FINAL

ENVIRONMENTAL ASSESSMENT
OF
MILITARY SERVICE STATION PRIVATIZATION

AT FIVE AETC INSTALLATIONS

Prepared by

Air Force Civil Engineer Center

for

Headquarters, Air Education and Training Command

October 2013

FINDING OF NO SIGNIFICANT IMPACT

MILITARY SERVICE STATION PRIVATIZATION AT FIVE INSTALLATIONS

Pursuant to provisions of the National Environmental Policy Act (NEPA), 42 United States Code (USC) 4321 to 4270d, implementing Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (CFR) 1500-1508, and 32 CFR Part 989, Environmental Impact Analysis Process, the U.S. Air Force (Air Force) assessed the potential environmental consequences associated with replacement of military service stations at five installations Altus Air Force Base (AFB), OK; Laughlin AFB, TX; Tyndall AFB, FL and Joint Base San Antonio (Camp Bullis and Fort Sam Houston), TX.

BACKGROUND

Executive Order (EO) 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," requires federal agencies reduce their consumption of petroleum products and increase their use of non-petroleum-based fuels in vehicle fleets (Sec. 2[g]). The Air Education and Training Command (AETC) requested the Defense Logistics Agency (DLA) conduct an evaluation to determine if the MSS facilities at AETC's installations could be more fuel-efficient and economical to maintain and operate. The existing fuel stations at all five installations are in need of major repairs and require upgrading to meet current requirements. In addition, existing facilities are costly to maintain and operate. DLA determined that each of the five MSS facilities covered by this EA would benefit from major repairs or replacement. DLA then conducted an economic analysis for each of the installations to determine if it would be more cost efficient to repair or replace the existing MSS. The results indicated that replacement would be the most efficient and least costly option at all five installations.

This environmental assessment (EA) evaluates the potential environmental impacts of activities associated with replacement of military service stations (MSS) at five installations. The activities associated with the proposed action include construction and operation of a new MSS each installation by a contracted service provider. When replacement is operational the existing MSS at each installation will be demolished.

PROPOSED ACTION AND ALTERNATIVES

The purpose of the proposed action is to provide a retail fuels facility or MSS at each of the five installations to meet assigned vehicle fueling requirements and comply with all applicable federal, state, and local laws and regulations. The proposed action to upgrade by repair or replacement each substandard MSS facility without interrupting mission-readiness is needed to ensure facilities meet EO 13423, promoting the use of non-petroleum-based fuels.

SUMMARY OF FINDINGS

The attached EA, as incorporated by reference into this finding analyzes the potential environmental consequences of activities associated with the replacement of MSS at five installations.

The resources analyzed in detail are geological, water, biological, and cultural resources; hazardous materials and wastes; air quality; noise; transportation; and utilities. Minor, temporary impacts were identified for construction and demolition activities. Operational impacts would be negligible. No construction or demolition activities are proposed within the 100 year floodplain or wetlands. At all installations, best management practices for runoff and sediment control would be used to avoid impacts to water resources. At Altus, Laughlin, and Tyndall AFBs, disturbance of contaminated soil and groundwater would be avoided. No cultural resource impacts or impacts to historic properties (i.e., those listed or eligible for listing in the National Register of Historic Places) are anticipated. No threatened or endangered species or their designated critical habitat would be affected. All areas in which construction, operation, or demolition would occur are in attainment status per the applicable provisions of the Clean Air Act. All new construction, operation, and demolition activities will take place within the boundaries of existing military installations with negligible impacts to surrounding communities anticipated.

PREFERRED ALTERNATIVE

For the five sites (Altus, Laughlin, Tyndall and JBSA (Ft Sam Houston and Camp Bullis), the preferred alternative is implementation of the proposed action at each location.

Finding of No Significant Impact

Based on my review of the facts and analysis contained in this EA, which are incorporated herein, I conclude the implementation of the Proposed Action (Preferred Alternative) at Altus AFB, Laughlin AFB, Tyndall AFB and JBSA (Ft Sam Houston and Camp Bullis) would not have significant impacts on the environment, when considered cumulatively with other proposed actions at those sites.

Accordingly, an Environmental Impact Statement would not be required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process, and an Environmental Impact Statement will not be prepared.

22 October 2013

DAVID A. MARTINSON, Colonel, USAF
Deputy Director of Logistics, Installations & Mission Support
The AETC Civil Engineer

Date

Cover Sheet

ENVIRONMENTAL ASSESSMENT – PROPOSED MILITARY SERVICE STATION PRIVATIZATION AT FIVE INSTALLATIONS

Lead Agency: Department of the Air Force, Air Education and Training Command

Proposed Action: Privatization of Military Service Stations At Five Installations: Altus Air Force Base (AFB), Oklahoma (OK); Camp Bullis, Fort Sam Houston, and Laughlin AFB, Texas (TX); and Tyndall AFB, Florida (FL).

Written comments and inquiries regarding this document should be directed to: Ms. Kimberly Fornof, HQ AETC/A7NR, 266 F Street West, Randolph AFB, TX 78150, or by email to AETC.NEPA.INBOX@us.af.mil

Report Designation: Environmental Assessment

Abstract: This environmental assessment (EA) evaluates the potential environmental impacts of activities associated with privatization of military service stations (MSS) at five installations: Altus AFB, Oklahoma (OK); Camp Bullis, Texas (TX); Fort Sam Houston (FSH), TX; Laughlin AFB, TX; and Tyndall AFB, Florida (FL). The activities associated with the proposed action include construction and operation of a new MSS by the contracted service provider at each installation, and demolition of the existing MSS after the new MSS is operational. The need for the proposed action is to upgrade by repair or replacement the substandard MSS facilities existing at each of the installations without interrupting mission-readiness and to provide the facilities to meet the mandate from Executive Order (EO) 13423 to use more non-petroleum-based fuels.

The resources analyzed in this EA are geological, water, biological, and cultural resources; hazardous materials and wastes; air quality; noise; transportation; and utilities. Minor, temporary impacts were identified for construction and demolition activities. Most of the operational impacts would be negligible.

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LIST OF ACRONYMS AND ABBREVIATIONS

µg/L	microgram(s) per liter
µg/m^3	microgram(s) per cubic meter of air
AAFES	Army and Air Force Exchange Service
AAQS	Ambient Air Quality Standards
ACM	asbestos-containing material
AETC	Air Education and Training Command
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AGE	Aircraft Ground Equipment
AICUZ	Air Installation Compatible Use Zone
AIRFA	American Indian Religious Freedom Act
AOC	Area of Concern
APE	area of potential effects
API	American Petroleum Institute
AQCR	Air Quality Control Region
AQMD	Air Quality Management District
ARPA	Archaeological Resources Protection Act
AST	aboveground storage tank
ATG	automatic tank gauging
AWTP	Advanced Wastewater Treatment Plant
B20	biodiesel
BDI	biodiesel blend
BGEPA	Bald and Golden Eagle Protection Act
bgs	below ground surface
BMP	best management practice
BN	Battalion
BRAC	Base Realignment and Closure
C	Candidate Species
CAA	Clean Air Act
CALS	Combat Assault Landing Strip
ce	consideration encouraged
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH	critical habitat
CH_4	methane
CMS	Corrective Measures Study
CO	carbon monoxide
CO_2	carbon dioxide
COC	contaminant of concern
COCO	contractor-owned, contractor-operated
CPS	City Public Services
CWA	Clean Water Act

LIST OF ACRONYMS AND ABBREVIATIONS
(*continued*)

dBA	A-weighted decibel(s)
DDT	dichlorodiphenyltrichloroethane
DESC	Defense Energy Support Center
DLA	Defense Logistics Agency
DM	delisted with monitoring
DNL	day-night average sound level
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
E	endangered
E85	85 percent ethanol fuel
EA	environmental assessment
EAC	Early Action Compact
EIAP	Environmental Impact Analysis Process
EISA	Energy Independence and Security Act
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FDACS	Florida Department of Agriculture and Consumer Services
FEIS	final environmental impact statement
FEMA	Federal Emergency Management Agency
FFWCC	Florida Fish and Wildlife Conservation Commission
FL	Florida
FMD	Fuels Management Defense
FNAI	Florida Natural Areas Inventory
FONPA	Finding of No Practicable Alternative
FSH	Fort Sam Houston
FUB	Facility Utilization Board
FWCA	Fish and Wildlife Coordination Act
gal	gallon(s)
GCEC	Gulf Coast Electric Cooperative
GHG	greenhouse gases
GWMU	Groundwater Management Unit
GSA	General Services Administration
GUR	gasoline unleaded regular
Hab	habitat on base
HAP	hazardous air pollutant
HQ	Headquarters
HSWA	Hazardous and Solid Waste Amendments
IA	Investigation Analysis
ICRMP	Integrated Cultural Resources Management Plan
IICEP	Interagency/Intergovernmental Coordination for Environmental Planning

LIST OF ACRONYMS AND ABBREVIATIONS
(*continued*)

INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
JP8	jet fuel
K	known to occur
lb	pound(s)
LBP	lead-based paint
lf	linear foot (feet)
LQG	large-quantity generator
MBTA	Migratory Bird Treaty Act
MILCON	military construction
mg/m^3	milligrams per cubic meter of air
MGD	million gallon(s) per day
MI	Military Intelligence
MSAI	Metropolitan San Antonio Intrastate
MSS	Military Service Station(s)
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFA	No Further Action
NFPA	National Fire Protection Association
NFRAP	No Further Response Action Planned
NHPA	National Historic Preservation Act
NLR	noise level reduction
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
Obs	observed on base
OK	Oklahoma
OWS	oil/water separator
P	potential to occur
PCB	polychlorinated biphenyl
PCE	perchloroethylene
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
POL	petroleum, oils, and lubricants
ppb	part(s) per billion by volume
ppm	part(s) per million by volume
PSD	Prevention of Significant Deterioration
PT	proposed threatened

LIST OF ACRONYMS AND ABBREVIATIONS
(*continued*)

RAL	Residential Assessment Level
RAP	Response Action Plan
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act Facility Investigation
ROG	reactive organic gas
ROI	Region of Influence
SAWS	San Antonio Water System
SDWA	Safe Drinking Water Act
SEAC	Southeastern Archaeological Conference
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOC	species of concern
SP	service provider
SPCC	Spill Prevention, Control, and Countermeasures
SQG	small-quantity generator
SRM	Sustainment, Restoration, and Modernization
SSA	sole source aquifer
SVOC	semi-volatile organic compound
SWMU	Solid Waste Management Unit
SWPPP	Stormwater Pollution Prevention Plan
T	threatened/ton(s)
T&E	threatened and endangered
TBEG	Texas Bureau of Economic Geology
TCE	trichloroethylene
TCEQ	Texas Commission on Environmental Quality
TDWR	Texas Department of Water Resources
TMDL	total maximum daily load
TPH	total petroleum hydrocarbons
TPWD	Texas Parks and Wildlife Department
TPY	ton(s) per year
TSA	threatened by similarity of appearance
TSCA	Toxic Substances Control Act
TX	Texas
TXU	Texas low-emission diesel
U	unlikely to occur
U.S.C.	United States Code
UFC	Uniform Fire Code
ULSD	ultralow sulfur diesel
Un	unknown information
US	United States
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USEPA	United States Environmental Protection Agency

LIST OF ACRONYMS AND ABBREVIATIONS
(*continued*)

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UXO	unexploded ordnance
VOC	volatile organic compound
WWTP	wastewater treatment plant
yr	year(s)
ZaC	Zapata-Vinegarroon

1 INTRODUCTION

This environmental assessment (EA) evaluates the potential environmental impacts of activities associated with privatization of military service stations (MSS) at five installations: Altus Air Force Base (AFB), Oklahoma (OK); Camp Bullis, Texas (TX); Fort Sam Houston (FSH), TX; Laughlin AFB, TX; and Tyndall AFB, Florida (FL). The activities associated with the proposed action include construction and operation of a new MSS by the contracted service provider (SP) at each installation, and demolition of the existing MSS after the new MSS is operational. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended (Title 42 United States [US] Code [U.S.C.] 4321, et seq.), the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA at Title 40 of the Code of Federal Regulations (CFR) Sections 1500-1508 (40 CFR 1500-1508) and the Air Force regulations for implementing the Air Force Environmental Impact Assessment Process (EIAP) at 32 CFR Part 989. This EA was completed through the Air Force Civil Engineer Center (AFCEC) NEPA Center in coordination with the Headquarters (HQ) Air Education and Training Command (AETC).

Executive Order (EO) 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," requires federal agencies to reduce their consumption of petroleum products and increase their use of non-petroleum-based fuels in their vehicle fleets (Sec. 2[g]). AETC requested that Defense Logistics Agency (DLA) conduct an evaluation to determine if any of the MSS facilities at AETC's installations [1]could be more fuel-efficient and economical. DLA determined that the five installations covered by this EA would benefit by either making major repairs or replacing the MSS. DLA then conducted an economic analysis for each of the installations to determine if it would be more cost efficient to privatize, replace, or repair the existing MSS. The results indicated that privatization would be the least costly option at all five installations. Both the existing MSS and the site proposed for the new MSS are shown in **Figures 1-1** to **1-5.**

1.1 PURPOSE AND NEED

1.1.1 General

The purpose of the proposed action is to provide a retail fuels facility or MSS at each of the five installations that would meet assigned vehicle fueling requirements and comply with all applicable federal, state, and local laws and regulations; Department of Defense (DOD) and Air Force guidelines and instructions; the National Fire Protection Association (NFPA) Uniform Fire Code (UFC); and American Petroleum Institute (API) standards. The MSS are vital components of mission-readiness at each of the installations. Without adequate fueling facilities, the training mission at each installation would be compromised.

The need for the proposed action is to upgrade by repair or replacement the substandard MSS facilities existing at each of the installations without interrupting mission-readiness and to provide the facilities to meet the mandate from EO 13423 to use more non-petroleum-based fuels. These needs are discussed below.

[1] When the DLA evaluations began, Tyndall AFB was an AETC installation. In October 2012, it became an Air Combat Command installation.



Figure 1-1. Altus Air Force Base Military Service Station Proposed Site.



Figure 1-2. Camp Bullis Military Service Station Proposed Site.



Figure 1-3. Fort Sam Houston Military Service Station Proposed Site.

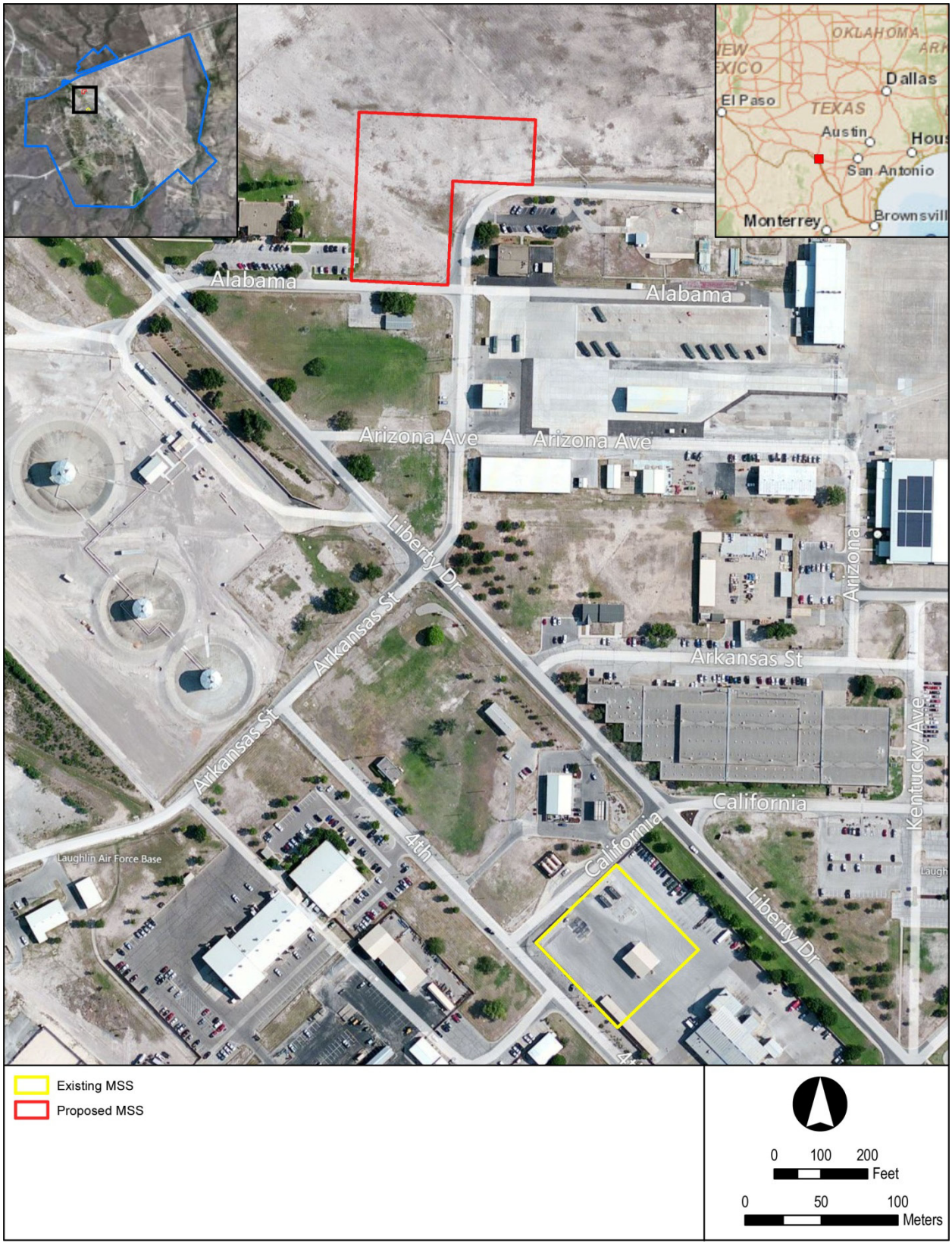


Figure 1-4. Laughlin Air Force Base Military Service Station Proposed Site.



Figure 1-5. Tyndall Air Force Base Military Service Station Proposed Site.

The existing fuel stations at all five installations are in need of major repairs and are costly to maintain and operate. None of the five meet the current requirements for fueling facilities. **Table 1-1** presents features of each of the bases' existing MSS. Specific details of the deficiencies at each facility are discussed below. All of these deficiencies support the need for the proposed action.

1.1.2 Altus Air Force Base

At Altus AFB, the MSS is located in the motor pool area and is in violation of NFPA codes due to its close proximity to occupied structures. As the mission of Altus has changed over time, the vehicles that need fueling have increased in size. The current configuration of the MSS makes fueling these larger vehicles difficult. Although the existing aboveground storage tanks are double-walled, they do not have high level fill alarm protection nor are they located within secondary containment structures as required under the Oil Pollution Act of 1990 regulations (40 CFR 112.7c). With only two single dispensing pumps, there is insufficient capacity to provide alternative fuels.

1.1.3 Camp Bullis

The Camp Bullis MSS consists of two 10,000-gallon underground storage tanks (USTs), although the Air Force Facility Requirements Handbook expresses a preference for aboveground tanks (ASTs; US Air Force [USAF] 1996). The MSS at Camp Bullis also does not have adequate secondary containment around the offloading or fuel dispensing areas. There are no bulk fillstands for filling bulk ground product vehicles. The Camp Bullis MSS does not have the capacity to dispense biofuels.

1.1.4 Fort Sam Houston

As at Camp Bullis, the FSH MSS consists of USTs instead of the preferred ASTs and lacks both secondary containment and bulk fillstands.

1.1.5 Laughlin Air Force Base

The Laughlin AFB MSS is deficient because it does not contain secondary containment features at the fillstands to prevent fuel from being released to the environment in the event of a spill.

1.1.6 Tyndall Air Force Base

At Tyndall AFB, the existing MSS consists of two 2000-gallon aboveground convault storage tanks that are replenished using base-assigned bulk ground product (C-300) vehicles. There are no tank-truck off-loading points. The use of C-300 ground product vehicles requires additional manpower and assets that are not normally needed for retail point operations. The configuration of the dispensing island is also inefficient by hindering more than one vehicle refueling at a time. As with the MSS at the other installations, the MSS at Tyndall AFB does not have any secondary containment to prevent fuel spills from releasing to the environment.

Table 1-1. Properties of Existing Military Service Station Facilities.

Installation	Number of Tanks	Size (gal)	Contents	UST or AST	Tank Secondary Containment	Offloading Points	Pumps	Filling	ATG System
Altus Air Force Base	2	12,000 12,000	GUR BDI	AST	Double-walled, no overflow alarm or containment	2 points, no secondary containment	2 single	No bulk fillstands	Yes
Camp Bullis	2	10,000	GUR JP8	UST	None	2 points, no secondary containment	3 single	No bulk fillstands	Yes
Ft Sam Houston	4	10,000	GUR (2) JP8 Diesel/ULSD/ TXU	UST	None	3 points, no secondary containment	6 dual	No bulk fillstands	Yes
Laughlin Air Force Base	2	10,000	GUR BDI	AST	Double-walled, no secondary containment	2 points, with secondary containment	2 dual	2 bulk fillstands, no secondary containment	Yes
Tyndall Air Force Base	2	2000	GUR BDI	AST	Concrete vault, no secondary containment	No tank truck offloading, filled by C-300 vehicles, no secondary containment	2 single	No bulk fillstands	No

Contents: BDI=biodiesel blend; GUR=gasoline unleaded regular; JP8=jet fuel; ULSD=ultralow sulfur diesel; TXU=Texas low emission diesel
UST=underground storage tank; AST=aboveground storage tank; ATG=automatic tank gauging; gal=gallon(s)

1.2 REGULATORY COMPLIANCE

NEPA requires federal agencies to consider environmental consequences in their decision-making process. CEQ regulations mandate that all federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that might affect the environment. The Air Force EIAP is accomplished through adherence to CEQ regulations and 32 CFR 989. These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

In addition, the CEQ regulations require agencies to coordinate to the fullest extent possible with the related surveys and studies required by the Fish and Wildlife Coordination Act (FWCA; 16 U.S.C. 661 *et seq.*), the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470 *et seq.*), the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 *et seq.*), and other environmental review laws and executive orders (40 CFR 1502.25). Air Force regulations (32 CFR 989.30) require EIAP documents to address applicable conformity requirements and the status of compliance under Section 176(c) of the Clean Air Act (CAA) Amendments of 1990, 42 U.S.C. 7506(c).

1.3 INTERAGENCY/INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING (IICEP)

The Air Force sent letters to resource management agencies and Native American Tribes with interests in the region seeking their input on potential issues and concerns associated with the proposed action (**Table 1-2**). These letters were not intended to initiate consultation under Section 7 of the ESA or Section 106 of the NHPA; if needed, separate letters would be sent to initiate formal or informal consultation. The letters and any responses received are presented in **Appendix A**. Information resulting from these letters is presented in the Biological and Cultural Resources subsections.

To facilitate public involvement in this project, the Air Force prepared and issued a Notice of Availability for the draft version of this EA (**Appendix B**). Copies of the Draft EA were placed in public libraries in Altus, OK, San Antonio and Del Rio, TX, and Panama City, FL, for public review. In addition, a copy of the Draft was posted online at [URL to be named later]. A Notice of Availability was published in the Altus *Times*, the San Antonio *Express-News*, the Del Rio *News Herald*, and the Panama City *News Herald* on 6 August 2013. The notices served to invite public comments during a 60-day public review period that will end 4 October 2013.

1.4 SCOPE OF THE ENVIRONMENTAL REVIEW

This EA identifies, describes, and evaluates the potential environmental impacts that are associated with MSS privatization such as the construction and operation of new MSS facilities and the demolition of existing MSS facilities. The potential environmental effects of taking no action are also described.

Resources that have a potential for impact were considered in detail in order to provide the Air Force decision makers with sufficient evidence and analysis to determine whether or not

additional analysis is required pursuant to 40 CFR Part 1508.9. The resources analyzed in this EA are geological, water, biological, and cultural resources; hazardous materials and wastes; air quality; noise; transportation; and utilities. Human health and safety is generally covered in the hazardous materials and wastes section. Because the MSS is not a large construction project and is not used by the general public, no socioeconomic impacts are projected; therefore, they were not evaluated in detail. All proposed MSS locations are in industrial areas of the installations; therefore, there was no need to evaluate land use and environmental justice concerns in detail. The affected environment and the potential environmental consequences relative to the resources that are evaluated in detail are described in **Chapters 3** and **4**, respectively.

1.5 ORGANIZATION OF THE ENVIRONMENTAL ASSESSMENT

The EA is organized into eight chapters. **Chapter 1** provides the purpose of and need for the proposed action. **Chapter 2** contains a description of the proposed action and alternatives. **Chapter 3** contains a general description of the biophysical resources and baseline conditions that could potentially be affected by the proposed action or alternatives. **Chapter 4** presents an analysis of the potential environmental consequences of implementing the proposed action or alternatives. **Chapter 5** includes an analysis of the potential cumulative impacts at each of the installations. **Chapter 6** identifies the agency personnel contacted for the preparation of this EA. **Chapter 7** lists the preparers of the document. **Chapter 8** lists the references used in the preparation of the document. **Appendix A** contains a copy of the letter and distribution list sent to satisfy the Interagency/Intergovernmental Coordination for Environmental Planning (IICEP) process. **Appendix B** contains the Notice of Availability. **Appendix C** presents a list of the Applicable Directives that the SP would need to follow during construction, demolition, or operation of the MSS. **Appendix D** contains the Florida Coastal Zone Consistency Negative Declaration and **Appendix E** contains air quality calculations.

2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 ALTERNATIVE SCREENING PROCESS

The MSS at Altus AFB, Camp Bullis and FSH (Joint Base San Antonio), Laughlin AFB, and Tyndall AFB have been identified for replacement or are in need of significant repairs (Grandstaff 2010). In February 2010, HQ AETC requested that the DLA Defense Energy Support Center (DESC) conduct an Optimization Study for these installations to determine if it would be more cost efficient to privatize, replace through military construction (MILCON) or repair the existing MSS. The Economic Analyses that followed considered four alternatives for providing a retail fuels facility that would meet assigned vehicle fueling requirements for each of the installations:

- Status Quo—The existing facilities are inadequate as they currently operate. This was not considered a viable alternative.
- MILCON—MILCON projects are funded through Congressional appropriations and funding through this process takes time and is not guaranteed.
- Status Quo with Major Repair—Repairs under the Sustainment, Restoration, and Modernization (SRM) program would be prioritized based on deficiencies.
- Privatization—Privatization considers the construction of a new contractor-owned, contractor-operated (COCO) facility and the demolition of the existing MSS.

The status quo is the same as the no action alternative. MILCON projects are essentially the same as privatization from a construction, operation, and demolition standpoint; therefore, it is not addressed as a separate alternative. Status quo with major repairs is an option that would require construction activity to occur at the existing MSS. This option would seriously affect each MSS's ability to support the installation mission; therefore, it does not meet the purpose and need for the proposed action and is not a viable alternative.

Each installation also went through a site screening process to determine the best place to put the new MSS. Although the process was slightly different for each installation, in general, several criteria were used to select the best location:

- Within anti-terrorism/force protection guidelines
- Must be away from incompatible uses such as housing or explosive ordnance disposal
- Ease of access for re-fuelers and fire trucks to fuel in close proximity to the flightline
- Minimizes heaviest vehicles (re-fuelers, fire trucks, and fuel tanker trucks) using base surface streets (save on roadway wear)
- New station can be built while old station still operates
- Enough room to add tanks for biofuels
- Any contamination present needed to be known and characterized already

Following the screening process, each facility nominated a site to be approved by the Facility Utilization Board (FUB). The FUB process is explained in AFI 32-7062 *Air Force Base Comprehensive Planning* (USAF 2002). Other sites were evaluated and rejected because they did not meet the criteria or were not in conformance with the Area Development Plans. Unless the

NEPA process identifies significant impacts generated by the site location, all five proposed sites were approved by the FUB as the best selection for that installation.

2.2 PROPOSED ACTION

The proposed action is the privatization of MSS operations at all five installations as a means of providing a modern, energy-efficient vehicle fueling facility without interrupting mission-readiness and meeting the mandate to use more non-petroleum-based fuels.

