERP, the DERP established the MMRP to manage any environmental issues arising from unexploded ordnances and discarded munitions at military bases. The 147 ATKW is in the process of working towards closure of the MMRP sites. A January 2010 Comprehensive Site Evaluation (CSE) Phase II compiled and evaluated information about the

Base relating to the possible presence of munitions and explosives of concern (MEC) and associated contamination of environmental media from munitions of concern (MC). The six sites investigated were: the Small Arms Range, the Skeet Range, the North Munitions Dump Site, the South Munitions Dump Site, the Ordnance Storage Area, and the Small Arms and Flare Storage Magazines. Two additional sites, the Rocket Storage Facility and Munitions Storage Area, are located at Ellington Field but were not investigated as part of the 2010 CSE. The locations of the MMRP sites at the Base are provided in Figure 4.

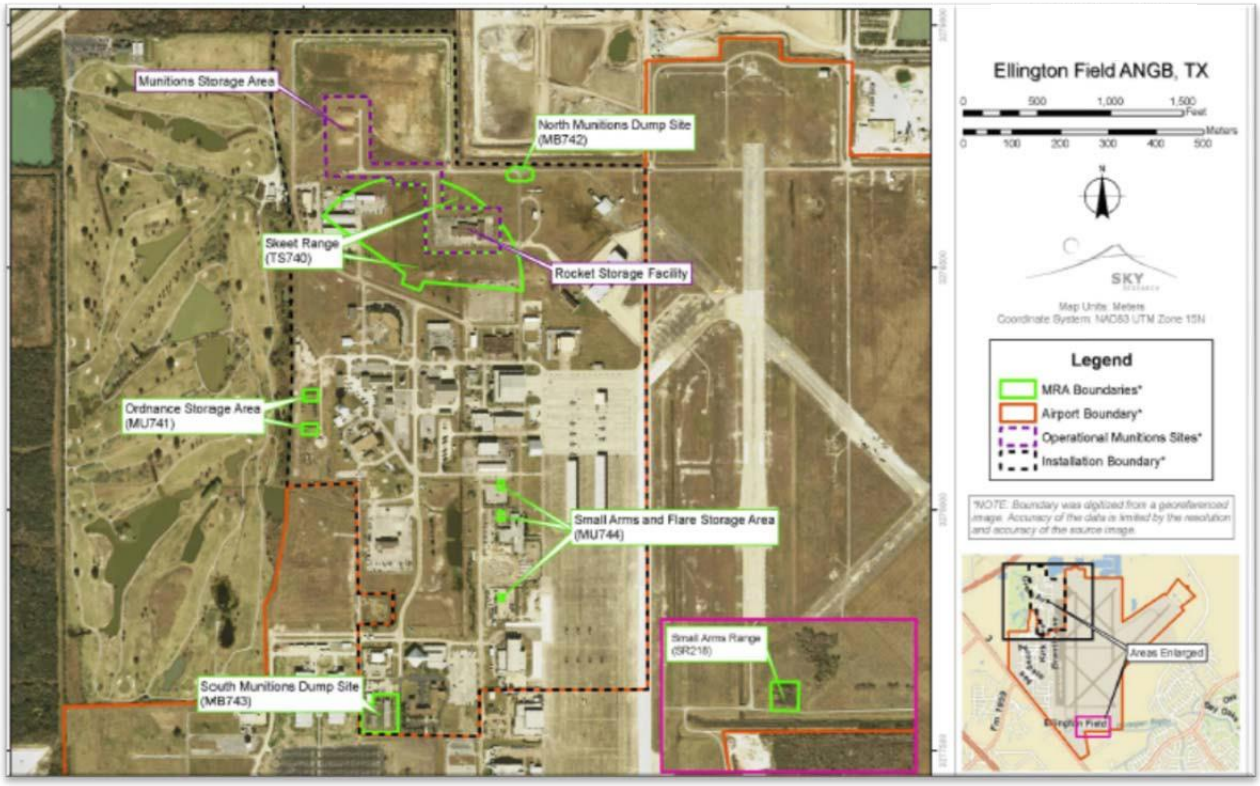


Figure 4. Location of the MMRP sites at the 147th Attack Wing within Houston, Texas
(Source: Comprehensive Site Evaluation Draft Report Phase II, January 2010)

The Small Arms Range, SR218, is located on property that was transferred to the City of Houston on July 1, 1984, making it eligible for the Formerly Used Defense Sites (FUDS) Program and therefore the USAF will not conduct further MMRP activities. The munitions response areas (MRAs) will be administratively closed out of the Air Force Records Information Management System **(**AFRIMS).

The Skeet Range, TS740, is located in the northwest corner of the Base, and consists of 15.09 acres. Aerial photographs taken in 1944 showed a range complex consisting of one skeet range with two firing positions. In subsequent drawings and photographs in 1955 it was converted to a single firing position. Based on the CSE Phase II findings at the Skeet Range, potentially complete pathways to human receptors were found for ingestion, skin contact, and inhalation for surface and subsurface soil due to the presence of lead and PAHs at concentrations exceeding human health screening values.

The North Munitions Dump Site, MB742, is located on the north end of the Base at the intersection of Blume Avenue and Patrol Road and adjacent to the northern Base boundary fence, and consists of 0.32 acres. The site is a previously unidentified burial pit of historic munitions that were discovered by Base personnel after the CSE Phase I site visit had occurred. Construction workers digging in the area recovered munitions debris that appears to be remnants of terra cotta practice bombs from the WWI era. Based on the CSE Phase II findings at the North Munitions Dump Site, MEC exposure pathways to human receptors conducting intrusive activities where access is unrestricted and to ecological receptors regardless of access restrictions are potentially complete due to the potential for MEC in the subsurface. As no MEC were observed on the surface, no analytical samples were collected and MC exposure pathways were considered incomplete.

The South Munitions Dump Site, MB743, is located in the southwest corner of Base property, and consists of 1.37 acres. Through discussions among Base personnel that revealed three terra cotta type practice bombs had been recovered in the vicinity of Building 1055 during maintenance work in 1994, the area was investigated for a possible munitions dump. Based on the CSE Phase II findings at the South Munitions Dump Site, all MEC and MC exposure pathways to all receptors were found to be incomplete.

The Ordnance Storage Area, MU741, is located in the northwest region of the Base adjacent to Williams Avenue, and consists of 0.34 acres. The original Ordnance Storage Area contained up to eight structures but now contains two earth-covered storage igloos. The two remaining structures were the only ones used for munitions storage. They remain intact and are currently being used for storage of general maintenance equipment. Based on the CSE Phase II findings at the Ordnance Storage Area, all MEC exposure pathways to all receptors were found to be incomplete. Because no constituents were detected above human health or ecological screening criteria in analytical samples collected from the site, all MC exposure pathways to all receptors were also found to be incomplete.

The Small Arms and Flare Storage Magazines, MU744, are located parallel to and west of Blume Avenue, adjacent to the mooring apron, and consists of 0.13 acres. Five flare storage magazines and ten small arms ammunition magazines were identified during the CSE Phase I. Of the fifteen magazines, only three remain on the Base. The remaining twelve are on property that was transferred to the City of Houston in 1984. Significant development has occurred since the buildings were originally used and the former magazines no longer exist. During the CSE Phase II visual surveys, no munitions related items were observed. No other suspected munitions items or hazardous waste items were noted. Based on the CSE Phase II findings at the Small Arms and Flare Storage Magazines, all MEC and MC exposure pathways to all receptors were found to be incomplete.

The North Munitions Dump Site, MB742's remediation has been completed as of December 2017 and is in administrative closure procedures.

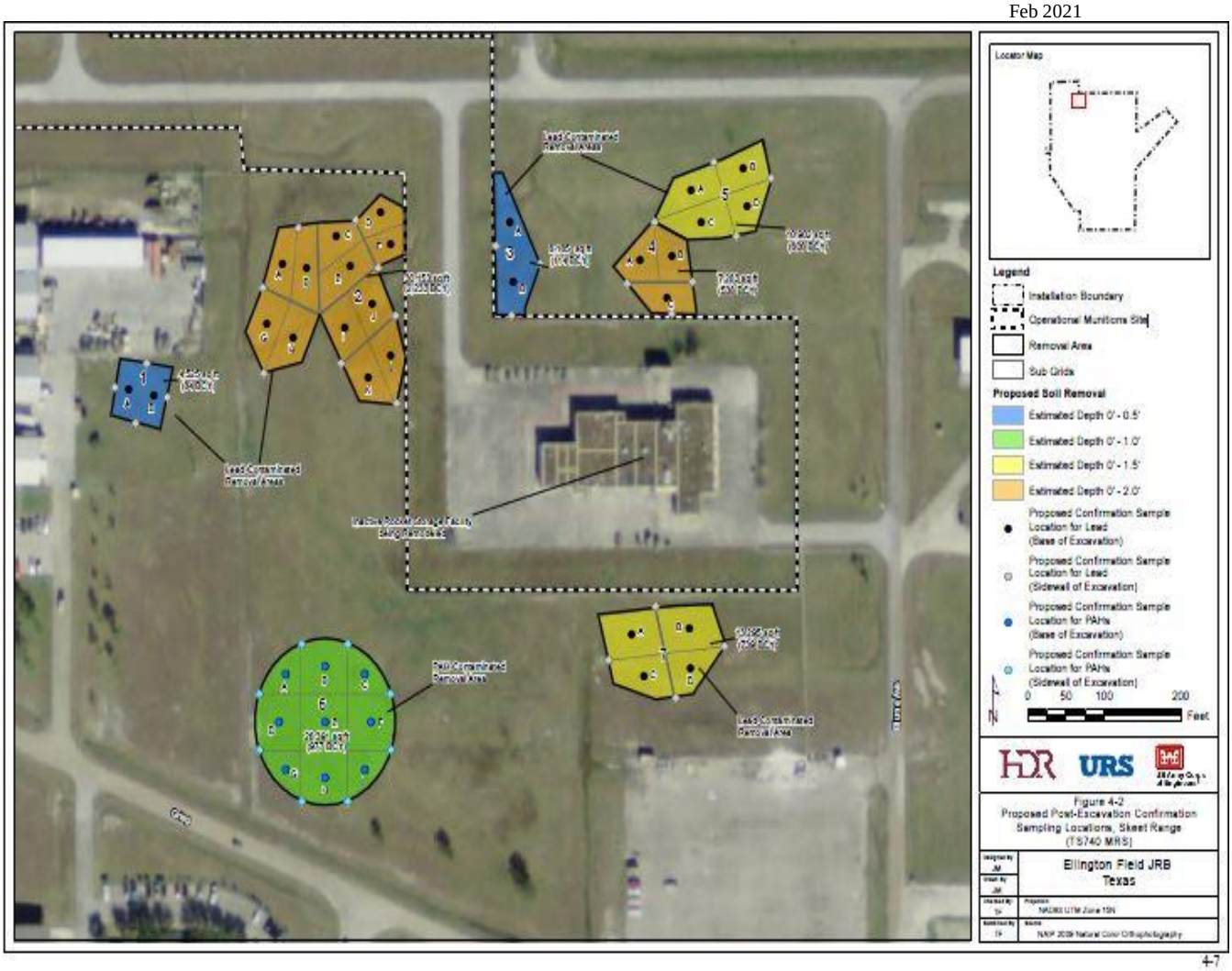
The Skeet Range, TS740's remediation begun as of this update to remove six (6) lead contaminated areas and one (1) polynuclear aromatic hydrocarbon (PAH) area in site 6. Site 1 consist of a plot be equating to 4,525 square feet (SF). Site 2 consist of a plot equating to 30,153 SF. Site 3 consist