Each installation would lease approximately 1 acre of land to the SP, who would in turn construct and operate an MSS that would comply with all applicable federal, state, and local laws and regulations; DOD and Air Force guidelines and instructions; the NFPA UFC; and API standards. A list of some of the most significant applicable directives that would be followed by the SP is contained in **Appendix C**.

The principal components of the MSS would be:

- Above-ground, double-walled product storage tanks
- Fueling pump stations
- Bulk fueling fill stands
- Bulk off-loading connections
- Double-walled fuel piping with leak detection systems
- Concrete/asphalt pavement with appropriate secondary containment volume
- Adequate lighting for night operations and security
- Electrical and control systems

Table 2-1 lists the specific components expected to be installed by the SP at each installation. Included on the table are ancillary projects identified by each installation that would be needed to be completed prior to construction or operation of the new MSS. In most cases, the base would be responsible for extending utility connections from their closest point to a location at the edge of the property leased by the SP. In every case except Tyndall AFB, the base would also be responsible for reconstructing the access road to the new MSS so it would meet the specifications required to handle the bulk fuel trucks that would be accessing the new MSS.

All of the components of the MSS would be constructed to meet the criteria or specifications identified in Military Handbook 1190, "Facility Planning and Design Guide", and Air Force Handbook 32-1084, "Facility Requirements." These criteria and other requirements would be detailed within the lease agreement documents. The AST installations would be performed in accordance with state guidance and regulations. Schematics of the facilities are not available at this point in the planning process because each contractor that is awarded the privatization contract would be free to layout the facility within the guidelines specified in the contract.

The fuel throughput for each installation is not expected to increase. The size of the tanks would be larger in the proposed MSS to help reduce the frequency of tank replenishment and to provide Fuels Managers better flexibility when ordering resupply. The number of tanks would increase to accommodate alternative fuels.

Table 2-1. Properties of Proposed Military Service Station Facilities.

Installation	Number of Tanks	Size (gal)	Contents	UST or AST	Dispensers	Bulk Loading	Ancillary Projects
Altus Air Force Base	4	20,000 20,000 20,000 20,000	ULSD GUR E85 BDI	AST AST AST AST	6 dual-hose pumps 2 each for GUR and BDI 1 each for ULSD and E85	Bulk loading of GUR and ULSD	Construct 700 lf of road
Camp Bullis	5	12,000 12,000 12,000 12,000 12,000	ULSD GUR E85 JP8 BDI	AST AST AST AST AST	10 dual-hose pumps 2 for each of the 5 fuel types	Bulk loading of GUR, ULSD, and JP8	Reconstruct 200 lf of road and 100 lf of bridge at low water crossing Reconstruct storm drainage structure Extend water and overhead communications lines approx 1000 lf Install lift station and approx 2000 lf force main
Fort Sam Houston	5	12,000 12,000 12,000 12,000 12,000	ULSD GUR E85 JP8 BDI	AST AST AST AST AST	10 dual-hose pumps 2 for each of the 5 fuel types	Bulk loading of GUR, ULSD, and JP8	Reconstruct 800 lf of Ludington Road Construct approx150 lf road exiting site Construct parking lot exit approx 100 lf Extend water, communications and electrical to site Reroute sanitary sewer line
Laughlin Air Force Base	4	12,000 12,000 12,000 12,000	ULSD GUR E85 BDI	AST AST AST AST	5 dual-hose pumps 2 for ULSD 1 each for MOGAS, E85 and B20	Bulk loading of GUR and ULSD	Extend sewer lines 213 lf to site Reconstruct 620 feet of road Electric lines must be underground
Tyndall Air Force Base	5	25,000 15,000 15,000 25,000 15,000	ULSD GUR E85 BDI JP8	AST AST AST AST AST	8 dual-hose pumps 2 each for ULSD, GUR and BDI 1 each for E85 and JP8	Bulk loading of GUR and ULSD	No ancillary projects

Contents: ULSD=ultralow sulfur diesel; E85=85% ethanol fuel; BDI= biodiesel blend; GUR=gasoline unleaded regular; JP8=jet fuel; B20=biodiesel
UST=underground storage tank; AST=aboveground storage tank; lf=linear feet; gal=gallon(s)

Construction of the MSS would involve grading to provide a relatively flat ground surface for placement of the tanks, piping and utilities, and retail and bulk dispensing systems. Best management practices (BMPs), such as silt fences, runoff diversion, and retention ponds, would be used to prevent off-site transport of sediment-laden runoff. During dry construction periods, water trucks would be used to dampen the exposed soils to reduce fugitive particulate air emissions. Construction is expected to take 180 days.

The SP would obtain all permits necessary for operating and constructing these facilities, including, but not limited to, hot work permits, dig permits, tank registrations, air emission permits, erosion and sediment control, storm water discharge or retention and sanitary sewer hookups. Copies of all necessary permits would be provided to the installation Civil Engineering Environmental Division.

The MSS would be equipped with energy-efficient lighting 24 hours per day, 7 days per week (24/7). The unmanned retail dispensers would be accessed using an automated key lock system, which would keep track of all receipts, retail issues, and accounting transactions for the Fuels Management Defense (FMD). All fuel receipts and bulk transactions would be supervised by an employee of the SP to ensure safety and prevent spills. The bulk stands would also have weather canopies. The retail fuel dispensers would be covered with a weather canopy. The MSS would also be equipped to provide air and water for vehicle servicing.

For security, each MSS would be enclosed by security fencing and any other force protection measures required by the installation command. The facilities would also have an auxiliary power source with automatic switch gear to enable them to be operational 24 hours per day during power outage and other emergency situations. There would be a hazardous waste storage locker on site, as well as an emergency shower and eyewash station. The Air Force would incorporate the new MSS facilities into the Installation Contingency and Spill Prevention, Control, and Countermeasures Plans.

Following construction of the new MSS at each installation, the existing MSS would be demolished and removed. The same BMPs used during construction would be used during demolition at any area where bare soil is exposed. In keeping with pollution prevention goals, as much of the metal, wood, and other recyclable material as possible would be separated for recycling prior to disposal. Demolition of the existing USTs or ASTs would be conducted in accordance with State regulatory requirements. Demolition of the existing MSS is also expected to take 180 days.

2.3 ALTERNATIVES CONSIDERED BUT NOT EVALUATED FURTHER

The optimization studies prepared for each of the installations identified two viable alternatives to privatization of the MSS facilities: military construction and SRM with major repairs. The specific parameters for the proposed action under military funding would be the same, the same number and size of tanks and the same ancillary projects to connect the fueling stations to the bases' utilities and road network. The only difference between the proposed action and this alternative is the funding and likely timing of the construction and start of operations of the new facilities; therefore, military construction funding is not discussed further in this EA.

The SRM with major repairs alternative would require renovations to the existing MSS facilities. Activities such as paving areas for secondary containment, replacing existing tankage or pipes, and adding other spill control features would likely produce periodic interruptions in the ability to use the facility for fueling. This would conflict with the need of the proposed action to not affect mission-readiness; therefore, the SRM major repair option would not satisfy the needs of the proposed action and is not a viable alternative.

2.4 NO ACTION ALTERNATIVE

The existing MSS at all five installations are inadequate for their purposes. They lack secondary containment facilities and the number of tanks needed to offer a variety of alternative fuels to satisfy EO 13423. As mentioned in **Section 1.1, Purpose and Need**, each of the installations have other deficiencies that make them insufficient to meet each installations' missions' needs.

Under the No Action Alternative, the existing MSS at each installation would continue to operate inefficiently and would continue to experience environmental and safety issues due to substandard facilities. The facilities would remain as identified in **Table 1-1**. The No Action Alternative evaluates the continued use of the existing MSS for the next 5 years. If there have been uncontained spills or releases of hazardous materials, including the various kinds of petroleum fuels dispensed by the MSS, within the last 5 years, the No Action Alternative assumes similar releases could occur within the next 5 years at the same rate.

2.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Tables 2-2 through **2-6** present a summary of impacts of the MSS privatization projects including construction and operation of new MSS at each installation and demolition of the existing MSS facilities.

Table 2-2. Summary of Environmental Consequences for Altus Air Force Base.

Altus Air Force Base		
Resource	**Proposed Action**	**No Action Alternative**
Geological Resources	Construction and demolition: Minor and temporary impacts to soils, reduced by the use of standard BMPs. Operation: No impacts.	Potential for uncontrolled releases of fuels to the soil due to lack of secondary containment.
Water Resources	Construction and demolition: Minor and temporary impacts, reduced by the use of standard BMPs. Operation: No FONPA required.	Potential for uncontrolled releases of fuels to water due to lack of secondary containment.
Biological Resources	Construction and demolition: The presence of T&E species is unlikely; therefore, no impact. Operation: No impact.	No impacts.
Cultural Resources	Construction and demolition: No effect on archeological or traditional cultural properties. Operation: No effect on historic resources.	No impacts.
Hazardous Waste	Construction: Use of hazardous materials would have negligible impact. The impact from soil and groundwater contamination beneath a portion of the site would be negligible if contamination avoided. Coordination with Altus AFB Environmental Management is required by their RCRA Corrective Action Permit prior to subsurface digging or excavation. Operation: No impact. Demolition: Potential for ACM and LBP. Impact would be minor if proper procedures followed.	Potential for the release of hazardous materials to the environment would continue to exist.
Air Quality	Construction and demolition: Fugitive dust and combustion emissions would be negligible. Operation: Tank emissions would be minor.	Minor tank emissions would remain the same.
Noise	Construction and demolition: Minor, temporary impacts. Operation: No impact on sensitive receptors.	No construction or demolition noise. Vehicular noise at the existing MSS would remain the same.
Transportation	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.
Utilities	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.

BMP=best management practice; FONPA=Finding of No Practicable Alternative; T&E=threatened and endangered; ACM=asbestos-containing material; LBP=lead-based paint; MSS=Military Service Station(s)

Table 2-3. Summary of Environmental Consequences for Camp Bullis.

Camp Bullis		
Resource	**Proposed Action**	**No Action Alternative**
Geological Resources	Construction and demolition: Minor and temporary impacts to soils, reduced by the use of standard BMPs. Operation: No impact.	Potential for uncontrolled releases of fuels to the soil due to lack of secondary containment.
Water Resources	Construction and demolition: At proposed MSS site, minor and temporary impacts, reduced by the use of standard BMPs. Water crossing improvements would require USACE permit and FONPA. Operation: No impact.	Potential for uncontrolled releases of fuels to water due to lack of secondary containment.
Biological Resources	Construction and demolition: The presence of T&E species at the proposed site is unlikely; therefore, no impact. BMPs to prevent sedimentation in the caves on the installation would be used, and disturbance would avoid any forested areas to protect T&E bird species. Operation: No impact.	No impacts.
Cultural Resources	Construction and Demolition: No effect on archeological or traditional cultural properties. Operation: No effect on historic resources.	No impacts.
Hazardous Waste	Construction: Use of hazardous materials would have negligible impact. There is potential to encounter unexploded ordnance at the site, which would present a health and safety impact. A comprehensive ordnance screening survey would be conducted prior to any site-disturbing activities to minimize this potential impact. Operation: Negligible impact. Demolition: As with the proposed MSS site, a comprehensive ordnance survey would need to be conducted at the existing MSS site prior to any invasive demolition activities.	Potential for the release of hazardous materials to the environment would continue to exist.
Air Quality	Construction and demolition: Fugitive dust and combustion emissions would be negligible. Operation: Tank emissions would be minor.	Minor tank emissions would remain the same.
Noise	Construction and demolition: Minor, temporary impact more than 500 feet from sensitive receptors. Operation: No impact on sensitive receptors.	No construction or demolition noise. Vehicular noise at the existing MSS would remain the same.
Transportation	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.
Utilities	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.

BMP=best management practice; USACE=United States Army Corps of Engineers; FONPA=Finding of No Practicable Alternative; T&E=threatened and endangered; ACM=asbestos-containing material; LBP=lead-based paint; MSS=Military Service Station(s)

Table 2-4. Summary of Environmental Consequences for Fort Sam Houston.

Fort Sam Houston		
Resource	**Proposed Action**	**No Action Alternative**
Geological Resources	Construction and demolition: Minor and temporary impacts to soils, reduced by the use of standard BMPs. Operation: No impact.	Potential for uncontrolled releases of fuels to the soil due to lack of secondary containment.
Water Resources	Construction and demolition: Minor and temporary impacts, reduced by the use of standard BMPs. Operation: No FONPA required.	Potential for uncontrolled releases of fuels to water due to lack of secondary containment.
Biological Resources	Construction and demolition: The presence of T&E species is unlikely; therefore, no impact. Operation: No impact.	No impacts.
Cultural Resources	Construction and demolition: No effect on archeological or traditional cultural properties. Operation: No effect on historic resources.	No impacts.
Hazardous Waste	Construction: Use of hazardous materials would have negligible impact. Operation: Negligible impact. Demolition: Negligible impact.	Potential for the release of hazardous materials to the environment would continue to exist.
Air Quality	Construction and demolition: Fugitive dust and combustion emissions would be negligible. Operation: Tank emissions would be minor.	Minor tank emissions would remain the same.
Noise	Construction and demolition: Minor, temporary impact more than 500 feet from sensitive receptors. Operation: No impact on sensitive receptors.	No construction or demolition noise. Vehicular noise at the existing MSS would remain the same.
Transportation	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.
Utilities	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.

BMP=best management practice; FONPA=Finding of No Practicable Alternative; T&E=threatened and endangered; MSS=Military Service Station(s)

Table 2-5. Summary of Environmental Consequences for Laughlin Air Force Base.

Laughlin Air Force Base		
Resource	**Proposed Action**	**No Action Alternative**
Geological Resources	Construction and demolition: Minor and temporary impacts to soils, reduced by the use of standard BMPs. Operation: No impact.	No impacts.
Water Resources	Construction and demolition: Minor and temporary impacts, reduced by the use of standard BMPs. Site groundwater contamination would not be impacted. Operation: No FONPA required.	Potential for uncontrolled releases of fuels to water due to lack of secondary containment.
Biological Resources	Construction and demolition: The presence of T&E species is unlikely; therefore, no impact. Operation: No impact.	No impacts.
Cultural Resources	Construction and demolition: No effect on archeological or traditional cultural properties. Operation: No effect on historic resources.	No impacts.
Hazardous Waste	Construction and operation: Negligible impact. Demolition: Potential for ACM and LBP. Impact would be minor if proper procedures followed.	Potential for the release of hazardous materials to the environment would continue to exist.
Air Quality	Construction and demolition: Fugitive dust and combustion emissions would be negligible. Operation: Tank emissions would be less than current emissions, a beneficial impact.	Minor tank emissions would remain the same.
Noise	Construction and demolition: Minor, temporary impact more than 500 feet from sensitive receptors. Operation: No impact on sensitive receptors.	No construction or demolition noise. Vehicular noise at the existing MSS would remain the same.
Transportation	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.
Utilities	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.

BMP=best management practice; FONPA=Finding of No Practicable Alternative; T&E=threatened and endangered; ACM=asbestos-containing material; LBP=lead-based paint; MSS=Military Service Station(s)

Table 2-6. Summary of Environmental Consequences for Tyndall Air Force Base.

Tyndall Air Force Base		
Resource	**Proposed Action**	**No Action Alternative**
Geological Resources	Construction and demolition: Minor and temporary impacts to soils, reduced by the use of standard BMPs. Operation: No impact.	Potential for uncontrolled releases of fuels to the soil due to lack of secondary containment.
Water Resources	Construction and demolition: Minor and temporary impacts, reduced by the use of standard BMPs. Operation: No FONPA required.	Potential for uncontrolled releases of fuels to water due to lack of secondary containment.
Biological Resources	Construction and demolition: The presence of T&E species is unlikely; therefore, no impact. Operation: No impact.	No impacts.
Cultural Resources	Construction and demolition: No effect on archeological or traditional cultural properties. Operation: No effect on historic resources.	No impacts.
Hazardous Waste	Construction: Use of hazardous materials would have negligible impact. Operation: Negligible impact. Demolition: Potential for ACM and LBP. Impact would be minor if proper procedures followed.	Potential for the release of hazardous materials to the environment would continue to exist.
Air Quality	Construction and demolition: Fugitive dust and combustion emissions would be negligible. Operation: Tank emissions would be minor.	Minor tank emissions would remain the same.
Noise	Construction and demolition: Minor, temporary impact more than 500 feet from sensitive receptors. Operation: No impact on sensitive receptors.	No construction or demolition noise. Vehicular noise at the existing MSS would remain the same.
Transportation	Construction and demolition: Minor, temporary impacts. Operation: No impacts.	No impact.
Utilities	Construction and demolition: Minor, temporary impacts. Operation: Negligible impacts.	No impact.

BMP=best management practice; FONPA=Finding of No Practicable Alternative; T&E=threatened and endangered; ACM=asbestos-containing material; LBP=lead-based paint; MSS=Military Service Station(s)

3 AFFECTED ENVIRONMENT

3.1 GEOLOGICAL RESOURCES

3.1.1 Definition of the Resource

Geological resources are the surface and subsurface materials of an area and their inherent properties, such as topography and soil composition. Topography is the surface configuration of the earth that includes natural or man-made changes in elevation and form, such as mountains or man-made hills. The term "soil" generally refers to unconsolidated materials overlying bedrock or other parent material. Soils are products of weathering and other physical and chemical processes that act on parent material. Soil characteristics can determine the ground's ability to support land-use activities.

3.1.2 Affected Environment

3.1.2.1 Altus Air Force Base

Altus AFB is located within the Hollis Basin formed by a Permian seabed of shallow marine, deltaic, and alluvial deposits; over time, these deposits became sedimentary rocks such as sandstone, shale, and siltstone, interlaced with beds of gypsum and salt (Johnson 2008). The base lies within the Central Redbed Plains area of the Central Lowlands physiographic region, named after the Permian red shales and sandstones that form gently rolling hills and broad, flat plains (Curtis *et al*. 2008). The topography at Altus AFB is gently sloping from north to south, ranging in elevation from 1330 to 1390 feet above mean sea level (United States Geological Survey [USGS] Altus, Oklahoma 1964 1:24000 topographic map). Soils on the installation are primarily classified as Tillman-Hollister-Foard-Vernon clayey and humus rich soils on less than 7 percent slopes (Carter *et al*.2008). These soils are relatively deep (7 feet or more) with increasing calcareous deposits in the lower horizons (Altus AFB 2009).

3.1.2.2 Camp Bullis

Camp Bullis lies on the edge of the Edward's Plateau physiographic region in Texas Hill Country, and is transected by the Balcones Escarpment along its southwestern border (Texas Bureau of Economic Geology [TBEG] 1996). Ranging in elevation up to 1515 feet above mean sea level, the topography is characterized by hills and valleys drained by intermittent streams to the east and south (US Army 2010). Camp Bullis is underlain by Lower Cretaceous Trinity Group Glen Rose Formation and Edwards Group limestone formations (Clark *et al*. 2009). Topographic features common in limestone formations that are present at Camp Bullis include rocky outcrops, and karst features such as sink holes, lapies, and caves. According to the installation's Integrated Natural Resources Management Plan (INRMP), the Tarrant and Bracket Series soils predominate at Camp Bullis and are thin clay soils formed in association with stream deposits or from the erosion and weathering of underlying limestone (US Army 2010).

3.1.2.3 Fort Sam Houston

FSH is on the edge of the Balcones Escarpment and Interior Coastal Plains physiographic regions (TBEG 1996). The Fort is highly urbanized, located in the city of San Antonio. It is underlain by the Cretaceous Navarro Group and Marlbrook Marl undivided limestones capped by undifferentiated Quaternary and recent (Holocene) alluvial sands, gravels (Uvalde), and silts (Texas Department of Water Resources [TDWR] 1982). The terrain is gently rolling between elevations of 650 to 750 feet above mean sea level (US Army 2005). There are six soil associations on the installation including Lewisville, Tarrant, Frio, Houston Black, Trinity, and Venus silty loams to calcareous and gravelly/cobbly clays (Natural Resources Conservation Service [NRCS] 2012a). These soils are relatively deep at approximately 6.5 feet in thickness.

The soils at the proposed MSS site have been heavily disturbed due to the removal of the existing ammunition bunker from the site.

3.1.2.4 Laughlin Air Force Base

Laughlin AFB is in the Great Plains Physiographic Province in the Balcones Escarpment, where the Edwards Plateau on the north transitions to the Interior Coastal Plains region to the south, roughly along US Highway 90 (US-90) in the vicinity of the base (PBS&J 2011 and Laughlin AFB 2012). The Edwards Plateau is characterized by limestone and dolomite mesas capped by Cretaceous limestone formations, whereas the gently rolling Interior Coastal Plains are comprised of aeolian silts and fine sands (TBEG 1996). Situated on gently rolling terrain sloping to the southwest, the base elevation ranges from 1024 feet to 1121 feet above mean sea level. It is underlain by basal Georgetown formation limestone of the Washita Group and covered by soils up to 20 feet in depth (Doyle and King 2012). The predominant soil type at the base is the Zapata-Vinegarroon (ZaC) unit (Laughlin AFB 2012). The unit consists of gravelly and loamy soils on uplands formed of outwash over thick beds of caliche (NRCS 2012b). These soils are shallow, ranging from 10 to 20 inches in depth and gray-brown to light gray in color, with increasing caliche pebbles down to the strongly cemented caliche hard pan level.

3.1.2.5 Tyndall Air Force Base

Tyndall AFB on the Florida Panhandle is in the East Gulf Coastal Plain physiographic province and Lowlands physiographic region defined by the USGS (2003). Soils in the area are of recent Holocene and Quaternary age (Scott *et al*. 2001), characterized by undifferentiated sand, silty sand, and silty clays (Scott 1992). The terrain is relatively flat, resting at about 18 feet above mean sea level. According to the Tyndall AFB INRMP, Pottsburgh-Leon-Rutledge soil associations predominate at the installation (Tyndall AFB 2006a). These soils are highly acidic organic, deep sandy deposits that are poorly drained.

3.2 WATER RESOURCES

3.2.1 Definition of the Resource

The principal laws governing pollution of the nation's surface water resources is the federal Water Pollution Control Act of 1972, or Clean Water Act (CWA), and Safe Drinking Water Act (SDWA). The Acts utilize water quality standards, permitting requirements, and monitoring to

protect water quality. The US Environmental Protection Agency (USEPA) sets the standards for water pollution abatement for all waters of the US under the programs contained in the CWA but, in most cases, gives qualified states the authority to issue and enforce permits. For this analysis, water resources include surface water, groundwater, wetlands, and floodplains.

Surface waters are primarily lakes, rivers, estuaries, coastal waters, and wetlands. Impaired waters are those surface waters with levels of pollutants that exceed state water quality standards. Every 2 years, states must publish lists (referred to as 303[d] lists) of those rivers, streams, and lakes that do not meet their designated uses because of excess pollutants. Total maximum daily loads (TMDLs) of pollutants for the listed water bodies must be established by states and approved by USEPA (2008a). States also assess the trophic level of surface waters. The trophic level is a measure of nutrients and biological productivity and ranges between oligotrophic (low nutrient) and excessive (hyper) eutrophy (Cole 1994). Eutrophic lakes have a high level of nutrients which increases the amount of biologic productivity; mesotrophic lakes have moderate levels of nutrients; and hypertrophic lakes have excessive amount of nutrients commonly leading to algal blooms and oxygen depletion.

Groundwater is the water that is stored in, and moves through, spaces in underground layers of soil, sand, and rock, and are known as aquifers (The Groundwater Foundation 2012). The speed at which water moves through an aquifer is dependent on size of the spaces in the soil or rock and how these spaces are connected. The water in aquifers is discharged to the surface through springs into lakes and streams. It can also be brought to the surface through wells. Groundwater is recharged by rain and snow melt. Shortages occur when groundwater is used faster than it is recharged. The SDWA is primarily administered by USEPA. Under SDWA, USEPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. An aquifer that provides at least 50 percent of the drinking water to an area may be designated as a sole source aquifer (SSA) which requires USEPA to review any proposed projects within the designated area that are receiving federal financial assistance (USEPA 2008b).

The USEPA defines wetlands (in 40 CFR 230.3[t]) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Wetlands provide rich habitat for a diverse range of plant and animal species, protection from flooding and erosion, and are also important to the nutrient cycle.

EO 11990, Protection of Wetlands, requires federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. It also requires that agencies avoid construction, or providing financial assistance for new construction, located in wetlands to the extent practicable.

Floodplains are defined by the Federal Emergency Management Agency (FEMA) as the lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a 1 percent or greater chance of flooding in any given year (44 CFR 9.4), which is known as the 100-year flood. EO 11988, Floodplain Management, requires federal agencies to avoid, to the extent practicable, adverse impacts associated with the occupancy and modification

of floodplains and to avoid direct and indirect support of floodplain development. Floodplains provide for flood and erosion control support that helps maintain water quality and contribute to sustaining groundwater levels. Activities within a floodplain have a potential to affect the flooding of lands downstream of the activity. Floodplains also provide habitat for plant and animal species, recreational opportunities and aesthetic benefits.

Section 438 of the 2009 Energy Independence and Security Act (EISA) requires that any federal development with a footprint that exceeds 5000 square feet must maintain or restore pre-development hydrology. Agencies have two options to demonstrate that they are maintaining pre-development hydrology: managing on-site the total volume of rainfall from the 95th percentile storm or managing on-site the total volume of rainfall based on a site-specific hydrologic analysis. Federal agencies can comply with Section 438 by using a variety of stormwater management practices that are low impact including, for example, reducing impervious surfaces, using vegetative landscapes, porous pavements, cisterns and green roofs.

The CWA also regulates point discharge of pollutants to receiving waters of the US under the National Pollutant Discharge Elimination System (NPDES) program administered by authorized states. The NPDES stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more, including smaller sites in a larger common plan of development or sale, to obtain coverage under an NPDES permit for their stormwater discharges. Generally, construction sites can be covered under the state's General Permit for Construction, which requires, in most cases, the preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP).

DOD environmental regulations require installations to have detailed spill control and response procedures and to implement stormwater pollution prevention BMPs. Each installation maintains base-wide stormwater protection measures; Spill Prevention, Control, and Countermeasures (SPCC) Plans; and Hazardous Materials Management Plans. Compliance with these plans reduces the potential for adverse effects on water quality.

3.2.2 Affected Environment

3.2.2.1 Altus Air Force Base

Altus AFB is drained by Stinking Creek in the eastern part and an unnamed tributary to Stinking Creek in the western part of the installation (USGS 1964). Both streams have associated 100-year FEMA-regulated floodplains (FEMA 2012). Stinking Creek is listed as Section 303(d) impaired for chloride, bacterial enterococcus and fecal coliform, nitrates, sulfates, and turbidity (USEPA 2012e, 2012f). According to the NWI map of Altus, OK, there are two emergent forested/shrub wetlands located off base along Stinking Creek, approximately 0.25 miles southwest of the subject property (USFWS 1983). There are also emergent wetlands present on base in the northeastern portion of the base approximately 1.5 miles from the subject property. Jurisdictional delineations we not conducted as part of this assessment.

The base receives its drinking water from the Tom Steed Reservoir located 15 miles to the northeast (Altus AFB 2009), and there is no SSA in the vicinity of Altus AFB (USEPA 2008a). Altus AFB is in the Southwestern Oklahoma Groundwater Basin. The major aquifer in the region

is the alluvial North Fork of the Red River, which supplies agricultural and industrial uses and a few municipalities with drinking water (Oklahoma Water Resources Board 2012). Altus is not underlain by a specifically defined aquifer, rather, only a water bearing unit (USAF 2009). Depth to groundwater varies from about 2 feet to more than 12 feet below ground surface (USAF 2009).

3.2.2.2 Camp Bullis

Surface waters at Camp Bullis include intermittent Panther Springs, Salado, Cibolo, Lewis, and Muesback Creeks, several springs arising from aquifers prevalent in this limestone karst region, semi-permanent ponds on Lewis and Panther Springs Creek, several human-made ponds that are temporary impoundments, and wastewater holding ponds in the cantonment area (US Army 2006). The intermittent creeks are dry streambeds much of the year and water from springs flow downslope and disappears into cracks, caves, and sinkholes common in the karst landscapes on the installation (US Army 2010). Because several protected species are located in certain caves on the installation that receive runoff, Camp Bullis has developed a Karst Management Plan (Veni *et al*. 2002) in accordance with a Biological Opinion issued in 1999. The plan includes leaving certain areas undeveloped and measures to protect existing drainage patterns in sensitive locations.