of a plot equating to 6,165 SF. Site 4 consist of a plot equating to 7,284 SF. Site 5 consist of a plot equating to 10,902 SF. Site 6 consist of a plot equating to 26,391 SF. Finally, site 7 consist of a plot equating to 13,295 SF. Excavations for all areas are projected to not exceed 2 feet in depth. This 2014 update consist of completed work on Sites 1, 2, 3, 6, and 7. The disturbed area have been return to their original pre contaminated condition. As work began concurrently on sites 4 and 5 in the northwest corner, excavation in site 5 discovered a munitions and explosives of concern (MEC) shroud of an old terra cotta training ordnance. The RAOs were achieved by excavating and sifting soil to remove MEC and MD using an excavator, multi-screening unit, and conveyor-belt inspection line. After processing, LCS was transported and disposed off-site. Other activities included backfill of excavated areas, asphalt road replacement, site grading, and re-vegetation. A total of approximately 16,606 bank cubic yards (BCY) of soil (including LCS) was excavated and sifted to remove MEC and MD and approximately 23,191 loose cubic yards (LCY) of soil was processed through the sifting plant. One MEC item was found and disposed; 4,252 MD items were recovered, demilitarized, and disposed/transferred after certification as Material Documented as Safe (MDAS):

- One (1) War Head Rocket 2.75" MK 1 with M176 Fuze (MEC)
- 4,236 MK1 Terra cotta Bombs / Frag (MD)
- Eight (8) Terra cotta Fuzes (MD)
- Three (3) MK2 17-lb Bombs (MD)
- Two (2) 30-mm Casings (MD)
- Three (3) AN-M41A1 (M48) Fragmentation Bombs (MD)

Approximately 1,245 BCY of LCS, weighing 1,764.88 tons, was disposed. The analytical results of final confirmation samples were below the TRRP Tier 2 PCL of 358 mg/kg.

All IRA objectives were met for MB742 and TS740b and No Further Action (NFA) is recommended to TCEQ by Letter based on the current and future land use. The TCEQ approved the final site-specific removal action report and concurred that Texas Risk Reduction Program (TRRP) Remedy Standard A-Residential has been attained in MB742, TS740b Areas 4 and 5 such that no post response action care, and no further action (NFA) is required pursuant to 30 TAC §350.33. Based on our review the TCEQ approves the final version of the No Further Action Record of Decision Report and letter dated 30 Sep 19.



4.6.2 Perfluorooctane Sulfonate (PFOS) & Perfluorooctanoic Acid (PFOA) Study

In May 2016, a Preliminary Assessment (PA) was accomplished to document historical potential for soil, groundwater, sediment and surface water contamination. The PA determined that Ellington has 9 Potential Release Locations (PRL), based on the Texas Commission on Environmental Quality (TCEQ) and EPA detectable screening limits. In December 2018, a follow-up Site Inspection (SI) was conducted on-Base to determine if PFOS/PFOA contamination occurred at the 9 PRLs.

The analysis included the EPA's Third Unregulated Contaminant Monitoring Rule (UCMR3) which included the following Contaminants of Concern (CoC):

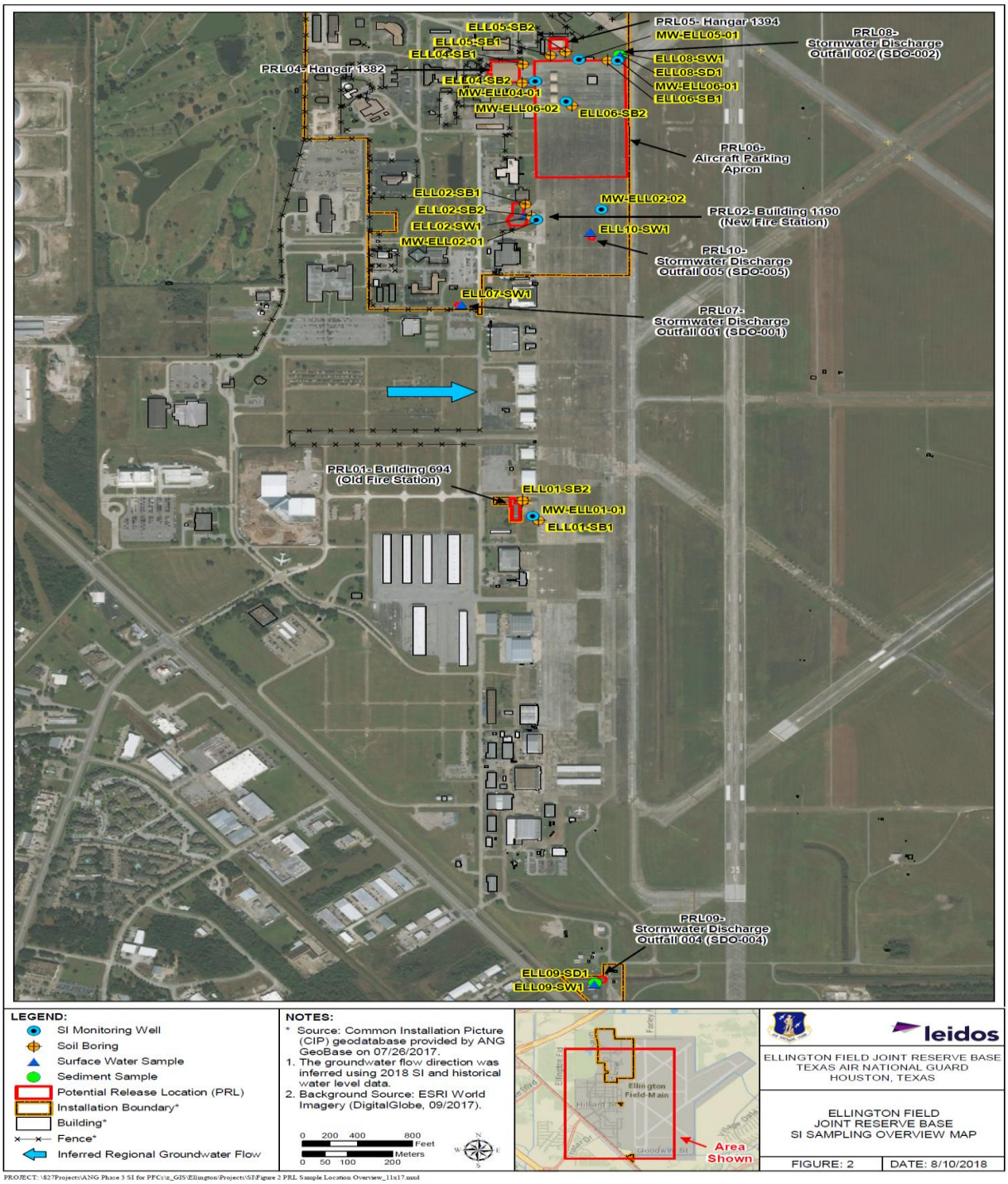
Perfluorooctane sulfonate (PFOS),
Pluorooctanoic acid (PFOA),
perfluorobutane sulfonate (PFBS),
perfluorononanoic acid (PFNA),
perfluoroheptanoic acid (PFHpA), and
perfluorohexane sulfonate (PFHxS).

Those CoC will collectively be referred to as "PFOS/PFOA", and were evaluated at each of the PRLs. PFOS/PFOA compounds were detected above the laboratory detection limits in soil, groundwater, sediment, and surface water samples collected during the SI.

The PFOS/PFOA compounds were detected in groundwater and surface water samples from four downgradient monitoring wells (MW-ELL01-01, MW-ELL02-02, MW-ELL06-01, MW-ELL06-02) and three surface water samples (ELL07-SW1, ELL08-SW1, ELL10-SW1). The screening results indicate the presence of these PFOS/PFOA compounds in concentrations that exceed the screening criteria. These wells have been included as part of the base real property records and are annually inspected.

The final recommendations to date include a to be scheduled Remedial Investigation / Feasibility Study (RI/FS) which will be conducted to further investigate all 9 PRLs to determine the nature and extent of PFOS/PFOA contamination. The RI portion has not been scheduled by ANG as of this update until funding becomes available and scheduling can be further defined.

The base locations and subsurface water flow are provided in the mapping on the next page, Figure 5.