FEMA-regulated floodplains are associated with all of the creeks flowing across Camp Bullis (FEMA 2012). Salado Creek is 303(d) listed as contaminated by bacteria, dissolved oxygen impaired, and fish and benthic community impaired by the Texas Commission on Environmental Quality (TCEQ 2011). San Antonio River Authority has constructed flood control structures on Salado and Lewis Creeks on Camp Bullis that create temporary impoundments to slow floodwaters (US Army 2010).

According to the USFWS, there are approximately 112 wetland systems that include 88.7 acres of wetlands and 41.7 acres of deepwater habitat on the installation, predominately palustrine and lacustrine (USFWS 1999). Most of the palustrine systems are excavated or diked impoundments that are inundated briefly following large storms. Lacustrine systems are also intermittently flooded and only contain water following large storms (US Army 2010).

Camp Bullis is underlain by the Edwards Aquifer I, designated an SSA under the SDWA (USEPA 2008b). A designated recharge area for the aquifer is found in the southeast portion of the installation (US Army 2010). The Camp, however, obtains its drinking water from three wells tapping the Trinity (Glen Rose) Aquifer, which is forecasted to be in short supply in the near future (USACE 2009a). A closed landfill (#8) on the installation was identified as a source of trichloroethylene (TCE) contaminating the Trinity Aquifer (US Army 2006), which the installation has remediated. Because of the soluble nature of limestone in the area, groundwater depth is highly variable at the installation. DOD withdrawals on the Edwards Aquifer are limited under a Biological Opinion issued in 2009 to sustain water levels needed by several federally protected species whose habitat are in caves and karst features that have springs fed by the aquifer (US Army 2006).

3.2.2.3 Fort Sam Houston

FSH is principally drained by intermittent Salado Creek, its FEMA-designated floodplain running north to south through the eastern portion of the installation (FEMA 2012), and a small tributary of the San Antonio River known as the Alamo Ditch in the western part of the base (FSH 2007). The San Antonio River and its floodplain are just to the west of FSH (FEMA 2012). Other surface water on the installation includes approximately 18.8 acres of forested/shrub wetlands primarily along Salado Creek and several small ponds (USFWS 2012c). FSH has minimized development within the Salado Creek floodplain (USACE 2009b), portions of which regularly flood every 3 to 4 years in the vicinity of training areas (US Army 2005). As discussed previously, the water quality of Salado Creek is listed as impaired under 303(d) in terms of bacteria and depressed dissolved oxygen, and fish and benthic community health (TCEQ 2011). FSH is underlain by the Edwards Plateau Aquifer from which it obtains its drinking water withdrawn by wells (USACE 2009b).

3.2.2.4 Laughlin Air Force Base

Surface water in the vicinity of Laughlin AFB consists of intermittent Zorro Creek in the extreme northwest portion of the installation, an unnamed tributary of the Rio Grande River in the southwest area of the base, and spring fed Sacatosa Creek along the eastern portion of the base (Laughlin AFB 2012). FEMA floodplain maps indicate flood hazard zones along all three of these drainages (FEMA 2012). The TCEQ and USEPA do not note any 303(d) water quality impairments for any of these creeks (TCEQ 2011; USEPA 2012g).

There is no SSA designated in the vicinity of Laughlin AFB (USEPA 2008a). The installation is underlain by the Edwards-Trinity (Plateau) Aquifer (Mace and Mangle 2004) that provides abundant water; however, the installation's drinking water is supplied through the City of Del Rio sourced at San Felipe Springs (PBS&J 2011). In the vicinity of Laughlin AFB and southeast Val Verde County, water from the Edwards-Trinity (Plateau) Aquifer has high concentrations of magnesium and calcium sulfate which make it too mineralized for drinking water (Reeves and Small 1973).

Under the Air Force ERP, Laughlin AFB has investigated groundwater contamination plumes resulting from fuel spills and releases of hazardous substances. There is a TCE plume that extends partially under the proposed MSS site. Details of this contamination are presented in **Section 3.5.2.4**.

3.2.2.5 Tyndall Air Force Base

The regional surface water features near Tyndall AFB are East Bay, St. Andrew Bay, St. Andrew Sound, and the Gulf of Mexico. According to the installation's INRMP (Tyndall AFB 2006a), about 40 percent of Tyndall's land contains wetlands that are predominately palustrine forested wetlands. Approximately 66 small freshwater bodies are present on the installation either as artificial lakes or natural intra-dunal lakes. Felix Lake is the largest freshwater lake on the base, encompassing over 30 acres (Tyndall AFB 2011). The Florida Department of Environmental Protection's Water Assessment and Restoration Support Program 303(d) Contaminated Waters

List indicates direct runoff carrying excess nutrients into the St. Andrew Bay and the Gulf of Mexico in the vicinity of Tyndall AFB is occurring (FDEP 1998a, 1998b).

No SSAs underlay Tyndall AFB; however, drinking water in the area comes from the Floridian Aquifer encountered roughly 250 to 350 feet below ground surface (bgs), and the Bay County Utilities system supplied by Deer Point Lake (Tyndall AFB 2011). There is a surficial aquifer at Tyndall that recharges locally and drains into the adjacent bays and estuaries.

Tyndall AFB's location on a narrow peninsula between East Bay on the north and the Gulf of Mexico on the south makes it vulnerable to tidal floods in FEMA-designated flood hazard zones adjacent to these waters, and St. Andrew Bay and Sound (FEMA 2012). Tidal surges from large storms, however, could flood beyond the FEMA-designated zones.

3.3 BIOLOGICAL RESOURCES

3.3.1 Definition of Resource

Biological resources include living, native, or naturalized plant and animal species and their habitats (e.g., grasslands, forests, and wetlands). The biological resources of an area can be protected and sensitive. Protected and sensitive plants and animals can be listed as either endangered or threatened at the federal (ESA 16 U.S.C. 1536) or state (wildlife agencies) level, as candidate species for federal listing, species of special concern, or managed under conservation agreements or management plans (i.e., Migratory Bird Treaty Act [MBTA] - 16 U.S.C. 703-712; 1997-Supplement, EO 13186 – Migratory Birds). Habitats necessary to support listed species can also be proposed or designated as critical habitat (Army and Air Force Exchange Service [AAFES] 2009).

For the purpose of this EA, the biological resources are divided into three major categories: (1) vegetative communities, (2) wildlife including mammals and bird species, and (3) threatened and endangered (T&E) and sensitive species. Biological resources at each of the proposed project areas: Altus AFB, Camp Bullis, FSH, Laughlin AFB, and Tyndall AFB are managed through their individual INRMPs (Altus 2009, US Army 2010, Laughlin 2012; Tyndall AFB 2006a).

Habitats encompassing each of these bases can be characterized into three land types: unimproved, semi-improved, and improved. Unimproved lands are areas that contain existing current native vegetation and associated wildlife. Semi-improved lands are areas that have been cleared or disturbed in the past and have a mixture of native and non-native plants and wildlife. Improved lands include developed areas consisting of roads, buildings, and training facilities with landscaped trees, shrubs, and grasses.

3.3.2 Affected Environment

3.3.2.1 Altus Air Force Base Region of Influence

The Region of Influence (ROI) includes habitat for vegetative communities, wildlife including mammals and birds species, and T&E species found on or adjacent to Altus AFB, OK.

Vegetative Communities

Historically, the land on which Altus AFB sits was a region of mixed grass prairie with few trees known as the Sandsage-Bluestem/Bluestem-Gramma Prairie, according to Kulcher vegetation classification (Web Atlas of Oklahoma 2012). The current native vegetation is similar to the historical species composition. In regions with fine sandy loam soils (Altus or Miles series) the vegetative community is dominated by big bluestem (*Andropogon gerardii*), sand bluestem (*A. hallii*), and little bluestem (*A. scoparius*; Altus 2009). In sections with soils of the Tillman clay loam and Hollister series, vegetative communities are dominated by blue grama (*Bouteloua gracilis*) and sideoats grama (*B. curtipendula*; Altus 2009). Approximately 104 acres of Altus AFB are unimproved lands with native vegetation (Altus 2009).

The plant species in the turf and landscape areas of the base are mostly grasses with the improved lands being dominated by common bermudagrass (*Cynodon dactylon*). The semi-improved lands are dominated by five grass species: sideoats grama (*B. curtipendula*), blue grama (*B. gracilis*), switchgrass (Blackwell variety) (*Panicum virgatum*), buffalograss (south one-half of base; *Buchloe dactyloides*), and little bluestem (*A. scoparius*; USAF 2009). The proposed project area is located on improved lands which comprise 1228 acres on Altus AFB (Altus 2009).

Wildlife

Two large mammal species, the white-tailed deer (*Odocoileus virginianus*) and the coyote (*Canis latrans*), have been recorded on Altus AFB. Eight small mammal species are also known to occur on Altus AFB: eastern cottontail (*Sylvilagus floridanus*), black-tailed jack rabbit (*Lepus californicus*), thirteen-lined ground squirrel (*Ictidomys tridecemlineatus*), hispid cotton rat (*Sigmodon hispidus*), white-footed mouse (*Peromyscus leucopus*), house mouse (*Mus musculus*), deer mouse (*P. maniculatus*), and fulvous harvest mouse (*Reithrodontomys fulvescens*; Altus 2009).

A total of 68 bird species have been recorded on Altus AFB. The most common species were the great-tailed grackle or Mexican grackle (*Quiscalus mexicanus*) and mourning doves (*Zenaida macroura*). Other species observed frequently include cliff swallow (*Petrochelidon pyrrhonota*), house sparrow (*Passer domesticus*), and western meadowlark (*Sturnella neglecta*; Altus 2009).

Threatened, Endangered, and Sensitive Species

Federally listed T&E species for Jackson County include the endangered whooping crane (*Grus americana*) and the endangered interior least tern (*Sternula antillarum athalassos*). Suitable breeding or migratory foraging habitat is not available within the proposed project area on Altus AFB; however, both species are potential migrants over the project area. No state-listed plants or animal T&E or sensitive species are listed for Altus AFB in Jackson County (Oklahoma Department of Wildlife Conservation 2012).

3.3.2.2 Camp Bullis Region of Influence

The ROI includes habitat for vegetative communities, wildlife including mammals and birds species, and T&E species found on or adjacent to Camp Bullis, TX.

Vegetative Communities

Camp Bullis is located on the southern edge of the Edwards Plateau near the junction of three vegetation zones: Blackland Prairie, South Texas Plains, and Edwards Plateau. The combination of these zones produces a diversity of plant communities including open grasslands and prairies intermixed with oak/juniper savannas and oak/juniper/mesquite thickets (US Army 2010).

Currently, the dominant woody vegetation at Camp Bullis consists of ashe juniper (*Juniperus ashei*), live oak (*Querqus virginiana*), and other oak species (US Army 2010). Approximately 61 percent (16,991 acres) of Camp Bullis is covered with dense stands of live oak/ashe juniper woodland with a sparse ground cover. Thirty-two percent (8687 acres) of Camp Bullis is oak/ grassland savannas and seven percent (1822 acres) is open grassland with scattered patches of trees. The remainder of installation acreage consists of developed areas, roads, buildings, and training facilities (US Army 2006; USFWS 2009). The proposed project area is within open disturbed grassland.

Wildlife

Camp Bullis supports a variety of wildlife. Small mammals present at the base include the fox squirrel (*Sciurus niger*), black-tailed jack rabbit (*Lepus californicus*), eastern cottontail (*Sylvilagus floridanus*), opossum (*Didelphis virginiana*), and armadillo (*Dasypus novemcinctus*). Rodents are common and provide a food supply for carnivores such as the striped skunk (*Mephitis mephitis*), eastern and western spotted skunks (*Spilogale putorius* and *S. gracilis*, respectively), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), and coyote (*Canis latrans*). Occasionally, larger predators such as the mountain lion (*Felis concolor*) and ocelot (*F. pardalis*) inhabit the Edwards Plateau region (US Army 2010).

The San Antonio Audubon Society (2000) lists 426 species of birds that are known to occur in Bexar County. An unofficial list of bird sightings on Camp Bullis includes approximately 203 species. Songbirds, raptors, and shorebirds as well as waterfowl and upland gamebirds can be found at Camp Bullis (US Army 2010).

Threatened, Endangered, and Sensitive Species

Forty-two (42) sensitive plant and animal species have been identified that occur or have the potential to occur on Camp Bullis, including some that are listed as threatened or endangered by USFWS and the Texas Parks and Wildlife Department (TPWD; **Table 3-1**). Those that are not listed as threatened or endangered are included because they are sensitive due to unique habitat requirements or population vulnerability. The 42 listed species include 7 plants, 14 invertebrates of which 12 have critical habitat designations, 2 fish, no mammals, 7 reptiles and amphibians, and 12 birds (TPWD 2012; USFWS 2007, 2012a, 2012b).

According to lists provided by the USFWS/TPWD, there are no known populations of federal- or state-listed threatened or endangered fish, amphibians, mammals, or plants on Camp Bullis (TPWD 2012; USFWS 2012a); however, there are three invertebrates, one reptile, and four bird listed species known to inhabit Camp Bullis. In addition, populations of the bracted twistflower (*Streptanthus bracteatus*), a federally and state-listed species of concern (SOC), have been reported on Camp Bullis by the Camp Bullis Range Conservationist (US Army 2010).

Seven species of arthropods, including six species of arachnids and one species of beetles, are known to dwell in caves on or in the vicinity of Camp Bullis. The USFWS lists all these species as endangered with critical habitat (USFWS 2012a, 2012b). All of these invertebrates are obligate troglodytes, which are species that have adapted to subterranean karst habitat and spend their entire lives underground. Karst is a terrain that is formed by the slow dissolution of calcium carbonate from limestone bedrock by mildly acidic groundwater (Industrial Economics, Incorporated 2011). Most of these karst invertebrates are believed to be predators that feed on even smaller insects (microarthropods) or well-decomposed organic matter (Campbell 1995). All the federal-listed cave dwelling species identified by the USFWS are threatened by urban expansion of San Antonio and communities surrounding Camp Bullis onto karst features and from the recharge areas associated with the Glen Rose and Edwards Aquifers (Veni 1996).

Table 3-1. Bexar County and Comal County Threatened, Endangered, or Sensitive Federal- or State-Listed Species Known to Occur, or with the Potential to Occur On or Adjacent to Camp Bullis.

Species		Status		Occurrence		
Common Name	Scientific Name	Fed	State	K	P	U
Plants						
Bracted twistflower	*Streptanthus bracteatus*	SOC		X		
Canyon mock orange	*Philadelphus ernestii*	SOC	S1		X	
Texas mock orange	*Philadelphus texensis*		S1		X	
Comal snakeweed	*Colubrina stricta*	SOC			X	
Hill country wild mercury	*Argythamnia aphoroides*	SOC			X	
Big red sage	*Salvia penstemonoides*	SOC	S2		X	
Correll's false dragon-head	*Physotegia correllii*	SOC			X	
Texas wild rice [1]	*Zizania texana*	E	E			X
Invertebrates						
Madla's cave meshweaver	*Cicurina madla*	E*		X		
Robber baron cave meshweaver	*Cicurina baronia*	E*			X	
Braken bat cave meshweaver	*Cicurina venii*	E*			X	
Government Canyon bat cave meshweaver	*Cicurina vespera*	E*			X	
Government Canyon cave spider	*Neoleptoneta microps*	E*			X	
Cokendolpher cave harvestman	*Texella cokendolpheri*	E*			X	
Ground beetle no common name	*Rhadine exilis*	E*		X		
Ground beetle no common name	*Rhadine infernalis ewersi*	E*		X		
Helotes mold beetle	*Batrisodes venyivi*	E*			X	
Comal Springs riffle beetle [1]	*Heterelmis comalensis*	E+				X
Comal Springs dryopid beetle [1]	*Stygoparnus comalensis*	E+				X
Peck's cave amphipod [1]	*Stygobromus pecki*	E+			X	
Texas cave diving beetle	*Haideoporus texanus*	SOC			X	
Maculated manfreda skipper	*Stallingsia maculosus*	SOC			X	
Mimic cave snail	*Phreatodrobia imitate*	SOC			X	
Horseshoe liptooth	*Polygyra hippocrepis*	SOC			X	
Fish						
Toothless blindcat	*Trogloglanis pattersoni*	SOC	T		X	
Widemouth blindcat	*Satan eurystomus*	SOC	T		X	
Fountain darter [1]	*Etheostoma fonticola*	E	E			X
Guadalupe bass	*Micropterus treculi*	SOC				X
San Marcos gambusia [1, 2]	*Gambusia georgei*	E	E			X
Mammals						
Black bear	*Ursus americanus*	TSA	T			X
Gray wolf	*Canis lupus*	E	E			X
Jaguarundi	*Herpailurus* yaguarondi	E	E			X
Red wolf	*Canis rufus*	E	E			X

Table 3-1 (*continued*). Bexar County and Comal County Threatened, Endangered, or Sensitive Federal- or State-Listed Species Known to Occur, or with the Potential to Occur, on or adjacent to Camp Bullis.

Species		Status		Occurrence		
Common Name	Scientific Name	Fed	State	K	P	U
Reptiles and Amphibians						
Texas garter snake	*Thamnophis sirtalis annectens*	SOC			X	
Timber (canebreak) rattlesnake	*Crotalus horridus atricaudatus*		T		X	
Texas indigo snake	*Drymarchon corais erebennus*		T		X	
Texas horned lizard	*Phrynosoma cornutum*	SOC	T		X	
Cagle's map turtle	*Graptemys caglei*		T			X
Texas tortoise	*Gopherus berlandieri*		T			X
Comal blind salamander	*Eurycea tridentifera*	SOC	T	X		
Texas salamander	*Eurycea neotenes*	SOC			X	
Cascade Caverns salamander	*Eurycea lititans*		T		X	
San Marcos salamander [1]	*Eurycea nana*	T	T			X
Texas blind salamander [1]	*Typhlomolge rathbuni*	E	E			X
Black spotted newt	*Notophthalmus meridionalis*		T			X
Birds						
Eastern brown pelican	*Pelecanus occidentalis*	E	E			X
Reddish egret	*Egretta rufescens*	SOC	T			X
White-faced ibis	*Pelgadis chihi*	SOC	T			X
Wood stork	*Mycteria americana*	E	E			X
Bald eagle	*Haliaeetus leucocephalus*		T		X	
White-tailed hawk	*Buteo albicaudatus*		T		X	
Zone-tailed hawk	*Buteo albonotatus*		T		X	
Ferruginous hawk	*Buteo regalis*	SOC			X	
American peregrine falcon	*Falco peregrinus anatum*	DM	T	X		
Peregrine falcon	*Falco peregrinus*	DM	T		X	
Whooping crane	*Grus americana*	E	E		X	
Piping plover	*Charadrius melodus*	T	T			X
Mountain plover	*Charadrius montanus*	PT			X	
Interior least tern	*Sternula antillarum athalassos*	E	E			X
Loggerhead shrike	*Lanius ludovicianus*	SOC		X		
Black-capped vireo	*Vireo atricapillus*	E	E	X		
Golden-cheeked warbler	*Setophaga chrysoparia*	E	E	X		
Sprague's pipit	*Anthus spragueii*	C			X	
Mexican hooded oriole	*Icterus cucullatus cucullatus*	SOC				X

[1] Edwards-Aquifer-dependent species
[2] may be Extinct
*critical habitat – Bexar County
+critical habitat – Comal County
K=known to occur
P=potential to occur
U=unlikely to occur
E=endangered
T=threatened
TSA=threatened by similarity of appearance
C=candidate species
SOC=species of concern
PT=proposed threatened
DM=delisted with monitoring
S1=critically imperiled in Texas
S2=6-20 known occurrences in Texas

Currently, 114 caves and 1400 karst features had been documented on Camp Bullis. Twenty-nine caves are known to contain three of nine federal-listed endangered karst invertebrate species (see **Table 3-1**). Twenty-four caves were found to contain *Rhadine exilis*, six caves contained *R. infernalis ewersi*, and one cave contained Madla's cave meshweaver (*Cicurina madla*) (Thibodaux 2012). None of the 4216 acres designated as critical habitat for the nine federally endangered karst invertebrates in Bexar County are on Camp Bullis; however, approximately three areas encompassing 162 acres designated as critical habitat lie adjacent to Camp Bullis (USFWS 2012b). Currently, Camp Bullis's 4049 acres are exempted from karst invertebrate

critical habitat designations because of conservation provisions set forth in the Military Reservation's INRMP (USFWS 2011a).

Three bird species listed on both the federal and state endangered species lists are known to occur on Camp Bullis: black-capped vireo (*Vireo atricapillus*), golden-cheeked warbler (*Setophaga chrysoparia*), and the whooping crane. The black-capped vireo and golden-cheeked warbler are neotropical migrants that arrive at Camp Bullis during March and April to begin nesting. Little suitable black-capped vireo habitat (151.73 acres) occurs on Camp Bullis, whereas the on-base golden-cheeked warbler habitat encompasses more than 7517 acres (USFWS 2005, 2009). The whooping crane migrates through Camp Bullis in mid-fall and again in mid-spring during normal migratory patterns, and is sporadically seen on Camp Bullis (US Army 2010).

As for other sensitive species, the American peregrine falcon (*Falco peregrinus antum*) has been de-listed as endangered federally, but is still listed as state threatened (TPWD 2012). It is seen occasionally on Camp Bullis during migration. The TPWD also lists the peregrine falcon (*F. peregrinus*) because other subspecies resemble the threatened American peregrine falcon (TPWD 2012).

3.3.2.3 Fort Sam Houston Region of Influence

The ROI includes habitat for vegetative communities, wildlife including mammals and birds species, and T&E species found on or adjacent to FSH.

Vegetative Communities

FSH is located in an urban setting with much of the land having been developed for military purposes. Approximately 30 percent of FSH is undeveloped land along the floodplain of Salado Creek, which flows from north to south through the eastern portion of the installation. The vegetation at FSH is dominated primarily by maintained grasslands with some undeveloped areas with vegetation typical of the urbanized, anthropomorphically altered Northern Blackland Prairies (MACTEC Engineering and Consulting, Inc. 2007). The proposed project area is located on maintained grasslands.

According to USFWS (1999), there are approximately 22 acres of wetlands on FSH with the palustrine wetland group being the most predominant. These wetland areas comprised less than 1 percent of the land area on FSH installation (MACTEC Engineering and Consulting, Inc. 2007).

Wildlife

Wildlife at FSH can be divided into species tolerant of urbanized areas and those that occur in the floodplain of Salado Creek. Salado Creek supports a diverse bird fauna, including nesting, migrating, and wintering species. Common species observed during winter months include the white-winged dove (*Zenaida asiatica*) and northern cardinal (*Cardinalis cardinalis*). A large number of waterfowl and other waterbirds use the Salado Creek floodplain throughout the year. Mammals such as beaver (*Castor canadensis*), armadillo, and opossum inhabit the bottomlands of Salado Creek. Fish species in the creek include bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), and Rio Grande perch (*Cichlasoma cyanoguttatum*). Species found in the urbanized setting of the installation include eastern fox squirrel (*Sciurus niger*),

house sparrow, grackles (*Quiscalus* spp.), and American robin (*Turdus migratorius*) (MACTEC Engineering and Consulting, Inc. 2007).

Threatened, Endangered, and Sensitive Species

Federal, state, or sensitive species for Bexar or Comal Counties listed in **Table 3-1** have not been observed at FSH. None of the federally designated critical habitats for the nine karst invertebrate species in Bexar County and the three karst invertebrate species in Comal County occurs on FSH (AAFES 2009).

3.3.2.4 Laughlin Air Force Base Region of Influence

The ROI includes habitat for vegetative communities, wildlife including mammals and birds species, and T&E species found on or adjacent to Laughlin AFB, TX.

Vegetative Communities

Laughlin AFB is located in the Semiarid Edwards Bajada ecoregion which contains perennial springs and streams with vegetative communities being more typical of the Southern Texas Plains ecoregion (ECOMAP 1993). Currently four vegetative communities occur on Laughlin AFB: Cenizo Series-Guajillo Series Mosaic Upland Shrublands, Cane Bluestem-False Rhodesgrass Series Upland Grasslands, Sugarberry-Elm Series Floodplain Woodlands, and Big Sacaton Series Wetland Grasslands (Diamond 1993). Most of the 424 vascular plant taxa currently known to exist on the installation are characteristic of the flora of the South Texas Plains (Baer Engineering and Environmental Consulting, Inc. 2011).

Approximately 3357 acres of Laughlin AFB are improved or semi-improved lands, which require some periodic maintenance such as mowing, irrigation, and fertilizing. Fifty-four genera and seventy-seven species of trees are represented on Laughlin AFB. The following seven species comprise 70 percent of the tree population on the installation: Arizona ash (*Fraxinus velutina*), live oak (*Quercus virginiana*), red oak (*Q. shumardii*), mesquite (*Prosopis glandulosa*), crape myrtle (*Lagerstroemia indica*), cedar elm (*Ulmus crassifolia*), and Afghan pine (*Pinus eldarica*). Predominant varieties of turf grasses observed within the developed areas of Laughlin AFB include: common Bermuda, St. Augustine (*Stenotaphrum secundatum*), Lehmann lovegrass (*Eragrostis lehmanniana*), and King Ranch bluestem (*Bothriochloa ischaemum*; Laughlin 2012). The proposed project area is located on semi-improved land.

Wildlife

Laughlin AFB natural resources include a diversity of wildlife species. Approximately 149 birds, 14 mammals, and 8 reptiles have been observed on Laughlin AFB. Species found in the urbanized setting of the installation include various sparrows, doves, great-tailed grackle, eastern meadowlark (*Sturnalla magna*), eastern fox squirrel, and eastern cottontail (Laughlin 2012).

Threatened, Endangered, and Sensitive Species

Approximately 30 plant and animals have been designated as threatened, endangered, or candidate species by USFWS and TPWD for Val Verde County, TX. **Table 3-2** list the two

plants, four mammals, four mollusks, nine fish, five reptiles and amphibians, and six birds that have been observed on or could potentially occur on Laughlin AFB (Laughlin 2012).

Table 3-2. Federal- and State-listed Threatened, Endangered, or Candidate Species for Val Verde County, Texas and Occurrence on Laughlin Air Force Base.

Species		Status		Occurrence		
Common Name	Scientific Name	Fed	State	Hab	Obs	Un
Plants						
Texas snowbells	*Styrax cucullata*	T		No		
Tobusch fishhook cactus	*Ancistrocactus tobuschii*	E	E	No		
Mammals						
Black bear	*Ursus americanus*	TSA	T	No		
Gray wolf	*Canis lupus*	E	E	No		
Ocelot	*Leopardus pardalis*	E	E	No		
White-nosed coati	*Nasua narica*		T	No		
Mollusks						
False spike mussel	*Quadrula mitchelli*		T	No		
Mexican fawnsfoot mussel	*Truncilla cognate*		T	No		
Salina mucket	*Potamilus metnecktayi*		T	No		
Texas hornhell	*Popenaias popei*	C	T	No		
Fish						
Blotched gambusia	*Gambusia senilis*		T	No		
Blue sucker	*Cycleptus elongates*		T	No		
Conchos pupfish	*Cyprinodon eximius*		T	No		
Devil's River minnow	*Dionda diabolic*	T	T	No		
Pecos pupfish	*Cyprinodon pecosensis*		T	No		
Proserpine shiner	*Cyprinella Proserpina*		T	No		
Rio Grande darter	*Etheostoma graham*		T	No		
Rio Grande silvery minnow	*Hybognathus amarus*	E	T	No		
San Felipe gambusia	*Gambusia clarkhubbsi*	T	T	No		
Reptiles and Amphibians						
Reticulated collared lizard	*Crotaphytus reticulates*		T			X
Texas horned lizard	*Phrynosoma cornutum*		T		Yes	
Texas indigo snake	*Drymarchon melanurus erebennus*		T			X
Texas tortoise	*Gopherus berlandieri*		T	No		
Trans-Pecos black-headed snake	*Tantilla cucullata*		T			X
Birds						
Peregrine falcon	*Falco peregrinus*		T	No		
Black-capped vireo	*Vireo atricapilla*	E	E		Yes[1]	
Common black-hawk	*Buteogallus anthracinus*		T	No		
Interior least tern	*Sterna antillarum athalassos*	E	E	No		
Sprague's pipit	*Anthus spragueii*	C			Yes	
Zone-tailed hawk	*Buteo albonotatus*		T			X

E=endangered
T=threatened
TSA=threatened by similarity of appearance
C=candidate

Hab=habitat on base
Obs=observed on base
Un=unknown information
[1]=migrant

According to lists provided by the USFWS/TPWD, there are no known populations of federal- or state-listed threatened or endangered fish, mollusks, reptiles and amphibians, birds, mammals, or plants on Laughlin AFB (TPWD 2012; USFWS 2012a); however, the state-threatened Texas horned lizard (*Phrynosoma cornutum*), the federal-/state-endangered black-capped vireo and federal candidate species Sprague's pipit (*Anthus spragueii*) have been sporadically observed on Laughlin AFB (Laughlin 2012).

3.3.2.5 Tyndall Air Force Base Region of Influence

The ROI includes habitat for vegetative communities, wildlife including mammals and birds species, and T&E species found on or near Tyndall AFB, FL.

Vegetative Communities

Tyndall AFB is located in the Broadleaved-Coniferous Evergreen Forests of the outer Gulf Coastal Plain (Bailey 1998; Tyndall AFB 2006a). Most of the Tyndall AFB peninsula has been impacted and cleared of native vegetation by past agricultural and silvicultural practices. Slash (*Pinus elliottii*) and sand (*P. clausa*) pine plantations have replaced much of the native longleaf pine (*P. palustris*) communities, as these species are more favorable for timber production (USAF 2006). The current vegetative communities on unimproved lands on Tyndall AFB include Mesic/Wet Slash Flatwoods, Natural Longleaf Pine, Estuarine Tidal Salt Marsh, Coastal Upland, Freshwater Wetlands (Wet Prairie, Basin Swamp, Baygall, and Floodplain Swamps), Slash Scrub, Sand Pine Scrub, and Maritime/Xeric Hardwood Hammock (Tyndall AFB 2006a). Wetlands comprise about 40 percent of Tyndall AFB consisting of approximately 100 different types with the palustrine and forested wetland groups being the most predominant (Tyndall AFB 2006b). Various species of trees, shrubs, and grasses have been utilized for vegetative cover and landscaping on Tyndall AFB's improved and semi-improved lands (Tyndall AFB 1987). The proposed project area is within semi-improved land consisting of scattered pines.

Wildlife

Tyndall AFB provides habitat for a tremendous diversity of fish and wildlife species (Florida Natural Areas Inventory [FNAI] 1994). The large, un-fragmented and diverse habitats allows for Tyndall AFB to contain an extensive wildlife population. The principal wildlife species include: bob-white quail (*Colinus virginianus*), gray squirrels (*Sciurus carolinensis*), marsh rabbits (*Sylvilagus palustris*), mourning dove, old field or beach mice (*Peromyscus polionotus*), white-tail deer, wild turkeys (*Meleagris gallopavo*), black bear (*Ursus americanus*), and wood or Carolina ducks (*Aix sponsa*). Availability to diverse aquatic systems provides for healthy game fish population such as largemouth bass (*Micropterus salmoides*), bluegill (*L.macrochirus*), other sunfish species (*Lepomis* spp.), and channel catfish (*Ictalurus punctatus*) (Tyndall AFB 2011).

Threatened, Endangered, and Sensitive Species

A total of 24 taxa of plants and 30 taxa of listed animals are known to inhabit or use the immediate surroundings of Tyndall AFB. This includes 14 species of birds, 10 species of reptiles, 1 species of amphibians, 3 species of mammals, and 2 species of fish. **Table 3-3** list the various endangered, threatened or species of concern as designated by USFWS and the state of Florida agencies for plants – Florida Department of Agriculture and Consumer Services (FDACS) and animals – Florida Fish and Wildlife Conservation Commission (FFWCC) (Weaver and Anderson 2010; FFWCC 2011; Tyndall AFB 2011; USFWS 2011b).

According to lists provided by the USFWS/FDACS/FFWCC, there are no known populations of federal- or state-listed threatened or endangered fish, reptiles, amphibians, birds, mammals, or plants within or adjacent to proposed project area on Tyndall AFB (Weaver and Anderson 2010; FFWCC 2011; Tyndall AFB 2011; USFWS 2011b); however, the state-threatened southeastern

American kestrel (*F. spaverius paulus*) could occur in the open areas within or adjacent to the proposed project area (USAF 2006).

Table 3-3. Federal- and State-listed Threatened, Endangered, or Candidate Species for Bay County, Florida and Habitat Occurrence on Tyndall Air Force Base.

Species		Status		Habitat Description
Common Name	Scientific Name	Federal (USFWS)	State (FFWCC or FDACS)	
Plants				
Apalachicola dragonhead	*Physostegia godfreyi*		T	Wet prairie
Bog tupelo	*Nyssa ursine*	ce		Wet prairie
Chapman's butterwort	*Pinguicla planifolia*	ce	T	Wet prairie
Chapman's crownbeard	*Verbesina chapmanii*		T	Wet prairie
Decumbent pitcher plant	*Sarracenia purpurea*		T	Wet prairie, bog
Dew thread sundew	*Drosera filiformis*		E	Wet prairie
Drummond's yellow-eyed grass	*Xyris drummondii*	ce		Wet prairie, flatwoods
Giant water dropwort	*Oxypolis greenmanii*		E	Wet prairie, ditches
Godfrey's golden aster	*Chrysopsis godfreyi*	ce	E	Dunes
Gulf coast lupine	*Lupinus westianus*	ce	T	Scrub, dunes
Harper's yellow-eyed grass	*Xyris scabrifolia*		T	Wet prairie
Henry's spider lily	*Hymenocallis henryae*	ce	E	Cypress stringers
Karst pond yellow-eyed grass	*Xyris longisepala*		E	Upland lake margin
Large-leaved jointweed	*Polygonella macrophylia*	ce	T	Scrub
Parrot pitcher plant	*Sarracenia psittacina*		T	Wet prairie, bogs
Quillwort yellow-eyed grass	*Xyris isoetifolia*	ce	E	Wet prairie
Southern milkweed	*Asclepias viridula*	ce	T	Wet prairie
Southern red lily	*Lilium catesbaei*		T	Wet prairie
Spoon-leafed sundew	*Drosera intermedia*		T	Wet prairie
Thick-leaved water willow	*Justica crassifolia*	ce	E	Wet prairie
Violet-flowered butterwort	*Pinguicula ionantha*	T	E	Cypress domes
White-flowered wild petunia	*Ruellia noctiflora*		E	Wet prairie
Wiregrass gentian	*Gentiana pennelliana*		E	Wet flatwoods
Yellow-flowered butterwort	*Pinguicula lutea*		T	Flatwoods, seepage bogs
Birds				
American oystercatcher	*Haematopus palliates*		SOC	Shoreline
Bald eagle	*Haliaeetus leucocephalus*	BGEPA		Coastline, lakes
Black skimmer	*Rhychops niger*		SOC	Shoreline
Brown pelican	*Pelecanus occidentalis*		SOC	Barrier island, bay
Least tern	*Sternula antillarum*		T	Barrier island, shoreline
Little blue heron	*Egretta caerulea*		SOC	Marshes, ponds, lakes
Piping plover	*Charadrius melodus*	T/CH	T	Barrier island
Reddish egret	*Egretta rufescens*		SOC	Brackish marsh. Shallow coastline
Red Knot	*Calidris canutus rufa*	C		
Snowy egret	*Egretta thula*		SOC	Marshes, lakes, ponds, shallow coastline
Snowy plover	*Charadrius alexandrines tenuirostris*	ce	T	Barrier island
Southeastern American kestrel	*Falco spaverius paulus*	ce	T	Open, partly open habitat
Tricolor heron	*Egretta tricolor*		SOC	Marshes, ponds
White ibis	*Eudocimus albus*		SOC	Marshes, lakes
Reptiles				
Alligator snapping turtle	*Macroclemys temminckii*	ce	SOC	Freshwater lakes
American alligator	*Alligator mississippiensis*	TSA	SOC	Lakes, marshes
Eastern indigo snake	*Drymarchon corais couperi*	T	T	Swamp, flatwoods, hammocks

Table 3-3 (*continued*). Federal- and State-listed Threatened, Endangered, or Candidate Species for Bay County, Florida and Habitat Occurrence on Tyndall Air Force Base.

Species		Status		Habitat Description
Common Name	Scientific Name	Federal (USFWS)	State (FFWCC or FDACS)	
Reptiles				
Florida pine snake	*Pituophis melanoleucus mugitus*	ce	SOC	Lakes, flatwoods, hammocks
Gopher tortoise	*Gopherus polyphemus*	ce	SOC	Long leaf pine, sand pine scrub
Green sea turtle	*Chelonia mydas*	E	E	Marine, barrier island
Gulf salt marsh snake	*Nerodia clarkia clarkia*	ce		Needle grass, estuaries
Kemp's ridley turtle	*Lepidochelys kempi*	E	E	Marine
Leatherback sea turtle	*Dermochelys coriacea*	E	E	Marine, barrier island
Loggerhead sea turtle	*Caretta caretta*	T	T	Marine, barrier island
Amphibians				
Gopher frog	*Rana capito*	ce	SOC	Hammocks
Mammals				
Choctawatchee beach mouse	*Peromyscus polionotus allopyrs*	E/CH	E	Barrier island
West Indian manatee	*Trichechus manatus*	E	E	Marine
St. Andrews beach mouse	*Peromyscus polionotus peninsularis*	E/CH	E	Barrier island
Fish				
Gulf sturgeon	*Acipenser oxyrhynchus desotoi*	T/CH	SOC	Marine, large rivers
Smalltooth sawfish	*Pristis pectinate*	E	E	Marine

USFWS=United States Fish and Wildlife Service; FFWCC=Florida Fish and Wildlife Conservation Commission; FDACS=Florida Department of Agriculture and Consumer Services; E=endangered; T=threatened; TSA=threatened by similarity of appearance; ce=consideration encouraged; CH=Critical Habitat; BGEPA=Bald and Golden Eagle Protection Act; SOC=species of concern

In addition to the T&E lists, six areas have been identified by FNAI (1994) as being a Special Interest Natural Area on Tyndall AFB. These areas presently support or have a high potential to support the plant or other rare and endangered species. In general, the largest parts of these areas have not been altered by human impacts. These special interest areas include Barrier Islands and Peninsulas, Cedar Point Flatwoods, Drone Launch Wet Prairie, Farmdale Bayou Wet Flatwoods, Goose Point Tidal Marsh, and Strange Point/Blind Alligator Bayou (FNAI 1994). None of these areas are within the proposed project area.

3.4 CULTURAL RESOURCES

3.4.1 Definition of the Resource

Cultural resources are prehistoric and historic sites, districts, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. A historic district is an area that "…possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development" (NPS 2011).

Numerous laws and regulations require that possible effects on cultural resources be considered during the planning and execution of federal undertakings. These laws and regulations stipulate a process of compliance, define the responsibilities of the federal agency proposing the actions,

and prescribe the relationships among involved agencies. In addition to NEPA, the primary laws that pertain to the treatment of cultural resources during environmental analysis are the NHPA (especially Sections 106 and 110), the Archaeological Resources Protection Act (ARPA), the American Indian Religious Freedom Act (AIRFA), and the Native American Graves Protection and Repatriation Act (NAGPRA).

Section 106 of NHPA requires that federal agencies give the Advisory Council on Historic Preservation a "reasonable opportunity to comment" on planned actions. Federal agencies must consider whether their activities could affect historic properties that are already listed, determined eligible, or not yet evaluated under the National Register of Historic Places (NRHP) criteria. Properties that are either listed on or eligible for listing on the NRHP are provided the same measure of protection under Section 106.

The following criteria have been established as guidance for evaluating potential entries to the NRHP. "Significance" in American history, architecture, archeology, and culture is granted to districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that meet at least one of the following criteria:

- An association with events that have made a significant contribution to the broad patterns of history (Criterion A);
- An association with the lives of persons significant in history (Criterion B);
- Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or represent a significant and distinguished entity whose components may lack individual distinction (Criterion C); or
- Have yielded, or may likely yield, information important in prehistory or history (Criterion D).

Resources less than 50 years of age must be evaluated under Criterion Consideration G: properties that have achieved significance in the last fifty years. This criterion requires that such resources be "exceptionally important" to qualify for listing. Resources less than 50 years of age must also meet the criteria for resources 50 years or older (i.e., A, B, C, or D) and retain their integrity.

The areas of potential effects (APEs) for cultural resources are the existing MSS locations and the proposed areas for new MSS construction. These areas are shown in **Figures 1-1** to **1-5**.

3.4.2 Existing Conditions

3.4.2.1 Altus Air Force Base

Altus Air Force Base Previous Investigations

The National Park Service (NPS) surveyed Altus AFB at a reconnaissance level in 1995 (De Vore 1995). No archaeological resources were identified and no further archaeological investigations were required.

Altus Air Force Base Historic Resources

Construction of the existing MSS, Building 354, occurred in 1967. As such, it is not a building or structure more than 50 years of age that would meet Criteria A, B, C, or D (36 CFR 60.4) for consideration as a National Register-eligible property. As a small service and support building, Building 354 is not of exceptional significance; therefore, it does not meet Criterion G for NRHP-eligibility as a property younger than 50 years of age.

3.4.2.2 Camp Bullis

Camp Bullis Previous Investigations

Several cultural resources surveys have been conducted at and in the immediate vicinity of the proposed location of the new MSS. Recent investigations were conducted by Prewitt and Associates, Inc., in 2000, Northrop Grumman in 2003, and Pagoulatas in 2006. During these surveys, 27 sites were documented within 1 mile of the proposed location of the new MSS; the closest is roughly 0.25 miles from the proposed MSS site.

Camp Bullis Historic Resources

Construction of the existing MSS, Building 6101, occurred in 1945 with modifications in 1993. An evaluation of Building 6101 was conducted as part of the 2008 ICRMP (Clow *et al*. 2008). The service and support facility property was determined ineligible for inclusion in the NRHP; consequently, it is not considered a historic property. The eligibility status (ineligible for listing in the NRHP) of the existing MSS at Camp Bullis was verified via telecom discussion and email follow-up with staff of the TX Historical Commission.

3.4.2.3 Fort Sam Houston

Fort Sam Houston Previous Investigations

A 3122-acre area that included the proposed location of the new MSS was surveyed for cultural resource properties by the US Army Corps of Engineers (USACE), Fort Worth District in 1978. In 2000, archaeologists with Prewitt and Associates conducted an archaeological survey of 280 acres along Salado Creek (Scott 2000). During this survey four new sites (41BX1405, 41BX1406, 41BX1407, and 41BX1408) were documented and previously recorded site 41BX1209 was reassessed. In 2006, Blanton and Associates (Young 2008) conducted an archaeological survey for a 3-mile hiking trail and documented two sites (41BX1678 and 41BX1679).

Archaeological sites within 1 mile of the proposed location of the new MSS include 41BX779, 41BX1405, 41BX1408, and 41BX1679. 41BX1405 and 41BX1408 were recommended ineligible (Scott 2000). 41BX1679, a late nineteenth century house is of undetermined eligibility (Young 2008). 41BX779, a refuse disposal area, is also of undetermined eligibility. None of the archaeological sites identified fall within the proposed location of the new MSS.

Fort Sam Houston Historic Resources

Construction of the existing MSS, Building 4055, occurred in 1983. As such, it is not a building or structure more than 50 years of age that would meet Criteria A, B, C, or D (36 CFR 60.4) for consideration as a National Register-eligible property. As a small service and support building, Building 4055 is not of exceptional significance; therefore, it does not meet Criterion G for NRHP-eligibility as a property younger than 50 years of age.

3.4.2.4 Laughlin Air Force Base

Laughlin Air Force Base Previous Investigations

An intensive, pedestrian reconnaissance of all lands managed by Laughlin AFB was conducted in 1993 by the NPS (DeVore 1993). The survey identified three sites (41VV1653, 41VV1654, and 41VV1655) and one isolated find (41VV1652) on the main base. A baseline archaeological survey of the main base was recommended by the NPS due to the potential for archaeological and historic resources. The baseline archaeological survey of the main base was conducted by the Center of Archaeological Research in 1994 (Tennis *et al*. 1996). The survey included a pedestrian survey of 2855 acres of the main base and examined 13 sites.

Of the 13 sites located at Laughlin AFB, only two sites (41VV1653 and 41VV1684) and one isolated find (41VV1652) are located within 1 mile of the proposed location of the new MSS. Site 41VV1684 has been determined not eligible for inclusion in the NRHP. Site 41VV1653 and isolated find 41VV1652 are of undetermined eligibility (DeVore 1993; Doyle and King 2012). None of the archaeological sites identified fall within the proposed location of the new MSS.

Laughlin Air Force Base Historic Resources

Building 2109, the existing MSS, is an unaltered, one-story, front-gabled, open-air refueling pavilion constructed in 1957 for the Strategic Air Command. The roof is supported by metal posts with angled bracing, and the gabled ends are exposed, revealing vertical metal supporting elements. The roof is composed of corrugated metal and the building rests on a concrete foundation. Nine fluorescent lights set at regular intervals provide illumination for the fueling pumps below. The facility measures 355 square feet and rests on a concrete foundation. A small, front-gabled shed with a low pitched roof is located at the southwest elevation of the pavilion. This shed is clad in corrugated metal and is accessed through a single-leaf, glazed, metal slab door.

Building 2109 is an operational support structure that retains its integrity; however, it is not associated with an important military mission or event, does not convey important military trends or patterns, and is not associated with an important person; therefore, it does not meet the requirements of Criterion A or B. Building 2109 is a simple structure that lacks important design elements or construction methods; therefore, it does not meet the requirement for Criterion C. Finally, Building 2109 is unlikely to yield important information in history or prehistory; thus, it does not meet the requirement of Criterion D. Building 2109 is recommended not eligible for listing on the NRHP. The eligibility status (ineligible for listing in the NRHP) of the existing MSS at Camp Bullis was verified via telecom discussion and email follow-up with staff of the TX Historical Commission.

3.4.2.5 Tyndall Air Force Base

Tyndall Air Force Base Previous Investigations

Several cultural resources surveys have been conducted at Tyndall Air Force Base since the first survey in 1902. The 2003 Integrated Cultural Resources Management Plan (ICRMP) for Tyndall AFB states that any new projects within the cantonment area do not need to be surveyed for archaeological resources (Southeastern Archaeological Conference [SEAC] 2003; Prentice Thomas and Associates, Inc. 2010). In 2010, Geo-Marine, Inc., conducted an inventory and assessment of Cold War-era buildings constructed between 1956 and 1991. A total of 132 resources were inventoried with potential Cold War significance. None of the evaluated resources were recommended eligible for NRHP listing (Prior and Forbes 2010).

Tyndall Air Force Base Historic Resources

In 2010, Building 562, a vehicle fueling station constructed in 1972 was evaluated as not eligible for inclusion in the NRHP; consequently, it is not considered a historic property.

3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTES

3.5.1 Definition of the Resource

The terms "hazardous material," "hazardous waste," and "hazardous substance" all have very specific legal and scientific definitions in federal regulations. "Hazardous materials" are defined under the US Department of Transportation (DOT) regulations (49 CFR Parts 100 through 199) as chemicals the Secretary of Transportation has determined to present risks to safety, health, and property during transportation. DOT regulations include requirements for shipping papers, package marking, labeling, transport vehicle placarding, and training of personnel handling hazardous materials.

"Hazardous wastes" are defined and regulated by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRA considers a waste hazardous if it meets certain levels of reactivity, ignitability, corrosivity, or toxicity, or is otherwise listed as a hazardous waste in 40 CFR Part 261. In general, RCRA regulations address day-to-day management of these wastes. RCRA regulations include very detailed and specific requirements for facilities that generate, transport, treat, store, or dispose of hazardous wastes.

The majority of RCRA-regulated hazardous waste is produced by large-quantity generators (LQGs), defined as facilities that produce 1000 kilograms (2200 pounds) or more of hazardous waste per month. Small-quantity generators (SQGs) are facilities producing more than 100 kilograms (220 pounds) but less than 1000 kilograms (2200 pounds) of hazardous waste per month. Wastes considered "acutely" hazardous are regulated at 1 kilogram (2.2 pounds) per month. All generators, unless they are "conditionally exempt" SQG (those generating less than 100 kilograms per month), must treat, store, or dispose of their wastes at RCRA-permitted facilities.

"Hazardous substances" are defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund) as chemicals that are harmful to human health or the environment if spilled or otherwise released into the environment. They are further defined as:

- Any element, compound, mixture, solution, or substance designated as hazardous under section 102 of CERCLA
- Any hazardous substance designated under section 311(b)(2)(a) of the CWA, or any toxic pollutant listed under section 307(a) of the CWA. There are more than 400 substances designated as either hazardous or toxic under the CWA
- Any hazardous waste having the characteristics identified or listed under section 3001 of the RCRA
- Any hazardous air pollutant listed under section 112 of the CAA, as amended. There are over 200 substances listed as hazardous air pollutants under the CAA
- Any imminently hazardous chemical substance or mixture which the USEPA Administrator has "taken action under" section 7 of the Toxic Substances Control Act (TSCA).

The definition of hazardous substance specifically excludes petroleum, including crude oil and any fraction thereof, unless specifically listed (40 CFR 300.5). Spills of oil and other petroleum products are regulated under the CWA when in areas where they will, or eventually could, enter waterways.

The Environmental Restoration Program (ERP) is used by the Air Force to identify, characterize, and remediate past environmental contamination on Air Force installations. Past procedures for managing and disposing wastes, although accepted at the time, resulted in contamination of the environment. The ERP has established a process to evaluate past disposal sites, control the migration of contaminants, identify potential hazards to human health and the environment, and remediate the sites. The US Army has a similar program called the Installation Restoration Program (IRP). FSH and Camp Bullis started under the Army IRP but currently under Joint Basing is being managed by the Air Force ERP.

3.5.2 Existing Conditions

3.5.2.1 Altus Air Force Base

According to the USEPA, Altus AFB is a hazardous waste LQG (USEPA 2012a). Hazardous wastes are generated from aircraft, vehicle maintenance, and other activities that support the airlift and tanker training mission at Altus AFB (Altus AFB 2007).

As of 2011, there were 13 active sites being investigated or remediated by Altus AFB's ERP. The proposed MSS site is affected by several of them. Most of the work being done on the ERP sites is being done under RCRA Corrective Action (CA) Permit Number 9571824045-CA. The RCRA CA permit was issued by the OK Department of Environmental Quality.

Site SS-22, is a combination of TCE Spill Sites near Buildings 323 and 285, which are upgradient (north) of the proposed MSS site by roughly a mile. Site SS-17, a TCE Spill Site

associated with former Building 506, is located cross-gradient from the proposed MSS site. Groundwater flow is to the southeast. The comingled, contaminated groundwater plume is managed as Groundwater Management Unit (GWMU) 1 under the RCRA Corrective Action Permit Number 9571824045-CA. Most of the proposed MSS site sits above this comingled plume (see **Figure 3-1** for location of the comingled plume).

A portion of the subject property is also located on the former Abandoned Aircraft Ground Equipment (AGE) Washrack Pond according to the 2002 Draft RCRA Facility Investigation/Investigation Analysis/Corrective Measures Study (RFI/IA/CMS) Report (Earth Tech 2002). The former AGE Washrack Pond was 9600 square feet in size and operational from 1970 to 1985. Several investigations have been completed at the abandoned AGE Washrack Pond and immediate vicinity, referred to as Solid Waste Management Unit (SWMU) 10. Soil and groundwater sample results have indicated that the former pond was not a source of solvent-related groundwater contamination (Earth Tech 2002).

3.5.2.2 Camp Bullis

Camp Bullis is not listed as a hazardous waste generator on the USEPA's RCRAInfo database (USEPA 2012a); however, Camp Bullis does generate hazardous wastes related to vehicle and equipment maintenance and medical activities. Current hazardous waste management activities at Camp Bullis are performed by a licensed contractor in concert with the Directorate of Emergency Services at FSH.

Historical hazardous materials and waste issues of concern at Camp Bullis include unexploded ordnance (UXO), asbestos-containing material (ACM), lead-based paint (LBP), and potential groundwater and/or soil contamination from inactive landfills and chemical spills (USACE 2009a). Camp Bullis has six ERP sites that include two landfill sites, an unexploded munitions site, a surface impoundment/lagoon, the wastewater treatment plant (WWTP), and an oil/water separator (OWS). None of the sites are in proximity to the proposed MSS location; however, the unexploded munitions were found in a pit near the motor pool, which is approximately 150 feet north of the existing MSS (Google Earth 2012). A backhoe operator unearthed the ordnance when digging a drainage channel. At least five complete rounds (unfired projectile and propellant-filled case) were retrieved from the ditch line. This area is estimated to be less than 1 acre in size and is currently an unimproved parking area (USACE 2009a).

3.5.2.3 Fort Sam Houston

FSH is not listed as a hazardous waste generator on the USEPA's RCRAInfo database (USEPA 2012a); however, it does generate hazardous wastes related to vehicle and equipment maintenance and medical activities. Current hazardous waste management activities at FSH are performed by a licensed contractor in concert with the Directorate of Emergency Services.

Three ERP sites are located on FSH. These include FTSH-26 (which includes Landfills 8A, 8B, 10, and 12), FTSH-29 (which includes Landfills 4A, 6, and 7) and FTSH-30 (which includes Landfills 2, 3, 4B, and 5) (MATEC Engineering and Consulting 2007). Landfills 6 and 7 are less than 0.25 miles northeast of the proposed MSS site and almost adjacent to Salado Creek. Neither surface water nor shallow groundwater would migrate toward the MSS site.

3.5.2.4 Laughlin Air Force Base

According to the USEPA, Laughlin AFB is a hazardous waste LQG (USEPA 2012a). Hazardous waste generated on base includes LBP, contaminated materials, cleaning solvents, hazardous mixed liquids, and medical waste (PBS&J 2011).

Since the implementation of the ERP program at Laughlin AFB in 1985, a total of 21 ERP sites and 4 areas of concern (AOCs) have been identified. Sixteen (16) of the ERP sites and all 4 of the AOCs were determined to need No Further Action (NFA)/No Further Response Action Planned (NFRAP); all are considered closed. ST-11, a former UST at the existing MSS site is one of the NFA sites. SS-14 is a groundwater contamination plume created by numerous fuel spills. Site SS014 consists of four subareas that have been historically investigated, managed, and responded to as separate releases. Subareas A and B are sites that were discovered in the early 1990s and are scheduled for corrective action through an approved TCEQ Response Action Plan (RAP), dated April 2009 (Parsons 2009). The only contaminants of concern (COCs) at Subarea A are arsenic, fluoride, and nitrates (URS 2012). Groundwater monitoring is ongoing to determine whether the COCs are natural variations of these constituents or if there is some unknown source of contamination. Subarea D, a jet fuel release from AST 2100A-1, was discovered in 2006 and is being addressed in the Compliance Plan as a stand-alone site (URS Group 2012a). Subarea C is just east of the subject property. It was closed in accordance with TCEQ Petroleum Storage Tank Division requirements in 1997, and TCEQ does not consider it a threat to receptors (TCEQ 2013).

Site CG022 (formerly known as AOC020) is located north of Kansas Avenue, about 300 feet north of its intersection with Alabama Avenue (the southeast corner of the subject property) (**Figure 3-2**). CG022 refers to the area around groundwater monitoring well SS014MW002, which is located approximately 400 feet northeast of closed IRP Site SS020, the Former Jet Engine Test Cell Facility. Historical analytical data from the immediate CG022 area are limited to groundwater samples collected from monitoring well SS014MW002 from 1996 through 2007 and one soil sample from 20 feet below ground level in the borehole in which the monitoring well was installed. The soil samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), lead and total petroleum hydrocarbons (TPH). The groundwater samples were analyzed for VOCs, SVOCs, metals (including mercury), pesticides, polychlorinated biphenyls (PCBs), and TPH. No target analytes in the soil samples exceeded the TCEQ Tier 1 Residential Assessment Levels (RALs); however, TCE in the groundwater samples repeatedly exceeded its Tier 1 RAL of 5 micrograms per liter (µg/L) (URS 2012b). There are no known or suspected sources of the TCE detected in SS014MW002.