ELL05-SB2
ELL05-SB1
ELL04-SB1
PRL04- Hangar 1382
ELL04-SB2
MW-ELL04-01
MW-ELL06-02
PRL05- Hangar 1394
MW-ELL05-01
ELL08-SW1
ELL08-SD1
MW-ELL06-01
ELL06-SB1
ELL06-SB2
PRL08- Stormwater Discharge Outfall 002 (SDO-002)
PRL06- Aircraft Parking Apron
ELL02-SB1
ELL02-SB2
ELL02-SW1
MW-ELL02-01
MW-ELL02-02
PRL02- Building 1190 (New Fire Station)
ELL10-SW1
PRL10- Stormwater Discharge Outfall 005 (SDO-005)
ELL07-SW1
PRL07- Stormwater Discharge Outfall 001 (SDO-001)
PRL01- Building 694 (Old Fire Station)
ELL01-SB2
MW-ELL01-01
ELL01-SB1
PRL09- Stormwater Discharge Outfall 004 (SDO-004)
ELL09-SD1
ELL09-SW1
LEGEND:
SI Monitoring Well
Soil Boring
Surface Water Sample
Sediment Sample
Potential Release Location (PRL)
Installation Boundary*
Building*
Fence*
Inferred Regional Groundwater Flow
NOTES:
* Source: Common Installation Picture (CIP) geodatabase provided by ANG GeoBase on 07/26/2017.
1. The groundwater flow direction was inferred using 2018 SI and historical water level data.
2. Background Source: ESRI World Imagery (DigitalGlobe, 09/2017).
0 200 400 800 Feet
0 50 100 200 Meters
Area Shown
leidos
ELLINGTON FIELD JOINT RESERVE BASE
TEXAS AIR NATIONAL GUARD
HOUSTON, TEXAS
ELLINGTON FIELD
JOINT RESERVE BASE
SI SAMPLING OVERVIEW MAP
FIGURE: 2
DATE: 8/10/2018
PROJECT: \827Projects\ANG Phase 3 SI for PFCs\z_GIS\Ellington\Projects\SI\Figure 2 PRL Sample Location Overview_11x17.mxd

5.0 COMMUNITY INVOLVEMENT OBJECTIVES AND ACTIVITIES

The ANG and the Base will coordinate as the lead agency responsible for the distribution of information regarding cleanup activities at the Base. As the lead agency, they will provide the guidance and expertise for investigation and cleanup activities and will serve as the primary spokesperson after coordinating with the TCEQ.

5.1 Objectives

The objectives of this CIP are to:

- Identify concerns that the local community may have regarding the investigation and cleanup of contamination, both on the Base and beyond its boundaries;
- Establish effective and comprehensive mechanisms for informing the community and responding to community concerns; and
- Set forth a strategy for on-going, two-way communication between the Base and the community.

The activities described below are recommended to implement a community involvement strategy that addresses the above objectives. This CIP is a dynamic document that will evolve as the project progresses.

5.2 Planned Outreach Activities

The following outreach activities are planned based on the input received during the interview process:

- Prepare and distribute fact sheets, information bulletins, and news releases as needed to keep people informed about current activities at the Base. This information could be included in targeted newsletters or e-mails to interested members of the community.
- Provide public access to webpage with a static source of current, basic information about the ERP at the Base.
- Create and foster a good working relationship with the surrounding community using local print and electronic media by issuing timely and informative news releases, responding promptly to inquiries, and providing access to project information and interview opportunities.
- Compile and maintain lists of interested individuals, groups, local media and federal, state and local officials.
- Coordinate and/or present informational materials and programs relating to the investigation and cleanup activities at events like environmental fairs, science fairs, and safety fairs, if requested.
- Maintain copies of newspaper articles.

In addition, the following outreach activities will continue to be performed by the ANG and the 147 ATKW, as required by ANG and DoD policy:

- When necessary, establish and maintain an Information Repository (IR) and Administrative Record (AR) for the Base. Documents should be available for the public to review and remain available until cleanup is completed. The IR, designed for public use, is maintained at the Parker Williams Library in Houston, Texas. The AR, a comprehensive set of documentation related to ERP site discovery, investigation, cleanup, and closure, is mostly used by officials and is maintained at the Base. The specific location and contact information for both of these collections is provided in Appendix E.
- When necessary, prepare and place notices in the local newspapers to announce public comment periods, public meetings, and other pertinent information. These advertisements should be published in "local" or "metro" section of the Houston Chronicle.

5.3 Completed Outreach Activities

The following outreach activities have been conducted at the 147 ATKW to date:

- The Base has organized community events, including Air Shows, Family Day, the 90th Anniversary of the Base, welcome home and deployment ceremonies, car shows, and safety fairs.

Appendix A
Community Interview Questions and Responses

During the week of 7 February 2011, representatives from the Texas Air National Guard (ANG) and a consultant conducted 22 community interviews in the Houston, Texas area. These interviews were conducted with residents in the vicinity of the Ellington Field ANG Base, members of the surrounding community, businesses, and City and County officials.

1. How long have you lived (or worked) in this community?

Less Than One Year	0
1-10 Years	7
11-20 Years	3
21-30 Years	4
31-40 Years	4
41-50 Years	2
Greater Than 50 Years	2

Have you or a family member ever worked at the Base?

Yes	8
No	14

2. What are your thoughts on having the Base here in the community? (or, if interviewing a base employee, your thoughts on working here?)

Eighteen respondents expressed positive feelings about the ANG. Eight respondents specifically commented that the ANG is a vital economic aspect to the community. Four respondents commented that they believe the ANG brings a sense of security to the community. Three respondents stated that the Base needs to stay in the community, while another commented that the Base is important to the community.

Four respondents provided neutral responses; explaining that they have never thought about the presence of the Base.