In 2012, several monitoring wells were installed and sampled to try to delineate the TCE plume. Concentrations of TCE in the seven monitoring wells at this site range from non-detect at a detection limit of 0.2 µg/L to a high of 65 µg/L at AOC020MW001. **Table 3-4** provides the results of the 2012 sampling for CG022.

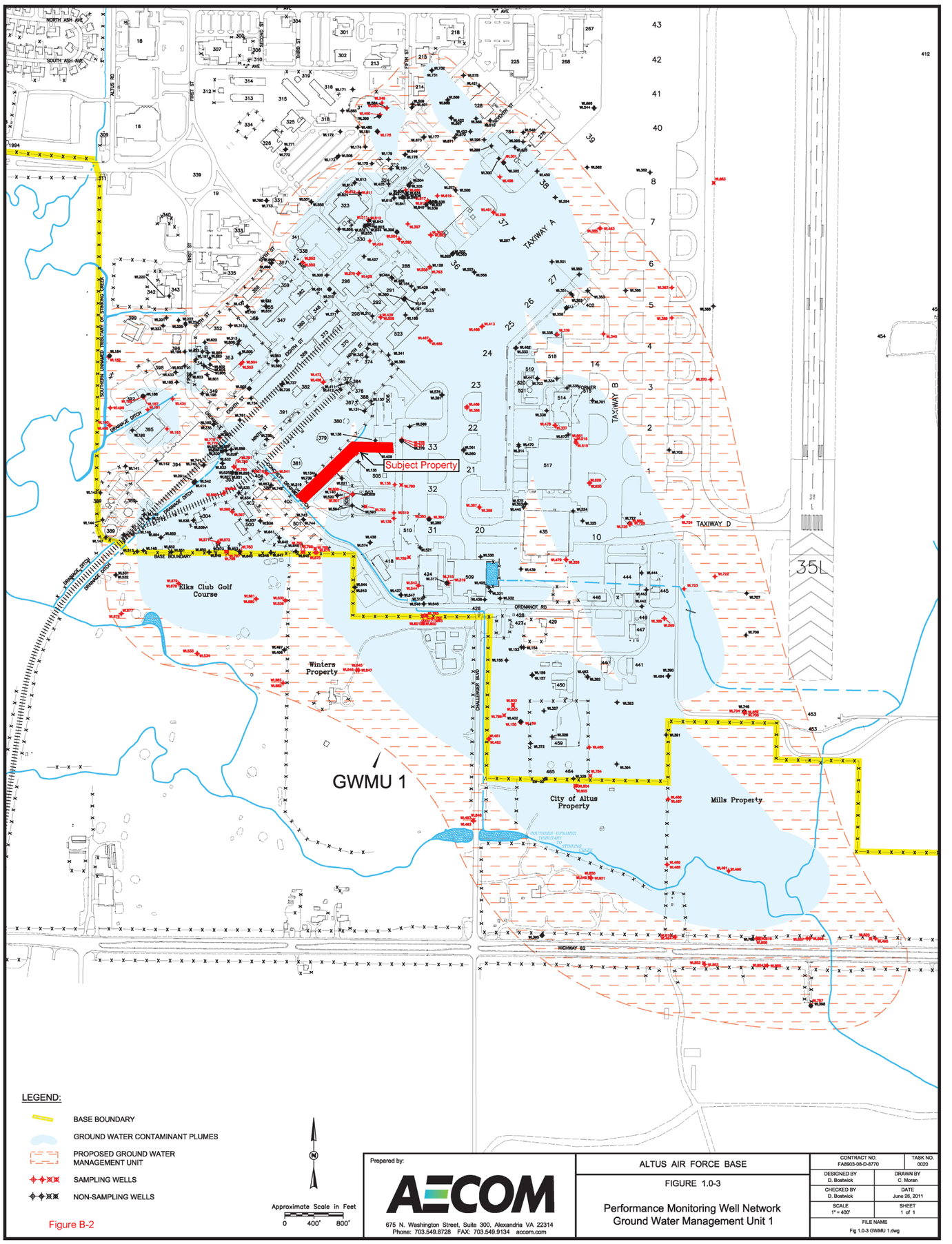


Figure 3-1. Location of Groundwater Plume on Altus Air Force Base.

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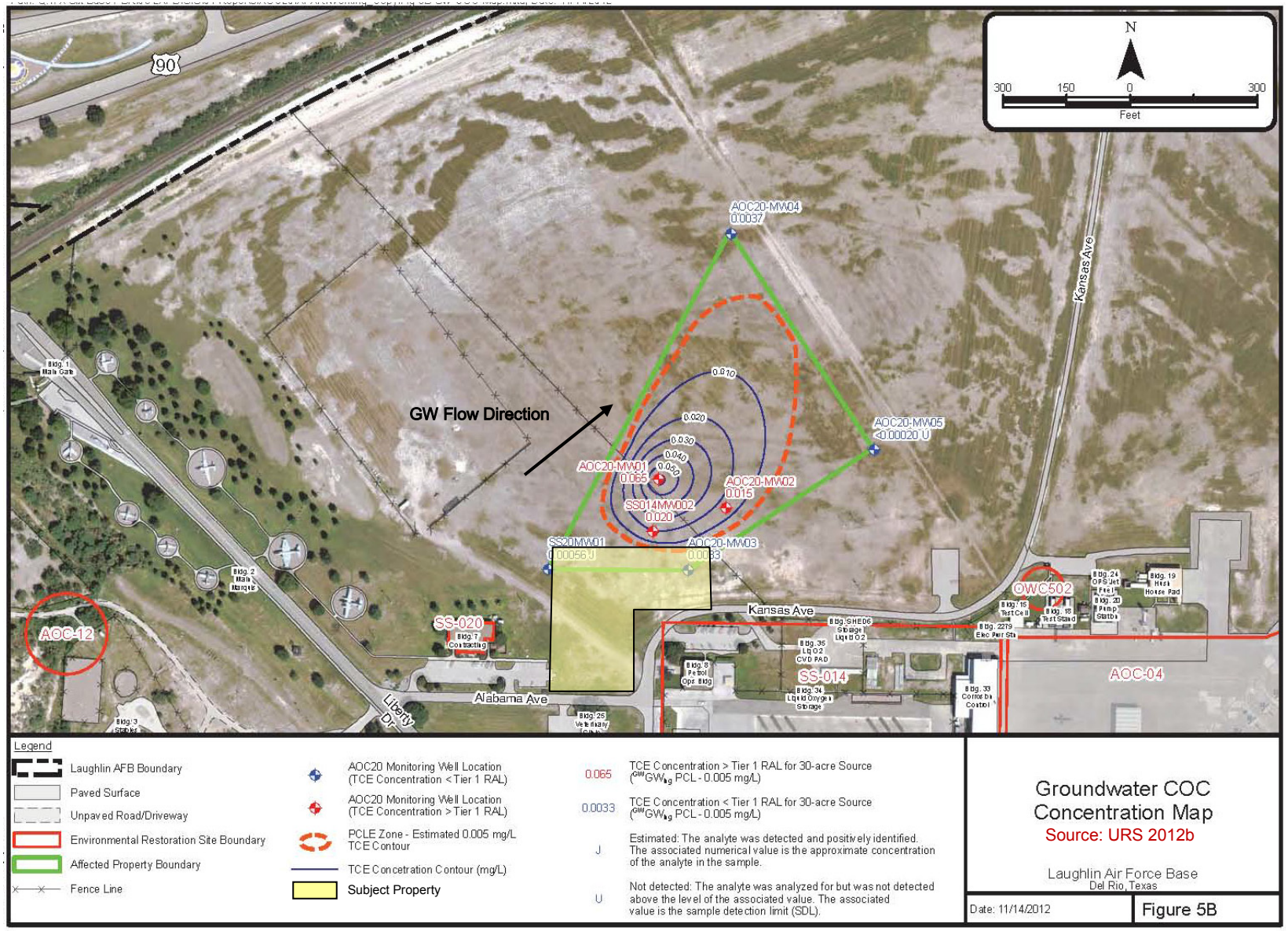


Figure 3-2. Location of Groundwater Plume CG022 (formerly AOC20) at Laughlin Air Force Base.

Table 3-4. Trichloroethylene (TCE) Concentrations in Monitoring Wells for CG022 (Formerly AOC020).

Monitoring Well Number	Date of Sampling	Depth to water (feet bgs)	TCE (µg/L)
SS014MW002	17 May 2012	26.69	**20**
SS20MW01	17 May 2012	20.95	0.56
AOC20MW001	17 May 2012	37.31	**65**
AOC20MW002	17 May 2012	35.91	**15**
AOC20MW003	17 May 2012	26.52	3.3
AOC20MW004	13 September 2012	39.77	3.7
AOC20MW005	13 September 2012	33.71	<0.2

bgs=below ground surface; TCE=trichloroethylene; µg/L=micrograms per liter (parts per billion)
TCE concentrations greater than the TCE Tier 1 Residential Assessment Level (RAL) of 5 µg/L are bolded.
Source: URS 2012b

3.5.2.5 Tyndall Air Force Base

According to the USEPA, Tyndall AFB is a hazardous waste LQG (USEPA 2012a). Hazardous wastes generated on base include waste paint related materials, stripping elements, acids, contaminated fuels, and spent solvents (Black and Veatch 2004).

USEPA placed Tyndall AFB on the National Priorities List (NPL or Superfund list) in 1997. This list designates sites and facilities with potential for human health or ecological risk. Pesticide contamination in Shoal Point Bayou with potentially high ecological impacts was the main reason for Tyndall AFB inclusion on the NPL (Black and Veatch 2004). Other activities that released contaminants to the environment have included: aircraft and vehicle maintenance; storage and distribution of petroleum and jet fuels, and many others. Contaminants identified in soil, sediment, surface water, and groundwater at Tyndall include pesticides such as dichlorodiphenyltrichloroethane (DDT) and chlordane; solvents such as TCE, percloroethylene (PCE), and solvent degradation products including vinyl chloride; petroleum constituents and jet fuels; munitions and munitions constituents; as well as lead, arsenic, chromium, and barium.

The ERP has identified groundwater contamination plumes that may comingle near the subject property, just north and east of the proposed MSS site boundaries. A remedial investigation/ feasibility study is being conducted for the area and should be completed in 2014 (AECOM 2011a). The SS026 Study Area refers to the west-central portion of the flightline side of Tyndall AFB. Site SS026 includes a number of individual sites and potential source areas including several buildings (i.e. 522, 540 560, 561, 571, and 559), SA150 and former Building 158 that have a combined groundwater contamination plume. **Figure 3-3** shows the proposed MSS site in relation to the shallow, intermediate and deep groundwater contaminant plumes and the Study Area SS026 boundary. The USEPA is currently reviewing the SS026 study plan and conceptual site model in preparation for additional site characterization. Activities within this portion of the base have included general vehicle maintenance, repair, bodywork, washing, and fuel distribution (Site SS026), former petroleum, oils, and lubricants (POL) Area C and former hazardous waste storage area (Site SS020), and POL Compliance 1 Site Building (Site SA150).

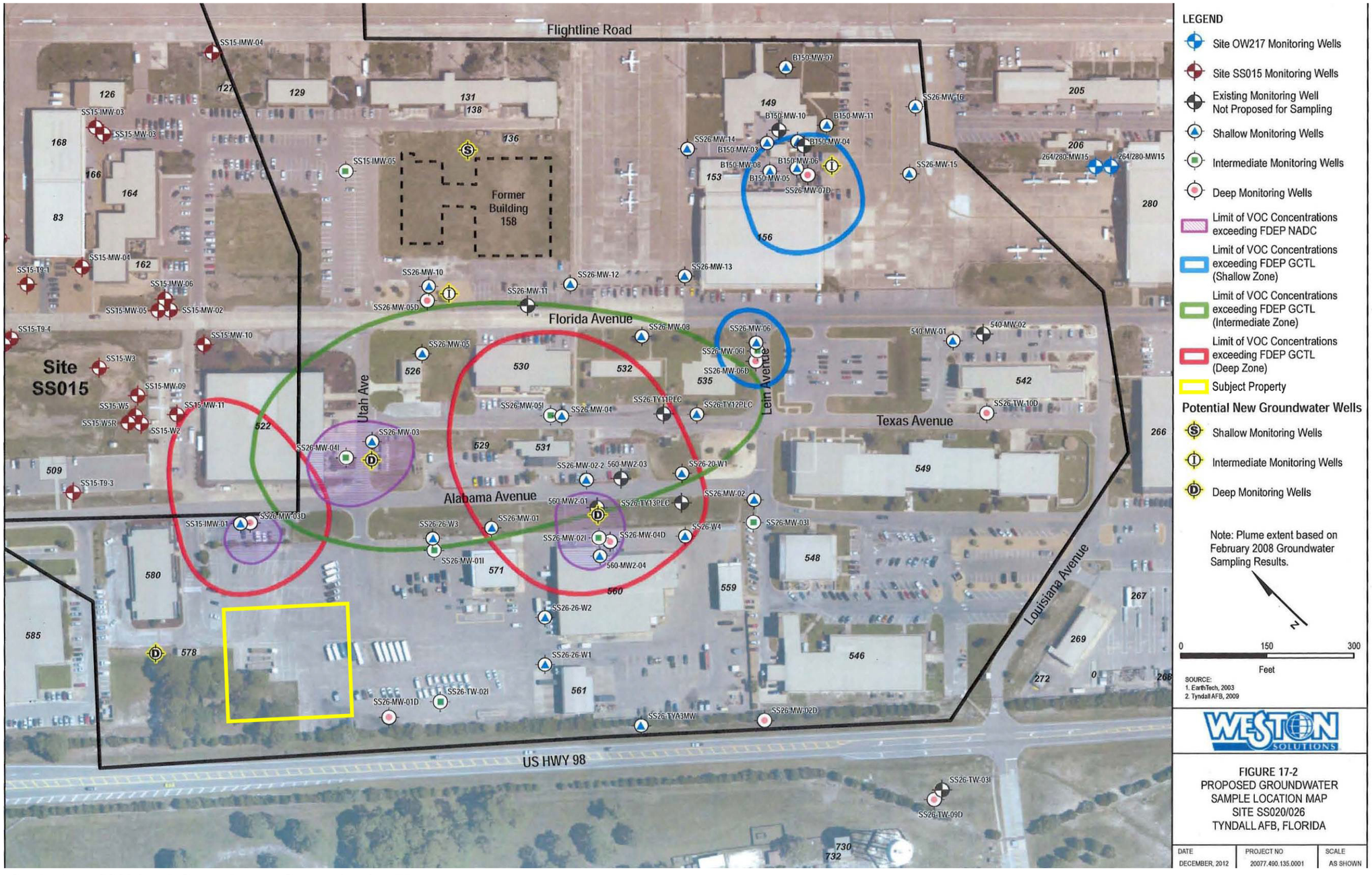


Figure 3-3. Study Area SS026 and Groundwater Contamination Plumes.

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Study Area SS026 is generally bound by US-98 to the south, Louisiana Avenue to the southeast, and the flightline to the northeast, encompassing the subject property in its entirety. The boundary of Study Area SS026 was drawn to include areas upgradient of known release locations although there was no indication that hazardous substances were present in all areas. The proposed MSS site is within Study Area SS026 where there is no evidence that contaminants have been released or migrated.

The primary contaminants of concern in the Study Area SS026 groundwater contamination are benzene, xylenes, and TCE, and their breakdown products. Previous investigations concentrated on individual potential sources; however, subsequent studies found the nature, extent, and distribution of contaminants at Study Area SS026 have not been fully defined. Potential sources of contaminants include but are not limited to USTs and ASTs and related fueling operations, OWSs, vehicle and aircraft wash racks, metal cleaning/degreasing activities, paint booths, and storage of chemicals. Some of the USTs, ASTs, OWSs, and buildings within the Study Area have already been removed.

3.6 AIR QUALITY

3.6.1 Definition of the Resource

Air quality is determined by the type and concentration of pollutants in the atmosphere, the size and topography of the air basin, and local and regional meteorological influences. The significance of local pollutant concentrations is determined by comparing them to national and/or state ambient air quality standards. Under authority of the CAA, the USEPA has established nationwide air quality standards, more commonly known as the National Ambient Air Quality Standards (NAAQS; **Table 3-5**). These standards represent maximum allowable atmospheric concentrations for seven “criteria” pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter less than or equal to 10 micrometers in diameter (PM_{10}), particulate matter less than or equal to 2.5 micrometers in diameter ($PM_{2.5}$), ozone, and lead. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. NAAQS are defined in terms of concentration determined over time. Short-term standards (1-hour, 8-hour, or 24-hour periods) have been established for acute health effects and may be exceeded only once per year for an area to be considered “in attainment”. Long-term standards for chronic health effects may never be exceeded (USEPA 2009). Based on measured ambient air criteria pollutants, the USEPA designates areas of the US as having air quality equal to or better than the NAAQS (attainment) or worse than the NAAQS (non-attainment).

States may establish their own standards as long as they are at least as stringent as the national requirements. Neither Oklahoma nor Texas has established separate Ambient Air Quality Standards (AAQS), and Florida repealed their AAQS on 16 February 2012 (FL Department of State 2012). A State Implementation Plan (SIP) is a detailed description of the program that the State proposes to use to enforce the CAA regulations. The CAA requires USEPA to review and approve each SIP.

Section 176(c) of the CAA is known as the General Conformity Rule and is codified as 40 CFR 51, Subpart W. Under the General Conformity Rule, no Federal agency can approve any activity that does not conform to an applicable SIP. Specific conformity criteria are listed in 40 CFR 51.858. The General Conformity Rule only applies in areas that are in non-attainment or maintenance (40 CFR 51.853 [k]).

Table 3-5. National Ambient Air Quality Standards.

Pollutant	Primary Standards		Secondary Standards	
	Averaging Time	Level	Level	
Carbon Monoxide	8-hour [1]	9 ppm (10 mg/m^3)	none	
	1-hour [1]	35 ppm (40 mg/m^3)	none	
Lead (in total suspended particles)	Rolling 3-month average [1]	0.15 µg/m^3	Same as Primary	
Nitrogen Dioxide	1-hour [2]	100 ppb	53 ppb Annual [3]	
Ozone	8-hour [4]	0.075 ppm	Same as Primary	
Particulate Matter greater than 10 micrometers (PM_{10})	24-hour [5]	150 µg/m^3	Same as Primary	
Particulate Matter ($PM_{2.5}$)	Annual [6]	12.0 µg/m^3	15.0 µg/m^3	
	24-hour [7]	35 µg/m^3	Same as Primary	
Sulfur Dioxide	1-hour [8]	0.075 ppm	0.5 ppm (1300 µg/m^3)	3-hour [1]

ppm=parts per million by volume; mg/m^3=milligrams per cubic meter of air; ppb=parts per billion by volume; µg/m^3=micrograms per cubic meter of air

(1) Not to be exceeded more than once per year.
(2) The form of the 1-hour standard is the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum nitrogen dioxide concentrations.
(3) Annual standards are arithmetic means.
(4) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective 27 May 2008).
(5) Not to be exceeded more than once per year on average over 3 years.
(6) Annual arithmetic mean, averaged over 3 years
(7) The 98th percentile of 24-hour concentrations averaged over 3 years
(8) The 99th percentile of 1-hour concentrations averaged over 3 years.

Source: USEPA 2012b.

Title V of the CAA Amendments of 1990 requires states to issue Field Operating Permits for major stationary sources of air emissions. A major stationary source would include a military base that emits more than 100 tons per year (TPY) of any one criteria air pollutant, 10 TPY of a hazardous air pollutant (HAP), or 25 TPY of any combination of HAPs. Emissions below these quantities are considered "*de minimis*". The Prevention of Significant Deterioration (PSD) requirements of the CAA affect construction of new major stationary emission sources in areas that attain the NAAQS and serves as a pre-construction permitting system.

Greenhouse gases (GHG) are gases that trap heat in the atmosphere. These emissions occur from natural processes as well as human activities. The accumulation of GHG in the atmosphere regulates, in part, the earth's temperature. The Intergovernmental Panel on Climate Change, in its Fourth Assessment Report issued in 2007, stated that warming of the earth's climate system is unequivocal, and that most of the observed increase in globally averaged temperatures since the

mid-20th Century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations (IPCC 2007). The most common GHG emitted from natural processes and human activities include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide.

On a national scale, federal agencies are addressing emissions of GHG by reductions mandated in federal laws and EOs. Most recently, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management,* and EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance,* were enacted to address GHG in detail, including GHG emissions inventory, reduction, and reporting. Several states have promulgated laws as a means to reduce statewide levels of GHG emissions.

3.6.2 Existing Conditions

To avoid duplication, the emissions from the existing MSS fuel storage tanks are not provided below, but rather are included in **Section 4.6** for comparison with the emissions from the new MSS tanks.

3.6.2.1 Altus Air Force Base

Altus AFB is located within the Southwestern Oklahoma Intrastate Air Quality Control Region (AQCR) 189 (40 CFR Part 81.125). AQCR 189 is in attainment for all NAAQS (USEPA 2012c).

3.6.2.2 Camp Bullis

The Metropolitan San Antonio Intrastate (MSAI) AQCR, AQCR 217, consists of the Texas counties of Atascosa, Bandera, Bexar, Comal, Dimmit, Edwards, Frio, Gillespie, Guadalupe, Karnes, Kendall, Kerr, Kinney, LaSalle, Maverick, Medina, Real, Uvalde, Val Verde, Wilson, and Zavala (40 CFR 81.40). Camp Bullis is in Bexar and Comal Counties. Currently, the MSAI is in attainment for all NAAQS (40 CFR 81.344).

The San Antonio region violated federal air quality standards for ground-level ozone based on ozone measurements recorded during the 2001 to 2003 averaging period. In 2002, an Early Action Compact (EAC) agreement signed by local elected officials and submitted to the federal government gave the San Antonio region an opportunity to reduce pollution based on voluntary strategies. As part of the EAC, local leaders agreed to implement voluntary strategies to clean our air using a quicker timeline than would normally occur when areas violate federal standards and are designated "non-attainment." The EAC deferred the non-attainment status and provided relief from federal regulatory requirements associated with a non-attainment designation until December 2007. On 02 April 2008, the USEPA issued a final rule to designate the San Antonio area as in attainment for the 8-hour ozone standard, as they had met all milestones of the EAC program and demonstrated attainment of the 8-hour ozone standard by 31 December 2007 (USEPA 2010).

The TCEQ operates a continuous air monitor sampler on Camp Bullis to determine compliance for San Antonio with EPA air quality standards. Prescribed burning at Camp Bullis releases high levels of particulates; however, TCEQ considers them to be fugitive emissions and does not add them to the Camp's emissions inventories (US Army 2010).

3.6.2.3 Fort Sam Houston

FSH is in Bexar County, TX, which is part of the MSAI AQCD (40 CFR 81.40).

3.6.2.4 Laughlin Air Force Base

Laughlin AFB is in Val Verde County, TX, which is also part of the MSAI AQCD (40 CFR 81.40).

3.6.2.5 Tyndall Air Force Base

Tyndall AFB is in Bay County, FL, which is in attainment for all NAAQS (40 CFR 81.310).

3.7 NOISE

3.7.1 Definition of the Resource

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on the roof. Sound is measured with instruments that record instantaneous sound levels in decibels. A-weighted sound level measurements are used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency content of a sound producing event to represent the way in which the average human ear responds to the audible event.

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and might involve any number of sources and frequencies. It can be readily identifiable or generally nondescript. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between the source and receptor, receptor sensitivity, and time of day. One of the most common ways to describe ambient noise exposure over an extended period of time is as a day-night average sound level (DNL) measured in a-weighted decibels. DNL refers to the average sound level exposure, measured in decibels, over a 24-hour period. A 10-a-weighted decibel penalty is added to sound levels for operations occurring during the hours of 10 PM to 7 AM. This penalty is applied due to the increased annoyance created by noise events which occur during this time. DNL is a quantity that can be calculated directly at a specific location (USAF 1999).

3.7.1.1 Ambient Sound Levels

Most people are exposed to sound levels of 50 to 55 a-weighted decibels or higher on a daily basis. Noise levels in residential areas vary depending on the housing density and location. As shown on **Table 3-6**, noise in a normal suburban residential area is about 55 a-weighted decibels, which increases to 80 a-weighted decibels in the downtown section of a large city (USEPA 1974). Interior noise levels are typically lower than exterior levels due to the attenuation of the sound energy by the structure, with the amount of noise level reduction (NLR) provided by a building being dependent on the type of construction and the number of openings such as doors, windows, chimneys, and plumbing vents. The approximate reduction in interior noise is 15 a-

weighted decibels when windows are open and 25 a-weighted decibels for closed windows (USEPA 1974).

Table 3-6. Typical Outdoor Noise Levels.

Description	Typical Range (dBA)	Average (dBA)
Quiet Suburban Residential	48 to 52	50
Normal Suburban Residential	53 to 57	55
Urban Residential	58 to 62	60
Noisy Urban Residential	63 to 67	65
Very Noisy Urban Residential	68 to 72	70

dBA=A-weighted decibel(s)
Source: USEPA 1974

3.7.1.2 Construction Sound Levels

Building construction, modification, and demolition work can cause an increase in sound that is well above the ambient level. A variety of sounds come from graders, pavers, trucks, welders, and other work processes. **Table 3-7** lists noise levels associated with common types of construction equipment. Construction equipment usually exceeds the ambient sound levels by 20 to 25 a-weighted decibels in an urban environment and up to 30 to 35 a-weighted decibels in a quiet suburban area (Reagan and Grant 1977).

Table 3-7. Noise Level of Heavy Equipment from a Distance of 50 Feet.

Equipment	Noise-Generated A-Weighted Decibel
Bulldozer	95
Scraper	94
Front Loader	94
Backhoe	92
Grader	91
Crane	86

* Noise from a single source
Source: Reagan and Grant 1977

3.7.1.3 Air Installation Compatible Use Zones

The Air Force Air Installation Compatible Use Zone (AICUZ) program assesses and discloses noise created by operations on an installation with an airfield with the goal of preventing the encroachment of incompatible uses on the surrounding areas in a way that ultimately compromises the viability of the installation. Land-use guidelines identified by Federal Interagency Committee on Urban Noise (1980) are used to determine compatible levels of noise exposure for various types of land use surrounding airports; DNL 65-a-weighted decibel noise contours are frequently used to help determine compatibly of aircraft operations with local land use. The Air Force AICUZ program predicts noise exposure by modeling aircraft operations and employing four bands of noise exposure:

- **DNL below 65 a-weighted decibels**—typically acceptable for residential use.
- **DNL 65 to 69 a-weighted decibels**—generally compatible with residential use and related structures; however, measures to achieve NLR of 25 a-weighted decibels need to be incorporated into the design and construction of structures. Motor vehicle transportation and retail trade are also acceptable.

- **DNL 70 to 74 a-weighted decibels**—residential use and related structures are generally incompatible; however, measures to achieve NLR of 30 a-weighted decibels can be incorporated into the design and construction of structures.
- **DNL 75 to 79 a-weighted decibels**—residential use is not compatible and should be prohibited (USAF 1999).

3.7.2 Existing Conditions

3.7.2.1 Altus Air Force Base

At Altus AFB, the noise environment is primarily influenced by aircraft operations. Noise from these operations typically occurs beneath the main approach and departure corridors and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft take off and gain altitude, their contribution to the noise environment drops to levels indistinguishable from the background.

The proposed MSS site at Altus AFB is within 150 feet of parking areas for several large planes. According to the 2010 AICUZ study for Altus AFB, the noise level contours covering the proposed MSS range from 65 to 80 decibels (Altus AFB 2010).

The closest sensitive receptor to the construction or demolition sites would be at the Altus Municipal Golf Course approximately 500 feet southwest. The nearest residences appear to be approximately 0.4 miles northwest of the existing MSS (Google Earth 2012).

3.7.2.2 Camp Bullis

The primary sources of noise on Camp Bullis are vehicle traffic, training activities, and aircraft noise associated with the Combat Assault Landing Strip (CALS), small arms and mortar fire, and demolition activities. Traffic noise is greatest in the southwest corner of the installation due to activities in the cantonment area. Noise associated with the CALS is limited to the northeast corner of the installation and drop zone in the north central portion of the installation. Small arms and mortar fire is restricted to the southeastern portion of the installation (US Army 2006).

An Environmental Noise Management Plan for Camp Bullis was completed in April 1999 by the Center for Health Promotion and Preventive Medicine. This Plan found that average noise levels generated by Camp Bullis have decreased since the Korean War, including those along the boundary of the installation; however, due to the adjacent housing developments, a perceived increase has been reported in noise level (US Army 2006).

The proposed MSS site is a minimum of 1 mile from the boundary of Camp Bullis. The barracks southeast of the site are approximately 0.4 miles away (Google Earth 2012).

3.7.2.3 Fort Sam Houston

Military training at FSH is restricted to the classroom and parade fields; therefore, noise at the installation is not generated by flight operations (US Army 2006).

The proposed MSS site includes the footprint of a former munitions storage bunker. There are no sensitive noise receptors within 1000 feet (Google Earth 2012).

3.7.2.4 Laughlin Air Force Base

The June 2008 AICUZ study for Laughlin AFB indicates that both the existing MSS and the proposed MSS site are in the 70- to 75-a-weighted decibel DNL noise contour (PBS&J 2011). The proposed site is within 0.3 miles of a major highway at the north of the base (Google Earth 2012).

The closest residence appears to be just under 0.5 mile from the proposed MSS (Google Earth 2012).

3.7.2.5 Tyndall Air Force Base

At Tyndall AFB, the 2008 AICUZ study puts both the existing and the proposed MSS site in the >80-a-weighted decibel DNL noise contour (Tyndall 2008).

The closest residence to the proposed MSS site is approximately 0.15 miles south of the site on the opposite side of Highway 98 (Google Earth 2012).

3.8 TRANSPORTATION

3.8.1 Definition of the Resource

For this evaluation, transportation is defined as the vehicular roadway system that enables persons and goods to move about a given area. The number of vehicles that can pass over a given portion of roadway during a specified period of time measures the roadway capacity. This capacity is usually considered in terms of levels of service, which is a qualitative measure describing operational conditions within a traffic stream; it is described in terms of speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

3.8.2 Affected Environment

3.8.2.1 Altus Air Force Base

Altus AFB has an adequate road network that safely moves on-base vehicular traffic with minimal congestion or delay (Black and Veatch 2003). There is some lack of differentiation between primary and secondary streets, as well as angled streets and irregular intersections that have the potential to create some confusion when navigating the base (Black and Veatch 2003). Recommendations to correct these shortfalls are discussed in the 2003 Altus General Plan.

3.8.2.2 Camp Bullis

The Camp Bullis roadway system primarily consists of secondary roads (24-foot wide paved or gravel) and range roads (single lane dirt; USACE 2009a). Only about 5 percent of roads on Camp Bullis are primary roads (paved lanes with shoulders) that provide access to the camp and cantonment area, which includes a portion of Camp Bullis Road (running southwest to northeast)

and Military Highway (running northwest to southeast). A transportation study conducted in 2008 recommended several improvements including roadway widening, resurfacing, realignment, and drainage improvements (USACE 2009b).

3.8.2.3 Fort Sam Houston

On FSH there are three primary north-south traffic arteries (Stanley Road, Scott Road, and North New Braunfels Drive) and two east-west arteries (Wilson Street and Schofield Road; USACE 2009b). A traffic study completed in 2008 recommended several roadway projects to widen roads and improve intersections, increasing the number of main traffic arteries, for expected increases in traffic beginning in 2012. Although there is no railroad service on FSH, a Union Pacific Railroad line splits a portion of the Fort on its east side.

3.8.2.4 Laughlin Air Force Base

The road system on Laughlin AFB is adequate; most locations can be reached within 15 minutes after entering one of the base gates (PBS&J 2011). The primary north-south streets are Liberty Drive, Second Street, and Fourth Street, while Laughlin Drive and Mitchell Boulevard are the primary east-west streets. Traffic conflicts occasionally arise along Liberty Drive at the intersections of Alabama, Arizona, Kansas, and Arkansas Avenues.

3.8.2.5 Tyndall Air Force Base

Tyndall AFB is bisected by Highway 98, splitting the base into the north and the south sides (Black & Veatch 2004). The north side of the base includes those activities that support flying operations and contains the existing MSS. The primary arteries on the north side of the base are Tyndall Drive and Florida Avenue. Minor congestion that had occurred on Tyndall Drive has been relieved from a recent widening project.

3.9 UTILITIES

3.9.1 Definition of the Resource

Utilities are defined as those services that provide amenities such as potable water, electric and natural gas supply, wastewater and stormwater management, and communications. The affected environment for the utilities resource is defined as the entire installation and includes the services provided by both on-installation facilities and off-installation providers.

Under Section 438 of the EISA, federal projects that exceed 5000 square feet are required to maintain or restore natural hydrology (USEPA 2009). Technical guidance has been developed by the USEPA, in close coordination with other federal agencies, for the implementation of Section 438. This guidance generally focuses on methods for retaining rainfall on-site through infiltration, evaporation/transpiration, and reuse to the same extent that occurred prior to development. Practices commonly used to comply with Section 438 include reducing impervious surfaces, using vegetative practices, porous pavement, cisterns, and green roofs.

3.9.2 Affected Environment

3.9.2.1 Altus Air Force Base

Altus AFB receives its water from the City of Altus's water filtration plant. Potable water is stored in two elevated storage tanks. Potable water on Altus AFB is also used for irrigation (Black and Veatch 2003).

The installation's wastewater system is old and is considered in poor condition. Three lift stations on base send wastewater to the city's Southeast Treatment Plant. Several facilities east of the flightline are serviced by individual on-site wastewater systems (Black and Veatch 2003).

Stormwater on Altus AFB is drained by a network of drainage pipes that feed open earthen ditches. Stormwater drains to the south and east. Some flood prone areas are present in the northeast and southwest corners of the base (Black and Veatch 2003).

Altus AFB purchases its natural gas from a private contractor and is supplied through a buried supply line. Natural gas is distributed around the base via looped piping systems, with the housing and cantonment areas being on separate looped and metered systems, although connection valves can be used if necessary (Black and Veatch 2003).

Electrical power is supplied by one 69-kilovolt transmission line to a substation located on base. Power is distributed throughout the base by six circuit feeds. About 70 percent of the base has overhead lines and the remaining 30 percent is buried. The base has several auxiliary generators for backup power to critical facilities in times of emergency (Black and Veatch 2003).

The main telephone switch on Altus AFB has a capacity of 3910 line extensions, is expandable, and is sufficient to meet future requirements. The majority of communication cables, both the copper telephone and optic data, are routed throughout the base through a manhole and duct system (Black and Veatch 2003).

3.9.2.2 Camp Bullis

Camp Bullis receives water from three wells from the Trinity Aquifer. Prior to distribution or storage the water is chemically treated with chlorine, fluoride, and a corrosive inhibitor (phosphate; MACTEC 2007).

Camp Bullis has about 8 miles of wastewater collection mains. Wastewater is delivered, via six lift stations, to the Camp Bullis wastewater treatment plant. Treated effluent is temporarily stored in evaporation/storage ponds and is ultimately discharged through spray irrigation of nearby firing ranges (MACTEC 2007).

Camp Bullis currently does not have a stormwater system and is generally drained through natural settings such as creeks and valleys (MACTEC 2007).

Electrical power is supplied to the camp by City Public Services (CPS). Power to the substation is distributed to metered facilities through CPS-owned transmission lines. Auxiliary generators are available to support critical systems during power interruptions. The camp procures propane

gas from local vendors, which is stored in tanks located near facilities that use the propane for heating (MACTEC 2007).

Camp Bullis has more than 3 miles of copper telephone and 3 miles of fiber optic secure telephone and data communications cabling (MACTEC 2007).

3.9.2.3 Fort Sam Houston

Potable water on FSH is obtained from five wells that can supply up to 14 million gallons per day (MGD) from the artesian zone of the Edwards Aquifer. The water is treated at two treatment plants prior to distribution or storage on the Fort. FSH purchases recycled water from the San Antonio Water System (SAWS) for irrigation systems and cooling tower usage (MACTEC 2007).

The wastewater collection system on the Fort consists of about 49 miles of main pipeline. Wastewater is delivered to sewer mains owned and operated by SAWS (MACTEC 2007).

Stormwater on FSH is primarily drained by Salado Creek, which feeds the San Antonio River. The western portion of the fort is also drained by the Alamo Ditch, while some of the southern and central portions are drained by the City of San Antonio's stormwater drainage system (MACTEC 2007).

FSH obtains electricity from CPS. Power lines owned by CPS distribute power to individually metered facilities. The fort has several auxiliary generators as an emergency power source for mission critical facilities. Natural gas is also obtained from CPS in CPS-owned and maintained distribution lines (MACTEC 2007).

There are over 18 miles of telephone communications and 25 miles of optic cabling for secure telephone and data communications on FSH (MACTEC 2007).

3.9.2.4 Laughlin Air Force Base

Laughlin AFB purchases water from the City of Del Rio, which gets it from the San Felipe Natural Springs. Laughlin AFB has placed two booster pumps at the springs to enhance the water pressure as needed. Before being distributed to the base, water is treated at the Del Rio Water Treatment Plant; after which it is pumped through a 6-mile transit pipe to the base. Water is stored in one aboveground and two elevated tanks. Wells have been installed for irrigation purposes at some facilities (PBS&J 2011). One well was installed for golf course irrigation. It is located in the pasture by the front gate.

Laughlin AFB has a three-pond facultative wastewater treatment plant; however, one pond is inactive and dry. The sewer lines are considered generally to be in good condition; older pipes are replaced when needed (PBS&J 2011).

Stormwater on the base is drained by a system of underground pipes and open drainage ditches. Underground cement pipes are the primary method for stormwater control in the vicinity of the airfield and flightline. A large open drainage ditch that parallels Second Street is used to catch high volumes of surface runoff from the cantonment area (PBS&J 2011).

Natural gas is obtained from the West Texas Gas Company and piped to the base via a high pressure, steel pipeline. The majority of the base uses natural gas for heating and hot water (PBS&J 2011).

Laughlin AFB purchases its electricity from Rio Grande Electric Cooperative. The base receives electricity from the Hamilton Road substation to the base electrical substation via two high voltage overhead lines. The majority of the cantonment area is serviced by overhead lines, which accounts for 50 percent of the base's distribution system. The housing area and airfield have underground distribution systems. The base also has several generators to provide auxiliary power to mission essential facilities (PBS&J 2011).

There is one main telephone switch and approximately 51 miles of cable to support Laughlin's telephone communication. The base's data communication is supported by five core information transfer nodes with about 23 miles of below-ground fiber-optic cables (PBS&J 2011).

3.9.2.5 Tyndall Air Force Base

Potable water is provided to Tyndall AFB by Bay County Utilities for domestic, industrial, and irrigation purposes. Tyndall also has four on-base backup wells that are connected to the primary distribution system. Water is distributed throughout the main base through approximately 90 miles of underground pipelines. Some sports fields are irrigated by wells, while the golf course is irrigated using reuse water (highly treated effluent) from Bay County's Advanced Wastewater Treatment Plant (AWTP; Black & Veatch 2004).

Domestic sewage is collected throughout Tyndall AFB by about 70 miles of sanitary sewage mains. The majority of this system is at least 50 years old. Tyndall's sewage is treated at Bay County's AWTP and the Bay County industrial sewage lagoon (Black & Veatch 2004).

Tyndall has 51 miles of storm drainage lines. Since most stormwater quickly percolates into the sand, surface drainage is sufficient on most parts of the base (Black & Veatch 2004).

Tyndall AFB purchases odorized natural gas from TECO Peoples Gas, which is delivered to the base through a utility-owned regulator station that reduces the pressure from 120 pounds per square inch gauge (psig) to 55 psig for distribution on the base. The base's natural gas distribution system consists of approximately 14 miles of steel and polyethylene pipes. There is no storage of natural gas on base. Tyndall AFB's natural gas consumption for FY11 was 108,460 thousand cubic feet.

The Gulf Coast Electric Cooperative (GCEC) supplies Tyndall AFB with electricity delivered via two 46-kilovolt lines to a electrical substation on the west end of the base, which steps the voltage down to 12.47- kilovolt level for distribution within the base. GCEC owns and operates the electrical distribution system within the base, which consists of approximately 159 wire miles of primary conductor with approximately 95 percent overhead and the remaining 5 percent in conduit. Tyndall AFB consumed 98,315,020-kilowatt hours in FY11.

Tyndall AFB has a 10,000-line main telephone switch and a 1200-line remote switch, as well as an 800-line remote switch dedicated to Silver Flag, which is southeast of the main cantonment area of the base (Black & Veatch 2004).

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4 ENVIRONMENTAL CONSEQUENCES

4.1 GEOLOGICAL RESOURCES

The impacts on geological resources and soils would be significant if the proposed action exposed soils to uncontrolled erosion or contamination.

4.1.1 No Action Alternative

Under the No Action Alternative, existing MSS sites would not be replaced; therefore, no changes to the geological resources at the previously disturbed existing sites would occur. Fuel releases from existing MSS locations without secondary containment structures could produce contaminated soils, a potentially significant adverse impact.

4.1.2 Proposed Action

4.1.2.1 General Impacts

The proposed action would construct new MSS at new locations and demolish the existing stations which could disturb surface soils. The new locations would be temporarily disturbed from construction, although all are in areas that have been previously disturbed. Much of the areas would have permanent impervious pavement and structures. All new fuel storage tanks would be above ground. Demolition of the existing MSS would also temporarily impact soils through grading, compaction, and potentially short-term erosion.

Implementation of BMPs to conserve topsoil and prevent compaction and erosion would minimize disturbance and protect soils during construction and demolition. For example, top soil could be stockpiled for re-use onsite. Limiting heavy equipment use during precipitation events and shortly thereafter would minimize compaction potential, and the use of temporary ground covers and erosion control devices such as check dams and silt fencing would minimize the potential for water erosion. Treatment of freshly exposed soils with water spray would minimize the potential for wind-driven soil erosion. Establishment of secondary containment structures as proposed with the new MSS sites would minimize the potential for fuel spills that could contaminate soils. Based on implementation of soil conserving BMPs, overall impacts of the proposed action to geological resources would be minor and temporary.

4.1.2.2 Altus Air Force Base

The existing MSS site is in a developed area primarily covered in pavement. The proposed site is located within about 2000 feet of the existing MSS on Ordnance Road. According to the Altus 2009 INRMP soils map, Tillman and Hollister clay loams predominate in the proposed MSS site (Altus AFB 2009). The proposed site is fairly level having been previously graded and has no unique topographic features. Associated with the construction of the new MSS site would be 700 linear feet of road construction to facilitate bulk fuel vehicle access. Demolition and construction activities would incur minor and temporary impacts to soils that would be minimized by implementing soil conserving BMPs.

4.1.2.3 Camp Bullis

The existing MSS at Camp Bullis is located at the intersection of Vera Cruz and Camp Bullis Road in a highly developed area covered in pavement. The proposed MSS site at Camp Bullis has been previously leveled and graded; hence, no prominent topographic features are found. It is located near the base of a narrow valley in the vicinity of an old gravel pit. Soils onsite include Eckrant cobbly clay and Tinn clay extending only up to 40 inches in depth (NRCS 2012a). Construction of the new MSS at this installation would also include road improvements, a low-water bridge crossing, storm drainage construction, water lines, a lift station, and extension of electrical and communication lines. All of these activities would have minor and temporary effects to soil that would be diminished by implementing soil conserving BMPs.

4.1.2.4 Fort Sam Houston

The existing MSS at FSH is located in an area covered in pavement with nearby structures. The proposed MSS is located about 0.5 miles to the east. The site is previously disturbed from use as a munitions bunker. Since the bunker was removed, the topography consists of piles of soil and concrete that will need to be graded or removed before the proposed MSS can be constructed. The predominant soil at areas undisturbed by the bunker removal is the Lewisville silty clay that occurs on 1 to 3 percent slopes and is distributed from the surface to approximately a 5-foot depth (NRCS 2012a).

Associated with the proposed construction of the MSS would be reconstruction of Ludington Road for 800 linear feet to support heavier fuel vehicles, construction of an exit road extending approximately 150 linear feet and parking lot exit, extending water, communications, and electrical lines to the site, and rerouting a sanitary sewer line. These activities would have a minor, temporary impact on soils as the area is already previously disturbed, construction would be short term, and soil conserving BMPs would be implemented to minimize impacts.

4.1.2.5 Laughlin Air Force Base

The existing MSS is located about 900 feet east-southeast of the proposed site within a paved area. At Laughlin AFB, ZaC soils are found in the proposed MSS construction site (NRCS 2012b). Associated construction would include 213 linear feet of sewer line and 620 linear feet of road replacement to enable heavier fuel tanker loads at the new MSS site. Both of these activities would produce temporary ground disturbance resulting in minor, short-term impacts on soils in the area. Soil conserving BMPs would be implemented to minimize impacts.

4.1.2.6 Tyndall Air Force Base

The proposed MSS construction site at Tyndall AFB is within areas that are currently paved and classified as urban land in the NRCS soil survey (NRCS 2012c). It is 250 feet west of the existing MSS, across a paved area. This area is likely underlain with fill to support the extensive paved surfaces surrounding nearby buildings. Communication, electrical, water, and sewer lines would be extended to the site, construction of which would have minor, temporary impacts to soils. Soil conserving BMPs would be implemented to minimize impacts.

4.2 WATER RESOURCES

Water resources impacts would be significant if the proposed action:

- Substantially depletes groundwater resources or disrupts groundwater recharge
- Substantially degrades or contaminates surface water quality
- Causes a violation of the terms and conditions of a federal, state, or local permit
- Substantially alters normal drainage patterns and runoff
- Impedes or redirects flood flows

4.2.1 No Action Alternative

Under the No Action Alternative, existing MSS sites would not be replaced; therefore, no changes to water resources at the previously disturbed existing sites would occur. MSS locations without any secondary containment structures to prevent fuel spills at either the AST or filling station could contaminate nearby surface or groundwater. Similarly, the MSS stations with UST (Camp Bullis and FSH) could contaminate groundwater if the UST leaked.

4.2.2 Proposed Action—General Impacts

All of the new proposed MSS sites have been previously disturbed and none contain any wetlands. The area of the construction site for all of the proposed MSS sites would be 1 acre or more; therefore, they would require coverage under the appropriate state's NPDES permit for construction projects.

Construction and demolition activities that temporarily disturb soils could impact surface water by potentially increasing sediment and pollutant loading in runoff. Potential fuel spills could contaminate both surface and groundwater. The paving of previously uncovered surfaces can alter water infiltration and runoff at the sites, requiring consideration of low impact construction methods and stormwater discharge management.

As discussed in **Section 4.1, Geological Resources**, implementation of BMPs to conserve top soil and prevent compaction and erosion would minimize disturbance and protect soils during construction and demolition. Such measures minimize the potential for contaminant-laden runoff from construction and demolition sites to enter surface waters and wetlands. Additional BMPs such as check dams and erosion control fencing slow surface runoff and provide barriers for loaded runoff to enter surface waters. All construction and demolition would be in accordance with SWPPPs and Hazardous Materials Management Plans at each installation that minimize the potential to affect water resources for each proposed MSS location. Operations at the individual MSS would be in conformance with SPCC Plans. Section 438 of the EISA requires preservation or restoration of predevelopment hydrology at the site.

Establishment of secondary containment structures as proposed for the new MSS would minimize the potential for fuel spills that could contaminate surface and groundwater, and demolition of existing MSS with no such protection would eliminate this potential at the existing sites. Similarly, removal of UST at the existing Camp Bullis and FSH sites would alleviate the potential for groundwater contamination. Replacement of existing facilities with the proposed

MSS would not impact groundwater withdrawals at installations that utilize these waters. Based on implementation of erosion, stormwater and spill control BMPs, any adverse impacts of the proposed action to water resources would be minor and temporary. In the long term, the effects from closing MSS with UST and no AST secondary containment structures would be beneficial by removing the potential for contaminant releases from these sources.

4.2.2.1 Altus Air Force Base

The proposed MSS site at Altus AFB is within a previously disturbed area adjacent to the airfield, located about 1000 feet to the southeast of the existing MSS. No major drainages, wetlands, or surface waters are within or near the existing and proposed MSS sites, and they are not within any flood hazard area (FEMA 2012). A Finding of No Practicable Alternative (FONPA) is not needed.

Associated with the construction of the new MSS site would be 700 linear feet of road construction to facilitate bulk fuel vehicle access. Construction activities would incur minor and temporary impacts to surface water that would be minimized by implementing soil conserving BMPs that protect water resources. The proposed action would have minor, temporary potential impacts to water resources.

4.2.2.2 Camp Bullis

The Camp Bullis proposed MSS site is in a small valley between low hills that has been previously disturbed by grading. It is located in the vicinity of an old gravel pit approximately 0.37 miles east-northeast of the existing MSS, which is at the intersection of Vera Cruz Road and Camp Bullis Road. No surface water or wetlands are present on either site, and they are not located in a FEMA flood hazard zone (FEMA 2012); therefore, no FONPA is needed for this part of the proposed action. Salado Creek is located approximately 600 feet to the southwest of the proposed MSS site, Lewis Pond is at the confluence of Salado and Lewis Creeks approximately 1 mile upstream of the proposed site, and sewage ponds along Salado Creek are about 1 mile downstream of the proposed site (USGS 1992). Depth to groundwater is highly variable at this installation due to solubility characteristics of limestone, shale, and marl. Many springs are found in the karst topography; however, none are at or adjacent to the existing or proposed MSS site (US Army 2010).

Construction of the new MSS at this installation would also include road improvements, a low water bridge crossing at intermittent Salado Creek, storm drainage construction, water lines, a sewage lift station, and extension of electrical and communication lines. The proposed improvement to the Salado Creek crossing of Camp Bullis Road would be within the FEMA 100-year floodplain and channel of Salado Creek (FEMA 2012). The crossing of the Salado Creek floodplain would also be coordinated with the City of San Antonio Floodplain Administrator. A permit from the USACE would be needed under Section 404 of the CWA. The proposed action should be eligible to use Nationwide Permit (NWP) 14 for the road crossing and NWP 12 if the utilities or sewer line need to cross Salado Creek. All provisions of these permits would be followed, including preconstruction notification, if required, prior to construction of the crossing. One of the permit provisions would include obtaining a Water Quality Certification from the TCEQ, and following any requirements expressed in the certification to prevent impacts

on water quality. It is federal policy to avoid constructing new facilities within wetlands or floodplains, under EO 11990 and 11988, respectively. Because the road must cross Salado Creek to provide a means of fuel delivery, there is no practicable alternative for the low water crossing modification. No wetlands would be disturbed by the proposed actions.

The proposed construction activities would have minor and temporary effects to soil that would be diminished by implementing soil conserving BMPs that also protect water resources from sedimentation. Replacement of the old facility with the new MSS would not impact water withdrawals from protected aquifers on Camp Bullis. Impacts of the proposed action to water resources would, therefore, be minor and temporary.

4.2.2.3 Fort Sam Houston

The proposed MSS location at FSH is approximately 0.5 miles southwest of Salado Creek, out of the FEMA regulated 100-year floodplain (FEMA 2012). It is in an old munitions storage area and is previously disturbed. No surface water or wetlands are at the proposed location or adjacent to it; therefore, no FONPA is needed. The existing MSS is on Wilson Street about 0.5 miles west of the proposed site. It is in a highly developed area with no surface water features or floodplains.

Associated with the proposed construction of the MSS would be reconstruction of Ludington Road for 800 linear feet to support heavier fuel vehicles, construction of an exit road extending approximately 150 linear feet and parking lot exit about 100 linear feet, extending water, communications, and electrical lines to the site, and rerouting a sanitary sewer line. Soil conserving BMPs would be implemented to minimize erosion impacts and protect water resources. Impacts of the proposed action to water resources would, therefore, be minor and temporary.

4.2.2.4 Laughlin Air Force Base

At Laughlin AFB no surface water resources are within the vicinity of the proposed MSS location in the northwest section of the installation. The existing MSS site is located about 900 feet to the south-southeast of the proposed site. The closest surface water is Zorro Creek approximately 0.5 miles to the west-northwest. The existing and proposed sites are not in any FEMA defined flood hazard zone (FEMA 2012). Associated construction for this MSS would include 213 linear feet of sewer line and 620 linear feet of road replacement to be able to carry heavier fuel tankers to the new MSS site. Both of these activities would produce temporary ground disturbance resulting in minor, temporary impacts on water resources in the form of potential soil erosion during construction. Soil conserving BMPs would be implemented to minimize erosion impacts that protect water resources.

Construction plans would need to avoid the groundwater contamination under the site. See Section 4.5.2.4 for more details.

4.2.2.5 Tyndall Air Force Base

Drainage from the subject property flows in the southeast portion of the subject property into a ditch along the north side of US-98, and is conveyed south by culverts under the highway.

Drainage in the western portion of the subject property flows into an open ditch and drainage pipe inlet in the picnic area close to the pavement, from where it is conveyed in a pipe to the northwest of the property (AECOM 2011a). Neither the existing nor the proposed sites are within the 100-year or 500-year floodplain. The FEMA-defined floodplain does not account for tidal storm surges.

The proposed MSS construction site at Tyndall AFB is just to the west-northwest of the existing MSS, mostly within areas that are currently paved. St. Andrew Bay, the closest waterbody, is about 0.37 miles to the west. Communication, electrical, water, and sewer lines would be extended to the site; construction of which would have minor, temporary impacts to soils that potentially impact water resources through runoff. Implementation of soil conserving BMPs and secondary containment features would minimize the potential to affect water resources from the proposed action.

The entire peninsula that Tyndall AFB is within Florida's Coastal Management Zone. After review of the Florida Coastal Management Program and its enforceable policies, the USAF has made a determination that the proposed action will not have an effect on the state of Florida coastal zone or its resources. A copy of the determination is included in **Appendix D**.

4.3 BIOLOGICAL RESOURCES

The impacts on biological resources would be significant if the proposed action resulted in:

- An adverse impact to any federally, state, or locally regulated or regionally sensitive species or valuable natural resource (sensitive plant/animal community);
- An adverse effect to endangered, threatened or candidate species or adversely modify or destroy their critical habitat under ESA;
- Impacts to birds protected by the MBTA.

4.3.1 No Action Alternative

Implementation of the no action alternative would result in no ground disturbance or any increase in the use of natural areas and therefore, no alteration/disturbance of existing vegetative cover. As a result, vegetation and wildlife (including T&E species and unique habitats) in the area would not be affected under the no action alternative.

4.3.2 Proposed Action

4.3.2.1 General Impacts

Impacts on the vegetation or wildlife communities from implementation of the proposed action alternative at any of the five installations would be negligible. The proposed MSS sites are on areas of marginal value as habitats because of previous disturbance and nearby human activity. BMPs would be implemented during the construction/operational phases to provide the needed protection for biological resources at and bordering each of the proposed MSS sites.

Vegetative Communities

Implementation of the proposed action would have a negligible impact on either the quality or diversity of vegetative communities. During construction approximately 1 acre would be permanently cleared prior to the installation at all proposed MSS sites. Impacts on vegetation resulting from the construction and operation of MSS would be permanent; however, most of the disturbance would occur on previously disturbed lands. Rare or sensitive plant communities have not been documented at any of the proposed MSS sites.

Wildlife

Implementation of the proposed action would have a negligible impact on the wildlife population. Direct and indirect impacts to wildlife could result from loss of habitat, habitat fragmentation, and increases in human presence; however, in general, wildlife populations have adapted to mission activities at all of the installations, and the anticipated increase in human presence due to the proposed action would not alter their habitats within these installations.