3. Have you, or members of your family, participated in any activities at the Guard Base?

Yes	16
No	6

Of the respondents who answered yes, nine respondents stated that they attended Air Shows and ten respondents mentioned that they attended various ceremonies/events at the Base. These ceremonies/events include Family Day, the 90th Anniversary of the Base, welcome home and deployment ceremonies, car shows, safety fairs, and the

yearly Christmas party. One respondent mentioned that she went shopping at the Base commissary, while another went to a doctor on Base decades ago.

4. Would you like additional information regarding the cleanup at the Guard Base?

Yes	9
No	13

If a mailing list were to be developed, would you like to be included on the mailing list?

Yes	12
No	10

5. How do you currently get most of your information?

Radio	6
Television	16
Newspaper	5
Online	10
Other – Email	3
Other – Family/Friend	4

Of the six respondents to receive information from a radio station, two stated their radio station of choice was National Public Radio (KUHF 88.7FM).

Seven respondents commented that they receive the majority of their information from television Channel 13 News (KTRK-TV), three watch Channel 11 News (KHOU-TV), and two view Channel 2 News (KPRC-TV) and FOX News Channel. The remaining television stations or programs mentioned were CNN, BBC America, and the local PBS (KUHT-TV) station.

Three respondents receive information from the Houston Chronicle, two read the Pasadena Citizen. USA Today, Bay Area Citizen, and Gulf Coast News were each identified by one respondent.

Of the ten respondents that get information from online sources, two respondents commented that they receive information from foxnews.com. The remaining online news sources were each identified: msn.com and online resources for the state and federal government.

Four respondents receive information from family or friends and three receive information through email.

Note: Some respondents named more than one preferred way to received general news information.

6. Who is your trusted source when it comes to environmental issues?

Three respondents referred to the ANG or Base personnel as their trusted source for environmental information, two of which specifically mentioned the Environmental Manager, Mark Garcia. Three other respondents referenced themselves or a friend. Three respondents referenced the U.S. Environmental Protection Agency (EPA) and two referenced government websites in general. Two respondents referenced televised news programming, and two mentioned the City of Houston Environmental Department. The remaining sources that were identified by respondents included the internet, the City of South Houston's Code Enforcement Officer and Environmental Health Emergency Management Coordinator, Texas Commission on Environmental Quality (TCEQ).

Four respondents were uncertain, commenting that they were unsure of whom they could trust with environmental issues, or that no accurate sources were available.

7. Prior to this conversation, were you aware that there is an environmental cleanup underway at the Base?

Yes	8
No	14

How did you become aware of this?

Six respondents previously worked or currently work at or with the Base and became aware of the environmental cleanup activities through their job interactions. Two respondents became aware of the environmental cleanup through living and working in the surrounding community but were not sure exactly when they first heard about the cleanup.

Of the 22 interviewees, 14 became aware of the contamination through this interview process. One respondent that did not know there was a cleanup effort underway prior to the interview expressed appreciation that the Base is notifying the community at this time.

8. Do you have any concerns (environmental/safety/health) related to activities at the Guard Base?

Yes	0
No	22

Who would you turn to if you had concerns?

Ten respondents indicated that they would contact the Base or Base personnel if they had a concern with the environmental cleanup. These respondents specifically

indicated the Wing Commander (3 respondents), the Base personnel (3 respondent), the Base Environmental Manager (2 respondents), and Base safety personnel (2 respondents) as points of contact. Others indicated they would contact the following: the Administrative Office of the City of South Houston, their Congressman, the Ellington Field Airport Operations office, the City of Houston, the local police, the local fire department, the Emergency Coordinator for the City of South Houston.

Of the 22 interviewees, three people stated that they did not know who they would contact with concerns.

9. Are officials at the base perceived as being responsive to public concerns?

Yes	18
No	0
Undecided	4

Of those who were undecided, the majority were unsure of the Base's responsiveness to public concern due to lack of interaction or awareness of Base operations and activities.

10. Have you participated in any public meetings (i.e., school board, city council, etc.) or are you currently involved in civic affairs?

Yes	10
No	12

If so, what groups do you participate in?

- South Houston School District Career Day
- Webster City Council
- Ellington Field Tenant Meetings
- Houston City Council
- City of Houston School Board
- Pearland City Council
- City of South Houston Meetings (various types)
- South Houston City Council
- American Legion Post 490

11. How do you prefer to get information about cleanup activities at the Base?

Of the 22 respondents, twelve respondents mentioned that they would like to receive information through E-mail. The next most preferred methods included a newsletter (7), website (5), newspaper articles (1), and from their employer (1).

Note: Some respondents named more than one preferred way to received information about cleanup activities at the Base.

How frequently would you like to receive information about the cleanup at the Guard Base?

The majority of the respondents indicated that they would like to receive information on an as needed, or event driven, basis (11) or on a quarterly basis (5). The next most preferred frequency was monthly (3), bi-weekly (1), weekly (1), and semi-annually (1).

12. If the Guard were to hold a public meeting to provide information about cleanup activities and to give people an opportunity to ask questions or communicate their concerns, would you be interested in attending this sort of meeting?

Yes	16
No	6

What would be a convenient location for a public meeting?