Terrestrial reptiles have not been surveyed at any of the proposed MSS sites. The proposed MSS sites are marginal habitats that have probably been used by reptiles or amphibians known to reside at these installations. The proposed action would have a negligible impact on any reptiles or amphibians because of the small area (1 acre) impacted during construction at these proposed MSS sites and the availability of other habitat areas in the vicinity.

Likewise, small to large mammals (e.g., mice to deer) may occasionally use the marginal habitat at the proposed MSS sites for food or shelter; however, the small area impacted and the availability of other habitat areas in the vicinity would make the loss of this marginal habitat a negligible impact on wildlife.

4.3.2.2 Altus Air Force Base

Threatened, Endangered, and Sensitive Species

Federal- or state-listed threatened, endangered, or sensitive plants, invertebrates, fish, reptiles, amphibians, mammals, birds, or critical habitats do not occur on Altus AFB (Oklahoma Department of Wildlife Conservation 2012). T&E and sensitive species would not be significantly affected by implementation of the proposed action.

The federally endangered whooping crane and interior least tern could fly over the proposed MSS site at Altus AFB during their migrations; however, suitable breeding or migratory foraging habitat is not available within the proposed MSS site; therefore, their occurrence would not be expected within the project area.

4.3.2.3 Camp Bullis

Threatened, Endangered, and Sensitive Species

Several federal- or state-listed T&E invertebrates and birds are known to occur on Camp Bullis. Water drainage from the proposed MSS construction site could result in sedimentation to some

of the 29 caves and karst features on base known to contain the three federally listed endangered karst invertebrates: *Cicurina madla*, *Rhadine exilis*, and *R. infernalis* (USFWS 2011a). Several of the caves in the southern portion of Camp Bullis are located along or down-gradient from roads and the proposed MSS site (Veni and Associates 1998). Rain can wash silt or fill from sediment or other pollutants (oil or chemical) into these karst and cave features.

Based on the protective measures and BMPs that would be completed as part of the project, T&E karst species would not be impacted by the proposed action. To protect caves and karst features and the quality of water entering these ecosystems, Camp Bullis's Karst Management Plan (Veni *et al*. 2002) specifies the areas that must remain undeveloped that maintain the native vegetation and drainage patterns surrounding these features and prevents contaminated runoff from reaching them (Veni *et al*. 1995, 2002; Veni and Associates 1996). In addition, BMPs would be used during construction of the MSS and during the operational phase of the project that ensure continued protection of cave and karst T&E species. As discussed in **Section 4.2.2, Proposed Action—General Impacts**, implementation of the project erosion control plan, SWPPP, Hazardous Materials Management Plan, and SPCC Plan at the MSS site would minimize the potential to impact protected cave or karst species at Camp Bullis.

No impacts would occur to T&E bird species. Two federally listed endangered species are known to inhabit Camp Bullis, the black-capped vireo and golden-cheeked warbler. The black-capped vireo is known to use several locations throughout Camp Bullis; while the distribution of the golden-cheeked warbler is more widespread. Impacts from current land management and military activities on the behavior and reproduction of these species have been documented in several studies conducted from 1989 to present. These studies indicate that existing Camp Bullis mission activities and installation management practices appear compatible with these species (US Army 2006). Neither species' habitat occurs on or near the proposed MSS site (MACTEC Engineering and Consulting, Inc. 2007); therefore, as long as disturbance stays out of the forested areas, the proposed construction and/or operation of the MSS site would have no impact to either species due to fragmentation of their habitat or disturbance in or near nesting areas during the breeding season.

Impacts would not occur to other species of birds on federal or state T&E species lists that have the potential of being at or bordering the proposed MSS site at Camp Bullis (i.e., either because of suitable habitat or during migrations). Habitat at Camp Bullis ranges from suitable to marginal for four of these species: the American peregrine falcon, peregrine falcon, whooping crane, and ferruginous hawk (*Buteo regalis*). These birds could occur at Camp Bullis during their migration through the area although the probability of incidental sightings is low (Peterson 1988). Other federal- or state-listed species that have not been seen at Camp Bullis but that could be in the vicinity include the reddish egret (*Egretta rufescens*), interior least tern, mountain plover (*Charadrius montanus*), piping plover (*C. melodus*), bald eagle (*Haliaeetus leucocephalus*), Mexican hooded oriole (*Icterus cucullatus cucullatus*), white faced ibis (*Pelgadis chihi*), loggerhead shrike (*Lanius ludovicianus*), white-tailed hawk (*B. albicaudatus*), zone-tailed hawk (*B. albonotatus*), Sprague's pipit (*Anthus spragueii*), wood stork (*Mycteria americana*), and Eastern brown pelican (*Pelecanus occidentalis*). These species could occur at Camp Bullis during their migrations, but the probability of incidental sightings for these birds is considered to be extremely low (Peterson 1988). For any of these species, any migratory presence of individual specimens at Camp Bullis would be incidental and transient.

4.3.2.4 Fort Sam Houston

Threatened, Endangered, and Sensitive Species

Federal- or state-listed threatened, endangered, or sensitive plants or wildlife, or critical habitats are not known to occur on FSH; therefore, they would not be affected by the proposed action.

4.3.2.5 Laughlin Air Force Base

Threatened, Endangered, and Sensitive Species

One state-listed threatened reptile and two species of federal-listed or candidate T&E birds have been observed at or in the vicinity of Laughlin AFB. The Texas horned lizard has been observed in the northeast sector of Laughlin AFB, but not in the vicinity of the proposed MSS site. Potential habitat at Laughlin AFB exists for the black-capped vireo and Sprague's pipit. These birds stop over at Laughlin AFB during their migration through the area although the number of observations is low (Laughlin AFB 2012). For these species, any migratory presence of individual specimens at Laughlin AFB would be incidental and transient; therefore, the proposed action would not impact the continued survival or well-being of either the Texas horned lizard or either of the two bird species.

4.3.2.6 Tyndall Air Force Base

Threatened, Endangered, and Sensitive Species

Several federal- or state-listed T&E species are known to or could potentially occur in the vicinity of Tyndall AFB. Potential foraging habitat exists for the peregrine falcon and southeastern American kestrel in the open habitat of the proposed MSS site. These birds could stop over at Tyndall AFB during their migration through the area (Tyndall AFB 2011). Other federal- or state-listed species that could be observed flying over the project area including the American oystercatcher (*Haematopus palliates*), reddish egret, snowy egret (*Egretta thula*), least tern (*Sterna antillarum*), snowy plover (*Charadrius alexandrinus tenuirostris*), piping plover, bald eagle, black skimmer (*Rhychops niger*), white-faced ibis, little blue heron (*Egretta caerulea*), tricolor heron (*E. tricolor*), and eastern brown pelican (Tyndall AFB 2011). For any of these species, any migratory presence of individual specimens at Tyndall AFB would be incidental and transient. The proposed action would not have an impact on the continued survival or well-being of these species because of the absence of nesting habitats within or adjacent to the proposed MSS site.

4.4 CULTURAL RESOURCES

Significant impacts to cultural properties would occur only if the proposed action or alternatives would adversely affect historic properties. An adverse effect is an undertaking that diminishes the integrity of a property's location, design, setting, materials, workmanship, feeling, or association or, in other words, damages the qualities of the historic property that make it eligible for listing in the NRHP. An adverse effect can occur through the destruction or alteration of the property, isolation from or alteration of the environment, introduction of intrusive elements (visual, audible, or atmospheric), neglect, and the transfer, lease or sale of the property (Advisory

Council on Historic Preservation and General Services Administration [GSA] Interagency Training Center 1995).

The APEs for archeological or traditional cultural resources are the proposed areas for new MSS construction. Because the existing MSS sites have already been disturbed to the depth they will be disturbed during demolition, the existing MSS sites would not impact archeological or traditional cultural resources. The potential effects on historical resources are evaluated for both the existing MSS site and the proposed MSS site. The Area of Potential Effects (APE) for historical resources is line-of-sight from the existing and proposed MSS sites.

4.4.1 No Action Alternative

Under the no action alternative, there would be no disturbance to the existing MSS or to the property of the proposed MSS; therefore, there would be no effect on cultural resources.

4.4.2 Proposed Action

Since the Proposed Action would be implemented in already disturbed areas within the boundaries of the each base, and since the ICRMP for each base (which includes inventories conducted under Section 110 of the NHPA) has not identified any traditional cultural properties within the APE, and since several Federally recognized tribes were contacted during scoping (see Appendix A) and either no response was received, or, in the case of the Tonkawa Tribe of Oklahoma, an explicit statement that no traditional cultural properties have been identified within the project area was received, further Section 106 consultation related to traditional cultural properties was not conducted.

4.4.2.1 General Impacts

The nature and potential significance of cultural resources in the potentially affected areas were identified by considering the following definition: historic properties, under 36 CFR Part 800, are defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP." For the purpose of these regulations this term includes artifacts, records, and remains that are related to and located within such properties. The term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet NRHP-listing criteria.

4.4.2.2 Altus Air Force Base

Archaeological Resources – No significant archaeological properties are present within the APE; therefore, there would be no effect on historic properties.

Traditional Cultural Properties – No traditional cultural properties are present within the APE; therefore, there would be no effect on traditional cultural properties.

Historic Resources – No historic resources within the APEs are eligible for inclusion on the NRHP; therefore, there would be no effect on historic properties. The Oklahoma Historical Society has requested that historical property consultation be conducted for potential impacts on features more than 45 years old. The existing MSS facility is 46 years old; therefore, the base

will provide the OHS sufficient information to make its effects determination. Based on previous analyses of similar structures, the Air Force does not expect the OHS to object to the proposed action at Altus AFB.

4.4.2.3 Camp Bullis

Archaeological Resources – No significant archaeological properties are present within the APE; therefore, there would be no effect on historic properties.

Traditional Cultural Properties – No traditional cultural properties are present within the APE; therefore, there would be no effect on traditional cultural properties.

Historic Resources – No historic resources within the APEs are eligible for inclusion on the NRHP; therefore, there would be no effect on historic properties.

4.4.2.4 Fort Sam Houston

Archaeological Resources – No significant archaeological properties are present within the APE; therefore, there would be no effect on historic properties.

Traditional Cultural Properties – No traditional cultural properties are present within the APE; therefore, there would be no effect on traditional cultural properties.

Historic Resources –No historic resources within the APEs are eligible for inclusion on the NRHP; therefore, there would be no effect on historic properties.

4.4.2.5 Laughlin Air Force Base

Archaeological Resources – No significant archaeological properties are present within the APE; therefore, there would be no effect on historic properties.

Traditional Cultural Properties – No traditional cultural properties are present within the APE; therefore, there would be no effect on traditional cultural properties.

Historic Resources – No historic resources within the APEs are eligible for inclusion on the NRHP; therefore, there would be no effect on historic properties.

4.4.2.6 Tyndall Air Force Base

Archaeological Resources – No significant archaeological properties are present within the APE; therefore, there would be no effect on historic properties.

Traditional Cultural Properties – No traditional cultural properties are present within the APE; therefore, there would be no effect on traditional cultural properties.

Historic Resources – No historic resources within the APEs are eligible for inclusion on the NRHP; therefore, there would be no effect on historic properties.

4.5 HAZARDOUS MATERIALS AND WASTES

Impacts from hazardous materials or hazardous wastes would be significant if the proposed action:

- Generates, uses, or stores hazardous materials or hazardous wastes in violation of federal or state regulations; or
- Exposes construction workers to increased health risks from working in existing contamination without proper training and equipment.

4.5.1 No Action Alternative

Under the No Action Alternative, the existing tanks, off-loading connections, and bulk fillstands would remain outside any proper secondary containment areas. The potential for the release of hazardous materials to the environment would continue to exist.

4.5.2 Proposed Action

4.5.2.1 General Impacts

Hazardous materials are used in daily operations at all of the installations. Solvents, hydraulic fluid, antifreeze, paints, adhesives, pesticides, herbicides, caustics, and other substances may be found at many of the activity sites. Amounts of hazardous materials are generally limited and in consumer-quantity-type containers. Hazardous wastes are often generated from the use of hazardous materials. The generating activity typically packages the waste and transfers it to an Accumulation Site. The hazardous waste is then characterized, re-packaged, and labeled for proper disposal or recycling. If handled in this manner, the impact of hazardous material usage or generation of hazardous waste on the proposed MSS would be negligible.

Facilities constructed or renovated prior to 1978 have potential to contain ACM and LBP. Before deconstruction/demolition is initiated, assessments for LBP and ACM should be completed. Based on the findings of those assessments, abatement could be required. Abatement and removal actions would need to be performed by properly trained personnel and would result in hazardous material that will need disposal in a proper facility, in accordance with local, state, and federal regulations. The proper handling of ACM and LBP would make their presence on the existing MSS a negligible impact on human health and safety.

For the handling of hazardous materials needed for construction, the construction contractor would comply with all applicable permits and use standard BMPs designed specifically to minimize the risk of environmental contamination and harm to human health. The construction contractor would comply with storm water regulations under the CWA to prevent exposure of storm water runoff to construction materials or sediment; therefore, construction use of hazardous materials would produce a negligible impact on human health or the environment.

Construction of the proposed MSS facilities or demolition of the existing MSS could have adverse impacts on the health of construction or demolition contractors and even future users of the proposed MSS if the land contains hazardous wastes from past releases or spills. Mitigation for this potential impact is the knowledge of the presence of contamination and the proper

planning for dealing with the contamination. If the presence of contamination at a proposed MSS site is known, the health and safety of the construction contractor and others in the vicinity can be protected by either avoidance or protection from exposure. These mitigation measures are discussed in more detail below when the proposed MSS location is on an ERP site.

4.5.2.2 Altus Air Force Base

The existing MSS structure, Building 354, was constructed in 1967; therefore, it would need to be surveyed or tested for ACM and LBP prior to demolition. As long as the demolition contractor is properly trained and removes the materials as prescribed by law, the potential presence of ACM or LBP on the existing MSS would not present an adverse impact on human health or safety.

Based on information gathered during an EBS of the proposed MSS site, two sources of contamination are present beneath the site:

- Groundwater Management Unit 1—a chlorinated VOC groundwater plume that has migrated under the subject property.
- SWMU 10—the former AGE Washrack Pond, on the subject property, that USEPA has said requires no further cleanup action.

Altus AFB's RCRA Corrective Action Permit requires that any intrusive activities (excavation/digging projects) be reviewed by the base's environmental management due to the possibility of exposure to environmental contamination. The permit does not prohibit intrusive activities, it just requires that the involved parties be made aware of the possibility of encountering contaminated media and the need to handle and dispose of it correctly. The base's environmental management would also need to ensure that the construction activities on the subject property not affect the biocell for Building 506, which is located just north of the subject property's northern boundary. As long as Altus AFB's Environmental Management Office reviews the SP's plan for the proposed MSS and ensures that the contractor properly handles any contaminated soil encountered, there would be no adverse impact on human health or safety.

4.5.2.3 Camp Bullis

The existing MSS was constructed in 1945; however, it underwent major modification in 1993. It is unlikely that the structure still has any ACM or LBP associated with it; therefore, there would be no impact on human health and the environment from its demolition.

None of the Camp Bullis ERP sites are near the existing or proposed MSS sites.

Potential construction and deconstruction/demolition activities at Camp Bullis could expose ordnance that would require proper handling and disposal. A comprehensive ordnance survey would be completed before site disturbing activities begin at Camp Bullis.

4.5.2.4 Fort Sam Houston

The existing MSS was constructed in 1983; therefore, there is no potential impact from ACM or LBP.

None of the FSH ERP sites are near the existing or proposed MSS sites.

4.5.2.5 Laughlin Air Force Base

The existing MSS was constructed in 1957; therefore, it would need to be surveyed or tested for ACM and LBP prior to demolition. As long as the demolition contractor is properly trained and removes the materials as prescribed by law, the potential presence of ACM or LBP on the existing MSS would not present an adverse impact on human health or safety.

The existing MSS sits on top of former ERP site ST-11, a 280-gallon UST that stored gasoline for an emergency generator. When the UST was removed in 1989 the tank appeared intact and there was no evidence of soil contamination; therefore, the site was backfilled and closed (USAF 1990). Demolition of the existing MSS would have no potential impact on this former ERP site.

Groundwater contamination has been identified in a plume north of the proposed MSS site. One of the monitoring wells installed to delineate the plume is on the site and groundwater samples from this well have contained detectable TCE concentrations at levels less than the TCEQ's Tier 1 RAL of 5 µg/L. The construction plans for the proposed MSS would need to avoid interference with the monitoring well; however, the groundwater contamination would not pose a risk to human health or safety because the shallow groundwater is between 12 and 26 feet under Laughlin AFB (TCEQ 2012).

4.5.2.6 Tyndall Air Force Base

The existing MSS at Tyndall AFB was constructed in 1972; therefore, there is the potential for ACM and LBP to exist. The building would need to be surveyed or tested for ACM and LBP prior to demolition. As long as the demolition contractor is properly trained and removes the materials as prescribed by law, the potential presence of ACM or LBP on the existing MSS would not present an adverse impact on human health or safety.

Both the aboveground storage tank installations and the closure of the existing tanks need to be registered with the Florida Department of Environmental Protection within 30 days of completion.

Based on information gathered during an EBS for the proposed MSS site, there is no evidence that contaminants have been released from or migrated to the site (AFCEC 2013); therefore, construction of the proposed MSS at Tyndall AFB would not have an adverse impact on human health or safety.

4.6 AIR QUALITY

Impacts to air quality would be considered significant if project emissions exceeded the NAAQS, exceeded the *de minimis* exemption levels, or exposed sensitive receptors to increased pollutant concentrations.

4.6.1 No Action Alternative

Under the No Action Alternative, there would be no emissions from construction of the proposed MSS or demolition of the existing MSS. Emissions from the tanks would remain the same.

4.6.2 Proposed Action

4.6.2.1 General Impacts

Construction and Demolition Emissions

The proposed action would consist of construction of the proposed MSS, operation of the proposed MSS, and demolition of the existing MSS once the proposed MSS is operational. Each of these components would have an effect on air quality.

The proposed construction and demolition would result in minor increases in fugitive dust (PM_{10}) from disturbance to soils and increased combustion emissions (VOCs, carbon monoxide [CO], sulfur dioxide [SO_2], and nitrogen oxide [NO_x]) from the use of construction equipment and the commuting of the construction workers. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity. Emissions from activities associated with site clearing, grading, and from vehicular traffic moving over the disturbed site would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The USEPA provides a conservative estimate of fugitive dust emissions for construction and demolition activities as 0.11 tons/acre/month of activity (California Air Resources Control Board (CARB) 2002). The active construction area would be approximately 1 acre and is estimated to last for up to 180 days, potentially generating 0.66 tons of fugitive dust. The demolition activity is also expected to take approximately 180 days; therefore, assuming that demolition of the existing MSS would also leave an acre of land exposed for 180 days, that activity would produce an additional 0.66 tons of fugitive dust. Although the schedule for the construction and demolition has not been established, the emissions analysis assumes that both construction of the proposed MSS and demolition of the existing MSS would occur within the same calendar year. Watering exposed soil at the beginning and end of each day would decrease the amount of fugitive dust released into the atmosphere from construction operations and trucks driving on unpaved surfaces by as much as 50 percent (SMAQMD 2004); the emissions factor for fugitive dust assumes a 50 percent control using typical dust suppression BMPs. For the demolition sites, surface coverage by revegetation would help reduce the amount of fugitive dust generated from leaving the ground bare; therefore, impacts from fugitive dust would be minimal and temporary (SMAQMD 2004).

The combustion emissions generated at the proposed action sites during both the construction and the demolition processes were estimated using USEPA emission factors for construction

equipment and an estimate of what equipment would be used and for how long. The results of these calculations are presented in **Table 4-1** with details in **Appendix E**.

Due to the lack of details about the construction and demolition processes at this time, estimates of construction equipment usage derived from construction estimating standards were used (SMAQMD 2004). Emission factors were in pounds per day, which were multiplied by an estimate of the number of days the equipment would be working on site. The same estimates were used for all five locations; therefore, the emissions in **Table 4-1** are the same for all five locations.

Table 4-1. Emission Totals for Construction and Demolition of Proposed Action.

	NO_x (T)	VOC (T)	CO (T)	PM_{10} (T)
Combustion emissions total for both construction and demolition	9.96	1.91	15.68	0.36
Fugitive dust emissions from both proposed and existing 1-acre sites				1.32
Construction commuter emissions assuming 20 workers driving an average of 40 miles per day for 180 days	0.05	0.05	0.48	0.01
Total construction and demolition emissions	10.01	1.96	16.16	1.69

NO_x=nitrogen oxide; VOC=volatile organic compound; CO=carbon monoxide; PM_{10}=particulate matter less than or equal to 10 micrometers in diameter; T=ton(s)

HAPs are estimated by multiplying the vapor weight percent of the compound by the VOC emissions in **Table 4-1**; combining the emissions of the 12 highest HAP percent weights showed that slightly more than 0.55 T of HAPs would be produced by the construction equipment, well below any *de minimis* values. The two HAPs with the highest weight percent from heavy duty diesel equipment are formaldehyde and acetaldehyde at 16 and 7.4 percent, respectively. The HAP calculations are presented in **Appendix E**.

In addition to the combustion emissions from construction vehicles, the combustion emissions from construction workers commuting to and from the site were estimated assuming 20 construction workers driving an average of 40 miles round trip per day for 180 days. Although the weight percent of HAP emissions from light duty vehicles is different from heavy machinery, the low level of VOCs from commuter traffic for the construction and demolition indicates that the HAP concentrations would also be low.

Installation-specific comparisons to 2008 county emissions are presented in the sections below. The emissions associated with construction and demolition activities would be negligible and would not affect the local air quality.

Operational Emissions

Emissions for the operation of the proposed MSS are primarily from the releases associated with the storage and distribution of fuels. No net change in vehicular traffic is anticipated because some vehicles would travel farther to refuel, whereas others would travel less. No change in the numbers of vehicles using the MSS is included in the proposed action.

Because none of the installations are in air districts that are in non-attainment for any NAAQS, a General Conformity analysis is not required. Each installation will be increasing the number of tanks used for storage so that additional types of products are available for use; however, the

proposed action itself is not increasing the total throughput for any of the MSS. The installation of larger tanks is to provide Fuels Managers better flexibility when ordering resupply and to reduce the frequency of tank replenishment. The primary pollutant of concern with emissions from petroleum storage tanks is VOCs.

Emissions from the MSS storage tanks would be caused by changes in temperature, pressure, and liquid level. The amount of emissions would vary as a function of tank capacity, vapor pressure of the stored liquid, utilization rate of the tank, and atmospheric conditions at the tank location. In general, there are two types of emissions from tanks, "storage losses" and "working losses." Storage losses, also known as breathing losses, occur as a result of vapor expansion and contraction caused by changes in temperature and barometric pressure. This occurs without any liquid level change in the tank. Working losses are the combined loss from filling and emptying the tanks. As the liquid level in the tank increases, the pressure inside the tank exceeds the relief pressure and vapors are expelled from the tank. As the liquid level decreases, air drawn into the tank becomes saturated with organic vapor and expands, thus exceeding the capacity of the vapor space.

The methods and step-by-step procedures used to calculate VOC emissions from storage tanks are provided in Chapter 7 of USEPA's AP-42 *Compilation of Air Pollutant Emission Factors*. These calculations were developed into a software model called TANKS, which is available from the USEPA website. TANKS version 4.09 was used to estimate the VOC emissions from the existing MSS tanks and the proposed MSS tanks so that potential adverse or beneficial impacts on air quality of the proposed action could be identified.

Liquid fuels are a mixture of various hydrocarbon compounds, some of which are on the list of HAPs. As fuel vapors are emitted into the atmosphere, these HAP component compounds are also emitted. Since the individual compounds which make up liquid fuel have different vapor pressures, the evaporative emissions coming from a tank are composed mainly of those compounds with the highest vapor pressure. For this reason, the concentration of individual compounds in the fuel vapor will be different than the concentrations of these compounds in the liquid fuel. The HAP emissions associated with fuel evaporative losses from storage tanks are calculated by multiplying the corresponding VOC emissions by the vapor-phase weight fraction of each HAP in the fuel (O'Brien, *et al*. 1999; Haskew and Liberty 2011).

Several assumptions were made to get the emissions estimates:

- With one exception, all of the existing MSS tanks were horizontal fixed roof tanks; therefore, all of the proposed tanks were assumed to be horizontal fixed roof tanks.
- Although the existing tanks at Camp Bullis and Fort Sam Houston are USTs, all of the proposed tanks were assumed to be ASTs.
- None of the existing MSS dispense 85 percent ethanol (E85) fuels. Throughputs for the proposed E85 tanks were estimated to be half of the existing throughput for gasoline (i.e., if the throughput for an existing gasoline unleaded regular (GUR) tank is 10,000 gallons per year, the throughputs for the proposed E85 and GUR tanks were assumed to be 5000 gallons per year each.)
- Based on the results of a Department of Defense Study—*Effect of Biodiesel on Diesel Engine Emissions of Nitrogen Oxide and other Regulated Emissions,* Project Number

WP-0308, May 2006—there is no statistical difference in the emissions of biodiesel (B20) and diesel alone (AFCEE 2009); therefore, the emissions for B20 were the same as those calculated for diesel (petroleum distillate #2).

- The biodiesel for both the existing and proposed tanks was assumed to be B20 because diesel vehicles do not run well on straight biodiesel without major modifications (European Biofuel Technology Platform 2011).
- The estimation of HAPs emissions are based on the VOC emissions estimated by the TANKS program and multiplied by the vapor-phase weight fraction of each HAP in the fuel. The vapor-phase speciation of B20 was assumed to be similar to diesel, except for the vapor weight of naphthalene and xylenes, which were found on MSDSs for B20 (Tesoro Refining and Marketing 2011). The other HAP emissions for B20 were copied from regular diesel fuel speciation (O'Brien, *et al*. 1999).
- Based on the relatively low levels of emissions from fuel storage, GHG emissions were calculated based on the emissions changes of fuel combustion due to the change of fuel type usage for vehicles fueling at the MSS.

4.6.2.2 Altus Air Force Base

A comparison between the estimated emissions from construction and demolition activities of the proposed action and estimated annual emission for Jackson County, OK, is presented in **Table 4-2**.

Table 4-2. Emissions for Construction and Demolition at Altus Air Force Base Compared to County Emissions.

Emissions	NO_x (T)	VOC[1] (T)	CO (T)	PM_{10} (T)
Jackson County, OK (2008 emissions [T])[2]	1033	871	4577	452
Project emissions (from **Table 4-1**) as percent of county annual emissions	0.97	0.22	0.35	0.37[3]

[1] The construction emission factors for VOCs were reported as ROGs, which tends to overestimate the VOC emissions (FAA 1997).
[2] USEPA 2012d
[3] Estimated fugitive emissions (1.32 T) added to PM_{10} combustion emissions to compare total to county emissions
T=ton(s); NO_x=nitrogen oxide; VOC=volatile organic compound; CO=Carbon monoxide; PM_{10}=particulate matter less than or equal to 10 micrometers in diameter; ROG=reactive organic gas

The comparison shows that the emissions from the construction and demolition activities of the proposed action would have a minor, short-term effect on local air quality.

The breathing and working losses from both the existing and proposed fuel storage tanks were estimated to determine the impact of the change of tank volume and contents at Altus AFB and are presented in **Table 4-3**.

The additional tanks in the proposed MSS would increase VOC emissions by 2.61 TPY. The new emissions total from the proposed MSS would be 3.82 TPY, which is well below the *de minimis* threshold of 100 TPY for the PSD under the CAA.

Table 4-3. Volatile Organic Compound Emission Estimates of Existing and Proposed Military Service Station Storage Tanks at Altus Air Force Base.