- ANG Base
- Various government buildings
- South Houston Community Center
- Deer Park Convention Center
- Pasadena Convention Center
- Cleveland-Ripley Neighborhood Center
- American Legion
- Local school gyms
- Fire Station 93
- Webster Civic Center
- Grace Church
- South Houston Court House
- South Houston Police Association Building

13. A Restoration Advisory Board (RAB) is a group sponsored by the Department of Defense that brings together different members of the community to hear about and comment on ongoing cleanup actions at military bases. Would you be interested in participating in a RAB?

Yes	9
No	12
Undecided	1

14. Can you suggest other community members or local groups to be interviewed?

Respondents suggested that the following individuals or groups should be interviewed:

- League of United Latin American Citizens (LULAC)
- Local Government Officials
- South Houston Police
- Local Fire Departments
- Freeman Branch Library (Clear Lake)
- South Houston Chamber of Commerce
- The Greater Houston Partnership
- City of Houston – Houston Airport System
- Houston Fire Department Headquarters
- Houston Police Department – Clear Lake Substation
- The Leader (newspaper)
- Association of Clear Lake Communities

15. Is there anything else you would like to add?

Several respondents commented that they would like more community involvement from the Base. A few others stated the Base was good for the community and that it would be nice if the Base grew in personnel.

Several respondents expressed appreciation to the Base for going out into the community and informing the public regarding completed and ongoing cleanup activities at the Base. Of these residents, several were interested in learning more about past cleanup activities that were performed at the Base.

Appendix B
Key Contacts

Federal and State Government Agencies

Texas Air National Guard
Base Environmental Manager
Mr. Mark Garcia
147th Civil Engineer Squadron
14657 Sneider Street
Ellington Field JRB
Houston, Texas 77034
(281) 929-2013
mark.garcia.16@us.af.mil

Public Affairs Officer
SMSgt Sean Cowher
147th Attack Wing
14657 Sneider Street
Ellington Field JRB
Houston, Texas 77034
(281) 929-2662
Sean.cowher.1@us.af.mil

Texas Commission on Environmental Quality

Timothy Brown, P.G.
Project Manager
Corrective Action Team 2, Voluntary Cleanup Program - Corrective Action Section
TCEQ Remediation Division
MC 127
P.O. Box 13087
Austin, Texas 78711-3087
(512) 239-2034
timothy.brown@tceq.state.tx.gov

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Appendix C
Federal, State, and Local Elected Officials

Members of Congress and Other Elected Officials

U.S. Senator John Cornyn
Washington DC Office
517 Hart Senate Office Bldg.
Washington, DC 20510
Phone: (202) 224-2934
Fax: (202) 228-2856

Houston Office
5300 Memorial Drive
Suite 980
Houston, TX 77007
Phone: (713) 572-3337
Fax: (713) 572-3777

U.S. Senator Ted Cruz
Washington DC Office
185 Dirksen Senate Office Building
Washington, DC 20510-4304
Phone: (202) 224-5922

Houston Office
808 Travis Street
Suite 1420
Houston, Texas 77002
Phone: (713) 718-3057

U.S. Representative Pete Olson
Washington DC Office
United States House of Representatives
514 Cannon HOB
Washington, D.C. 20515
Phone: (202) 225-5951
Fax: (202) 225-5241

Sugar Land Office
1650 Highway 6, Suite 150
Sugar Land, TX 77478
Phone: (281) 494-2690
Fax: (281) 494-2649

Governor Greg Abbot
Office of the Governor
P.O. Box 12428
Austin, Texas 78711
Phone: (512) 463-2000
Fax: (512) 463-1849

Mayor Sylvester Turner
City of Houston
P.O. Box 1562 Houston, TX 77251
Phone: (832) 393-0977

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Appendix D
Media Contacts

Local Print and Electronic News Media

Newspapers

Houston Chronicle (713) 362-7171
P.O. Box 4260
Houston, TX 77210-4260

The Pasadena Citizen (713) 477-0221
102 South Shaver Street
Pasadena, TX 77506

The Bay Area Citizen (281) 674-1406
100 E Nasa Rd 1
Webster, TX 77598

Television Networks

Channel 2 News (KPRC-TV) (713) 222-2222
8181 Southwest Freeway
Houston, TX 77074

Channel 11 News (KHOU-TV) (713) 526-1111
1945 Allen Parkway
Houston, TX 77019

Channel 13 News (KTRK-TV) (713) 666-0713
3310 Bissonnet,
Houston TX 77005

PBS (KUHT-TV) (713) 748-8888
4343 Elgin
Houston, Texas 77204-0008

Radio Stations

National Public Radio – KUHF 88.7FM (713) 743-0887
Melcher Center for Public Broadcasting
University of Houston
4343 Elgin, Third Floor
Houston, Texas 77204-0887

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Appendix E
Meeting and Repository Locations

Administrative Record:
Base Environmental Manager
Mr. Mark Garcia
147th Civil Engineer Squadron
Ellington Field JRB
14657 Sneider Street
Houston, Texas 77034
Phone: (281) 929-2013

Information Repository:
Parker Williams Library
10851 Scarsdale Boulevard, Suite #510
Houston, Texas 77089
Phone: (281) 484-2036

Public Website:
147th Attack Wing
http://www.147ATKW.ang.af.mil

Public Meeting Location:
Possible meeting locations include:

- South Houston Community Center
- Deer Park Convention Center
- Pasadena Convention Center
- American Legion
- Webster Civic Center

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Appendix F
Glossary

Glossary of Terms

Administrative Record (AR) – A file which contains all information (correspondence and documents) used by the lead agency to make its decision on the selection of a response action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or the ERP.

Alternative – A combination of technical and administrative methods developed and evaluated in a Feasibility Study, which can be used to address contamination at a site.

Cleanup – Actions taken to deal with a release or threatened release of chemicals that could affect public health or the environment. The term is often used broadly to describe various response actions or phases of removal or remedial responses.

Comment Period – A time period for the public to review and comment on various documents and proposed actions. At certain points in the cleanup process, a 30-day comment period is provided for the community so that they may review and comment on a proposed plan of action.

Community Involvement Plan (CIP) – Formal plan for community involvement activities at a site undergoing investigation and cleanup at an ERP site. The CIP is designed to ensure opportunities for public involvement at the site, determine activities that will provide for such involvement, and allow citizens the opportunity to learn about the site.

Decision Document (DD) – A formal published record of a significant decision made by the Air National Guard regarding a site being studied under the ERP. A DD, typically, is prepared when no further action is required at a specific site or when a method of remediation has been selected.

Engineering Evaluation/Cost Analysis (EE/CA) – Describes the application of engineering and economic criteria to select the technology approach that most cost-effectively meets remedial objectives.

Environmental Restoration Program (ERP) – An initiative to inspect Air National Guard installations, nationwide, to determine if, as a result of past practices, accidents or incidents; any chemicals have caused environmental contamination. The terms ERP and Installation Restoration Program (IRP) are sometimes used interchangeably. Any such contamination would have occurred many years ago when limited knowledge existed of the potential environmental consequences associated with the routine use and disposal or accidental spills of waste oils, cleaning solvents, fuels and other substances now known to be potentially harmful. If a site is discovered where contamination posing a threat to human health or the environment is present, steps are taken to contain, control or clean up that site.

Feasibility Study (FS) – An in-depth study conducted using data gathered under the RI. This study establishes cleanup objectives for a response action and from that a number of alternatives for the response are presented. The alternatives are developed based upon factors such as public health, environmental impacts, practicality of implementation, and cost.

Focused Feasibility Study (FFS) – When an immediate corrective action is necessary at a contaminated site, to protect public health or the environment, a FFS is promptly initiated to determine the appropriate rapid response measure to be implemented.

Groundwater – Water found beneath the ground's surface, it permeates subsurface soil, sand and other porous substances.

Hydrogeology – The science of examining and characterizing the way groundwater moves and behaves.

Information Repository (IR) – A place where current information related to the ERP is available for public review. To facilitate public access to this information, a public library located near the Base usually serves as the location for an IR. The IR includes portions of the Administrative Record file.

Monitoring Well – A specific type of well that is drilled on or near a suspected contaminated site. These monitoring wells allow scientists to extract groundwater, from specific depths, for analyses to determine if the water is contaminated, the type of chemical involved, if any, and the level of the contamination. These wells also assist in determining the flow direction of groundwater and the speed of the flow, thus indicating the rate any contamination in the water might be spreading or migrating to other areas. These wells also assist in determining the actual physical area of a contaminated site. During cleanup of a site, groundwater extracted from these wells is analyzed to determine the rate at which the level of contamination is diminishing – an indication of how well the selected cleanup alternative is working and how long it will take for the process to return the groundwater to an acceptable state.

Preliminary Assessment (PA) – The first phase of the ERP, primarily consisting of interviews of past and present installation employees and a review of historical and operational records in an effort to determine if there is any reason to believe environmental contamination exists on the installation. If, as a result of this assessment, it is determined that further study is needed, a SI is conducted.

Record of Decision (ROD) – A formal published record of a significant decision made by the Air National Guard regarding a site being studied under the ERP. A ROD, typically, is prepared when cleanup action is required at a specific site.

Remedial Action (RA) – The actual implementation of a chosen action in order to contain, control, minimize, reduce or clean up contamination at a given site.

Remedial Design (RD) – The technical specifications and engineering design for the RA.

Remedial Investigation/Feasibility Study (RI/FS) – An overlapping interactive investigation and analytical study conducted for a contaminated site to determine the type(s) and the extent of the contamination present, and to establish criteria for site cleanup. It is in this phase that cleanup alternatives are identified and evaluated.

Site Inspection (SI) – The second phase of the ERP, this phase is entered if it is determined in a PA that there may be contamination at a particular site. In this phase actual on-scene inspection and analyses are used to determine if contamination does or does not exist.

Solvent – A liquid substance that is capable of dissolving or dispersing one or more other substances.

Surface Water – Water found above ground, as opposed to groundwater, which is water found below the surface of the Earth. Surface water includes rivers, lakes, creeks, streams and puddles.

U.S. Environmental Protection Agency (EPA) – Is the primary federal agency responsible for implementing federal environmental laws and regulations and monitoring compliance with those laws and regulations.

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NGB/A4VR Restoration
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Contract No. W9133L-05-D-0009
Delivery Order No. 0078