Tank Contents	Total Tank Volume (gal)	Throughput (gal/yr)	Working Loss VOC (lb/yr)	Breathing Loss VOC (lb/yr)	Total VOC Emissions (lb/yr)	Total VOC Emissions (TPY)
Existing MSS tanks						
354 GUR	12,000	73,802	669.27	1740.99	2410.26	1.2051
378 Diesel	20,096	36,817	0.89	4.92	5.80	0.0029
Total					**2416.06**	**1.2080**
Proposed MSS tanks						
A-ULSD	20,000	18,408	0.53	9.78	10.31	0.0052
A-Gas	20,000	36,901	334.63	5336.76	5671.40	2.8357
A-E85	20,000	36,901	115.23	1837.54	1952.77	0.9764
A-BDI	20,000	18,409	0.53	9.78	10.31	0.0052
Total					**7644.79**	**3.8224**
Change					**5228.73**	**2.61**

Contents: GUR=gasoline unleaded regular; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; BDI=biodiesel blend
gal=gallon(s), yr=year, lb=pound(s), TPY=ton(s) per year, GUR=unleaded gasoline

The calculation of HAPs emissions is related to the emissions of VOCs; therefore, the increase of VOC emissions at Altus AFB indicates that the emissions of HAPs would also increase. The *de minimis* threshold for HAPS under the PSD is 10 TPY of a single HAP or 25 TPY of any combination of HAPs. For Altus, the operation of the proposed MSS tanks would produce total HAPs of only 0.24 TPY, an increase of 0.18 over the existing emissions (**Table 4-4**); therefore, the impact of the tank emissions on air quality would be minor.

Table 4-4. Hazardous Air Pollutant Emission Estimates of Existing and Proposed Military Service Station Storage Tanks at Altus Air Force Base.

	Hazardous Air Pollutants (TPY)								
	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Naph-thalene	Toluene	224-TMP	Xylenes
Existing MSS tanks									
354-020-GUR	0.0046	0.0002	0.0003	0.0038	0.0350		0.0053	0.0053	0.0015
378-B20	0.0002	0.0000	0.0000	0.0000		0.0001	0.0001		0.0000
Total	**0.0048**	**0.0002**	**0.0003**	**0.0039**	**0.0350**	**0.0001**	**0.0054**	**0.0053**	**0.0015**
Proposed MSS Tanks									
A-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
A-GUR	0.0170	0.0006	0.0011	0.0142	0.1304		0.0198	0.0198	0.0057
A-E85	0.0011		0.0007	0.0052			0.0093	0.0088	0.0038
A-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
Total	**0.0188**	**0.0006**	**0.0019**	**0.0196**	**0.1304**	**0.0003**	**0.0295**	**0.0286**	**0.0097**
Change	**0.0143**	**0.0005**	**0.0016**	**0.0158**	**0.0955**	**0.0003**	**0.0242**	**0.0233**	**0.0081**

Contents: GUR=gasoline unleaded regular; B20=biodiesel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel

Although the overall throughput would remain the same from the existing to proposed MSS, the blend of fuels used would be changed due to the use of E85 and B20 in place of some of the GUR and regular diesel. The combustion of the different blend of fuels would change the quantity of CO_2 emitted from the vehicles. **Table 4-5** shows the change based on emission factors provided by the Department of Energy (DOE 2007).

As **Table 4-5** shows, the change of the blend of fuels used by base vehicles as a result of the proposed action would reduce the CO_2 emissions by 265.23 TPY or roughly 25 percent. This would be a beneficial impact on air quality in the area.

Table 4-5. Greenhouse Gas Emissions from the Combustion of Fuels at the Existing and Proposed Military Service Stations at Altus Air Force Base.

Tank ID	Throughput (gal/yr)	CO_2 (TPY)
Existing MSS Fuels		
A-354GUR	73,802	721.05
A-378B20	36,817	329.33
Total T/yr CO_2		**1050.37**
Proposed MSS Fuels		
A-ULSD	18,408	205.89
A-Gas	36,901	360.52
A-E85	36,901	54.06
A-B20	18,409	164.67
Total T/yr CO_2		**785.14**
Change		**-265.23**

Contents: GUR=gasoline unleaded regular; B20=biodiesel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel

4.6.2.3 Camp Bullis

A comparison between the estimated emissions from construction and demolition activities of the proposed action and estimated annual emissions for Bexar County, TX, is presented in **Table 4-6**.

The comparison shows that the emissions from the construction and demolition activities of the proposed action would be negligible and would not affect the local air quality.

Table 4-6. Emissions for Construction and Demolition at Camp Bullis and Fort Sam Houston Compared to County Emissions.

Construction Emissions	NO_x (T)	VOC[1] (T)	CO (T)	PM_{10} (T)
Bexar County, TX (2008 emissions [T])[2]	94,806	46,218	4,525,664	57,805
Project emissions as percent of county emissions	0.0106	0.0042	0.0004	0.0029

[1] The construction emission factors for VOCs were reported as ROGs, which tends to overestimate the VOC emissions (FAA 1997).
[2] USEPA 2012d
[3] Less than 0.01 percent
[4] Estimated fugitive emissions (14.4 T) added to PM_{10} combustion emissions to compare total to county emissions
T=ton(s); NO_x=nitrogen oxide; VOC=volatile organic compound; CO=carbon monoxide; PM_{10}=particulate matter less than or equal to 10 micrometers in diameter; ROG=reactive organic gas

The breathing and working losses from both the existing and proposed fuel storage tanks were estimated to determine the impact of the change of tank volume and contents at Camp Bullis and are presented in **Table 4-7**.

The additional tanks in the proposed MSS would increase VOC emissions by 3.32 TPY. The new emissions total from the proposed MSS would be roughly 3.42 TPY, which is well below the *de minimis* threshold of 100 TPY for the PSD under the CAA. Most of the increase in emissions from the tanks comes from changing from USTs to ASTs. In a warm area like San Antonio, the majority of the tank losses are from the change in temperature of the tank, which does not occur much in USTs.

Table 4-7. Emissions Estimates of Existing and Proposed Military Service Station Storage Tanks at Camp Bullis.

Tank Contents	Total Tank Volume (gal)	Throughput (gal/yr)	Working Loss VOC (lb)	Breathing Loss VOC (lb)	Total VOC Emissions (lb)	Total VOC Emissions (T)
Existing MSS tanks						
6101-GUR	10,000	22,285	191.63	UST	191.63	0.0958
6101-JP8	10,000	63,205	2.0569	UST	2.06	0.0010
Total					**193.69**	**0.0968**
Proposed MSS Tanks						
CB-ULSD	12,000.00	3715	0.13	9.54	9.66	0.0048
CB-GUR	12,000.00	7431	74.97	5593.93	5668.90	2.8345
CB-E85	12,000.00	7431	23.48	1108.96	1132.44	0.5662
CB-B20	12,000.00	3716	0.13	9.54	9.66	0.0048
CB-JP8	12,000.00	63,205	2.67	11.86	14.53	0.0073
Total					**6835.19**	**3.4176**
Change					**6641.50**	**3.3208**

Contents: GUR=gasoline unleaded regular; JP8=jet fuel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel gal=gallon(s), yr=year, lb=pound(s), T=ton(s), GUR=regular unleaded gasoline,

The calculation of HAPs emissions is related to the emissions of VOCs; therefore, the increase of VOC emissions at Camp Bullis indicates that the emissions of HAPs would also increase. The *de minimis* threshold for HAPS under the PSD is 10 TPY of a single HAP or 25 TPY of any combination of HAPs. For Camp Bullis, the operation of the proposed MSS tanks would produce total HAPs of only 0.23 TPY, an increase of 0.22 over the existing emissions (**Table 4-8**); therefore, the impact of the tank emissions on air quality would be minor.

Table 4-8. Hazardous Air Pollutant Emission Estimates of Existing and Proposed Military Service Station Storage Tanks at Camp Bullis.

	Hazardous Air Pollutants (TPY)								
	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Naph-thalene	Toluene	224-TMP	Xylenes
Existing MSS tanks									
6101-GUR	0.0006	0.0000	0.0000	0.0005	0.0044		0.0007	0.0007	0.0002
6101-JP8	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total	**0.0006**	**0.0000**	**0.0000**	**0.0005**	**0.0044**	**0.0000**	**0.0007**	**0.0007**	**0.0002**
Proposed MSS Tanks									
CB-ULSD	0.0003	0.0000	0.0000	0.0001			0.0002		0.0001
CB-GUR	0.0170	0.0006	0.0011	0.0142	0.1304		0.0198	0.0198	0.0057
CB-E85	0.0006		0.0004	0.0030			0.0054	0.0051	0.0022
CB-B20	0.0003	0.0000	0.0000	0.0001		0.0002	0.0002		0.0000
CB-JP8	0.0000	0.0000	0.0000			0.0004	0.0001	0.0000	0.0001
Total	**0.0184**	**0.0006**	**0.0016**	**0.0174**	**0.1304**	**0.0006**	**0.0257**	**0.0249**	**0.0082**
Change	**0.0178**	**0.0006**	**0.0016**	**0.0169**	**0.1260**	**0.0006**	**0.0250**	**0.0243**	**0.0080**

Contents: GUR=gasoline unleaded regular; JP8=jet fuel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel TPY=ton(s) per year, 0.0000=less than 0.00005 TPY

Although the overall throughput would remain the same from the existing to proposed MSS, the blend of fuels used would be changed due to the use of E85 and B20 in place of some of the GUR and regular diesel. The combustion of the different blend of fuels would change the quantity of CO_2 emitted from the vehicles. **Table 4-9** shows the change based on emission factors provided by the Department of Energy (DOE 2007).

Table 4-9. Greenhouse Gas Emissions from the Combustion of Fuels at the Existing and Proposed Military Service Stations at Camp Bullis.

Tank ID	Throughput (gal/yr)	CO_2 (TPY)
Existing MSS Fuels		
CB-6101GUR	22,285	217.72
CB-6101JP8	63,205	666.50
Total T/yr CO_2		**884.22**
Proposed MSS Fuels		
CB-ULSD	3715.00	41.55
CB-Gas	7431.00	72.60
CB-E85	7431.00	10.89
CB-B20	3716.00	33.24
CB-JP8	63,205.00	666.50
Total T/yr CO_2		**824.78**
Change		**-59.44**

Contents: GUR=gasoline unleaded regular; JP8=jet fuel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel

As **Table 4-9** shows, the change of the blend of fuels used by base vehicles as a result of the proposed action would reduce the CO_2 emissions by 59.44 TPY or roughly 7 percent. This would be a beneficial impact on air quality in the area.

4.6.2.4 Fort Sam Houston

Using the comparison from **Table 4-6** above, the emissions from the construction and demolition activities of the proposed action would be negligible and would not affect the local air quality.

The breathing and working losses from both the existing and proposed fuel storage tanks were estimated to determine the impact of the change of tank volume and contents at FSH and are presented in **Table 4-10**.

Table 4-10. Emissions Estimates of Existing and Proposed Military Service Station Storage Tanks at Fort Sam Houston.

Tank Contents	Total Tank Volume (gal)	Throughput (gal/yr)	Working Loss VOC (lb)	Breathing Loss VOC (lb)	Total VOC Emissions (lb)	Total VOC Emissions (TPY)
Existing MSS Tanks						
4050-GUR1	10,000	3339	28.71	UST	28.71	0.0144
4050-GUR2	10,000	6000	51.59	UST	51.59	0.0258
4050-JP8	10,000	8198	0.27	UST	0.27	0.0001
4050-D	10,000	35,893	0.95	UST	0.95	0.0005
Total					**81.52**	**0.0408**
Proposed MSS Tanks						
FSH-ULSD	12,000.00	17,747.00	0.60	9.54	10.14	0.0051
FSH-Gas	12,000.00	4669.00	47.10	5593.93	5641.04	2.8205
FSH-E85	12,000.00	4669.00	14.76	1091.63	1106.39	0.5532
FSH-B20	12,000.00	17,746.00	0.60	9.54	10.14	0.0051
FSH-JP8	12,000.00	8198.00	1.56	11.86	13.42	0.0067
Total					**6781.13**	**3.3583**
Change					**6699.61**	**3.3075**

Contents: GUR=gasoline unleaded regular; JP8=jet fuel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel
gal=gallon(s), yr=year, lb=pound(s), T=ton(s), UST=underground storage tank

The additional tanks in the proposed MSS would increase VOC emissions by 3.31 TPY. The new emissions total from the proposed MSS would be roughly 3.36 TPY, which is well below the *de minimis* threshold of 100 TPY for the PSD under the CAA. Most of the increase in emissions from the tanks comes from changing from USTs to ASTs. In a warm area like San Antonio, the majority of the tank losses are from the diurnal change in temperature of the tank.

The calculation of HAPs emissions is related to the emissions of VOCs; therefore, the increase of VOC emissions at FSH indicates that the emissions of HAPs would also increase. The *de minimis* threshold for HAPS under the PSD is 10 TPY of a single HAP or 25 TPY of any combination of HAPs. For FSH, the operation of the proposed MSS tanks would produce total HAPs of only 0.22 TPY, which is a 99 percent increase over the existing emissions, although it is still quite low (**Table 4-11**); therefore, the impact of the tank emissions on air quality would be minor.

Although the overall throughput would remain the same from the existing to proposed MSS, the blend of fuels used would be changed due to the use of E85 and B20 in place of some of the GUR and regular diesel. The combustion of the different blend of fuels would change the quantity of CO_2 emitted from the vehicles. **Table 4-12** shows the change based on emission factors provided by the Department of Energy (DOE 2007).

As **Table 4-12** shows, the change of the blend of fuels used by base vehicles as a result of the proposed action would reduce the CO_2 emissions from 579.15 TPY to just under 496.14 TPY, a decrease of 14 percent. This would be a beneficial impact on air quality in the area.

Table 4-11. Hazardous Air Pollutant Emission Estimates of Existing and Proposed Military Service Station Storage Tanks at Fort Sam Houston.

	Hazardous Air Pollutants (TPY)								
	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Naph-thalene	Toluene	224-TMP	Xylenes
Existing MSS tanks									
4050-GUR1	0.0001	0.0000	0.0000	0.0001	0.0007		0.0001	0.0001	0.0000
4050-GUR2	0.0002	0.0000	0.0000	0.0001	0.0012		0.0002	0.0002	0.0001
4050-JP8	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
4050-D	0.0000	0.0000	0.0000	0.0000			0.0000		0.0000
Total	**0.0006**	**0.0000**	**0.0000**	**0.0005**	**0.0044**	**0.0000**	**0.0007**	**0.0007**	**0.0001**
Proposed MSS Tanks									
FSH-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
FSH-GUR	0.0169	0.0006	0.0011	0.0141	0.1297		0.0197	0.0197	0.0056
FSH-E85	0.0006		0.0004	0.0029			0.0053	0.0050	0.0022
FSH-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
FSH-JP8	0.0000	0.0000	0.0000			0.0000	0.0001	0.0000	0.0001
Total FSH	**0.0183**	**0.0006**	**0.0016**	**0.0173**	**0.1297**	**0.0003**	**0.0255**	**0.0247**	**0.0081**
Change	**0.0177**	**0.0006**	**0.0016**	**0.0168**	**0.1253**	**0.0003**	**0.0248**	**0.0240**	**0.0080**

Contents: GUR=gasoline unleaded regular; JP8=jet fuel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel
TPY=ton(s) per year, 0.0000=less than 0.00005 TPY

Table 4-12. Greenhouse Gas Emissions from the Combustion of Fuels at the Existing and Proposed Military Service Stations at Fort Sam Houston.

Tank ID	Throughput (gal/yr)	CO_2 (TPY)
Existing MSS Fuels		
FSH-4050G1	3339	32.62
FSH-4050G2	6000	58.62
FSH-4050JP8	8198	86.45
FSH-4050D	35,893	401.46
Total T/yr CO_2		**579.15**
Proposed MSS Fuels		
FSH-ULSD	17,747.00	198.50
FSH-Gas	4669.00	45.62
FSH-E85	4669.00	6.84
FSH-B20	17,746.00	158.74
FSH-JP8	8198.00	86.45
Total T/yr CO_2		**496.14**
Change		**83.01**

Contents: GUR=gasoline unleaded regular; JP8=jet fuel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel

4.6.2.5 Laughlin Air Force Base

A comparison between the estimated emissions from construction and demolition activities of the proposed action and estimated monthly emission for Val Verde County, TX, is presented in **Table 4-13**.

The comparison shows that the emissions from the construction and demolition activities of the proposed action would be negligible and would not affect the local air quality.

The breathing and working losses from both the existing and proposed fuel storage tanks were estimated to determine the impact of the change of tank volume and contents at Laughlin AFB and are presented in **Table 4-14**.

Table 4-13. Emissions for Construction and Demolition at Laughlin Air Force Base Compared to County Emissions.

Construction Emissions	NO_x (T)	VOC[1] (T)	CO (T)	PM_{10} (T)
Val Verde County, TX (2008 emissions [T])[2]	1962	2375	6351	3017
Project emissions as percent of county emissions	0.51	0.08	0.25	0.06

[1] The construction emission factor for VOCs were reported as ROGs, which tends to overestimate the VOC emissions (FAA 1997).
[2] USEPA 2012d
[3] Estimated fugitive emissions (1.32 T) added to PM_{10} combustion emissions to compare total to county emissions
T=ton(s); NO_x=nitrogen oxide; VOC=volatile organic compound; CO=carbon monoxide; PM_{10}=particulate matter less than or equal to 10 micrometers in diameter; ROG=reactive organic gas

The additional tanks in the proposed MSS would reduce VOC emissions by 0.54 TPY. The new emissions total from the proposed MSS would be 1.93 TPY, which is well below *de minimis* threshold of 100 TPY for the PSD under the CAA. The reduction in VOC emissions is a beneficial impact of the proposed action.

Table 4-14. Emissions Estimates of Existing and Proposed Military Service Station Storage Tanks at Laughlin Air Force Base.

Tank Contents	Total Tank Volume (gal)	Throughput (gal/yr)	Working Loss VOC (lb)	Breathing Loss VOC (lb)	Total VOC Emissions (lb)	Total VOC Emissions (T)
Existing MSS Tanks						
2109-GUR	10,000	74,021	754.41	4180.66	4934.80	2.4674
2109-B20	10,000	47,043	1.62	6.10	7.72	0.0039
Total					**4942.52**	**2.4713**
Proposed MSS Tanks						
L-ULSD	12,000.00	23,522.00	0.81	9.62	10.43	0.0052
L-Gas	12,000.00	37,010.00	377.99	2201.44	2579.44	1.2897
L-E85	12,000.00	37,011.00	118.60	1147.37	1265.97	0.6330
L-B20	12,000.00	23,521.00	0.81	9.62	10.43	0.0052
Total					**3866.27**	**1.9331**
Change					**-1076.25**	**-0.5381**

Contents: GUR=gasoline unleaded regular; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel
gal=gallon(s), yr=year, lb=pound(s), T=ton(s)

The calculation of HAPs emissions is related to the emissions of VOCs; therefore, the decrease of VOC emissions at Laughlin AFB indicates that the emissions of HAPs would also decrease. The *de minimis* threshold for HAPS under the PSD is 10 TPY of a single HAP or 25 TPY of any combination of HAPs. For Laughlin AFB, the operation of the proposed MSS tanks would produce total HAPs of only 0.12 TPY, a decrease of 0.07 TPY from the existing emissions (**Table 4-15**); therefore, the impact of the tank emissions on air quality would be slightly beneficial.

Although the overall throughput would remain the same from the existing to proposed MSS, the blend of fuels used would be changed due to the use of E85 and B20 in place of some of the GUR and regular diesel. The combustion of the different blend of fuels would change the quantity of CO_2 emitted from the vehicles. **Table 4-16** shows the change based on emission factors provided by the Department of Energy (DOE 2007).

Table 4-15. Hazardous Air Pollutant Emission Estimates of Existing and Proposed Military Service Station Storage Tanks at Laughlin Air Force Base.

	Hazardous Air Pollutants (TPY)								
	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Naph-thalene	Toluene	224-TMP	Xylenes
Existing MSS tanks									
L-2109G	0.0148	0.0005	0.0010	0.0123	0.1135		0.0173	0.0173	0.0049
L-2109B20	0.0003	0.0000	0.0000	0.0001		0.0002	0.0002		0.0000
Total	**0.0151**	**0.0005**	**0.0010**	**0.0124**	**0.1135**	**0.0002**	**0.0174**	**0.0173**	**0.0050**
Proposed MSS Tanks									
L-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
L-Gas	0.0077	0.0003	0.0005	0.0064	0.0593		0.0090	0.0090	0.0026
L-E85	0.0007		0.0004	0.0034			0.0060	0.0057	0.0025
L-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
Total	**0.0092**	**0.0003**	**0.0010**	**0.0100**	**0.0593**	**0.0003**	**0.0155**	**0.0147**	**0.0052**
Change	**-0.0059**	**-0.0002**	**0.0000**	**-0.0024**	**-0.0542**	**0.0001**	**-0.0020**	**-0.0025**	**0.0003**

Contents: ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; B20=biodiesel
TPY=ton(s) per year, 0.0000=less than 0.00005 TPY

Table 4-16. Greenhouse Gas Emissions from the combustion of fuels at the existing and proposed Military Service Station at Laughlin Air Force Base.

Tank ID	Throughput (gal/yr)	CO_2 (TPY)
Existing MSS Fuels		
L-2109GUR	74,021	723.19
L-2109B20	47,043	420.80
Total T/yr CO_2		**1143.98**
Proposed MSS Fuels		
L-ULSD	23,522	263.09
L-GUR	37,010	361.59
L-E85	37,011	54.22
L-B20	23,521	210.40
Total T/yr CO_2		**889.30**
Change		**-254.68**

Contents: GUR=gasoline unleaded regular; B20=biodiesel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel

As **Table 4-16** shows, the change of the blend of fuels used by base vehicles as a result of the proposed action would reduce the CO_2 emissions from 1143.98 TPY to 889.30 TPY, a decrease of 22 percent. This would be a beneficial impact on air quality in the area.

4.6.2.6 Tyndall Air Force Base

A comparison between the estimated emissions from construction and demolition activities of the proposed action and estimated monthly emission for Bay County, FL, is presented in **Table 4-17**.

The comparison shows that the emissions from the construction and demolition activities of the proposed action would be negligible and would not affect the local air quality.

The breathing and working losses from both the existing and proposed fuel storage tanks were estimated to determine the impact of the change of tank volume and contents at Tyndall AFB and are presented in **Table 4-18**.

Table 4-17. Emissions for Construction and Demolition Compared to County Emissions.

Construction Emissions	NO_x (T)	VOC[1] (T)	CO (T)	PM_{10} (T)
Bay County, FL (2008 emissions [T])[2]	11,593	9266	48,695	4962
Project emissions as percent of county emissions	0.09	0.02	0.03	0.03

[1] The construction emission factors for VOCs were reported as ROGs, which tends to overestimate the VOC emissions (FAA 1997).
[2] USEPA 2012d
[3] Less than 0.01 percent
[4] Estimated fugitive emissions (1.32 T) added to PM_{10} combustion emissions to compare total to county emissions
T=ton(s); NO_x=nitrogen oxide; VOC=volatile organic compound; CO=carbon monoxide; PM_{10}=particulate matter less than or equal to 10 micrometers in diameter; ROG=reactive organic gas

The additional tanks in the proposed MSS would increase VOC emissions by 1.54 TPY. The new emissions total from the proposed MSS would be 2.85 TPY, which is well below *de minimis* threshold of 100 TPY for the PSD under the CAA. The larger number and size of tanks explains the difference.

Table 4-18. Emissions Estimates of Existing and Proposed Military Service Station Storage Tanks at Tyndall Air Force Base.

Tank Contents	Total Tank Volume (gal)	Throughput (gal/yr)	Working Loss VOC (lb)	Breathing Loss VOC (lb)	Total VOC Emissions (lb)	Total VOC Emissions (T)
Existing MSS Tanks						
562-GUR	2000	149,250	1458.14	1142.81	2600.94	1.30047
562-B20	2000	33,543	1.08	1.84	2.93	0.001465
Total					**2603.87**	**1.3019**
Proposed MSS Tanks						
T-ULSD	25,000.00	16,772.00	0.54	10.30	10.84	0.0054
T-GUR	15,000.00	74,625.00	729.07	3546.57	4275.64	2.1378
T-E85	15,000.00	74,625.00	225.28	1161.13	1386.41	0.6932
T-B20	25,000.00	16,771.00	0.54	10.30	10.84	0.0054
T-JP8	15,000.00	55,268.00	2.21	7.92	10.13	0.0051
Total					**5693.86**	**2.8469**
Change					**3089.99**	**1.5450**

Contents: GUR=gasoline unleaded regular; B20=biodiesel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; JP8=jet fuel
gal=gallon(s), yr=year, lb=pound(s), T=ton(s)

The calculation of HAPs emissions is related to the emissions of VOCs; therefore, the increase of VOC emissions at Tyndall AFB indicates that the emissions of HAPs would also increase. The *de minimis* thresholds for HAPs under the PSD is 10 TPY of a single HAP or 25 TPY of any combination of HAPs. For Tyndall AFB, the operation of the proposed MSS tanks would produce total HAPs of only 0.18 TPY, an increase of 0.08 TPY over the existing emissions (**Table 4-19**); therefore, the impact of the tank emissions on air quality would be minor.

Although the overall throughput would remain the same from the existing to proposed MSS, the blend of fuels used would be changed due to the use of E85 and B20 in place of some of the GUR and regular diesel. The combustion of the different blend of fuels would change the quantity of CO_2 emitted from the vehicles. **Table 4-20** shows the change based on emission factors provided by the Department of Energy (DOE 2007).

Table 4-19. Hazardous Air Pollutant Emission Estimates of Existing and Proposed Military Service Station Storage Tanks at Tyndall Air Force Base.

	Hazardous Air Pollutants (TPY)								
	Benzene	Cumene	Ethyl-benzene	Hexane	MTBE	Naph-thalene	Toluene	224-TMP	Xylenes
Existing MSS tanks									
T-562G	0.0078	0.0003	0.0005	0.0065	0.0598	0.0000	0.0091	0.0091	0.0026
T-562B20	0.0001	0.0000	0.0000	0.0000			0.0001		0.0000
Total	**0.0079**	**0.0003**	**0.0005**	**0.0065**	**0.0598**	**0.0000**	**0.0092**	**0.0091**	**0.0026**
Proposed MSS Tanks									
T-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
T-Gas	0.0128	0.0004	0.0009	0.0107	0.0983		0.0150	0.0150	0.0043
T-E85	0.0008		0.0005	0.0037			0.0066	0.0062	0.0027
T-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
T-JP8	0.0000	0.0000	0.0000			0.0000	0.0001	0.0000	0.0001
Total	**0.0144**	**0.0005**	**0.0014**	**0.0146**	**0.0983**	**0.0003**	**0.0221**	**0.0212**	**0.0073**
Change	**0.0065**	**0.0002**	**0.0009**	**0.0081**	**0.0385**	**0.0003**	**0.0129**	**0.0121**	**0.0047**

Contents: B20=biodiesel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; JP8=jet fuel
TPY=ton(s) per year, 0.0000=less than 0.00005 TPY

Table 4-20. Greenhouse Gas Emissions from the Combustion of Fuels at the Existing and Proposed Military Service Stations at Tyndall Air Force Base.

Tank ID	Throughput (gal/yr)	CO_2 (TPY)
Existing MSS Fuels		
T-562GUR	149,250	1458.17
T-562B20	33,543	300.04
Total T/yr CO_2		**1758.21**
Proposed MSS Fuels		
T-ULSD	16,772.00	187.59
T-Gas	74,625.00	729.09
T-E85	74,625.00	109.33
T-B20	16,771.00	150.02
T-JP8	55,268.00	582.80
Total T/yr CO_2		**1758.82**
Change		**0.61**

Contents: GUR=gasoline unleaded regular; B20=biodiesel; ULSD=ultralow sulfur diesel; E85=85 percent ethanol fuel; JP8=jet fuel

As **Table 4-20** shows, the change of the blend of fuels used by base vehicles as a result of the proposed action would increase the CO_2 emissions by 0.61 TPY. In reality, the JP8 that will be dispensed at the proposed MSS is just being transferred from another portion of the base, therefore, the 582.80 TPY from the JP8 combustion is not a result of the change in fuels at the MSS and the MSS change in fuels would result in a roughly one-third reduction in CO_2 emissions. This would be a beneficial impact on air quality in the area.

4.7 NOISE

Noise impacts would be considered significant if there were expected long-term increases in the number of people highly annoyed by the noise environment or unacceptable increases to the noise environment for sensitive receptors.

4.7.1 No Action Alternative

Under the No Action Alternative, there would be no construction or demolition noise. Vehicular noise at the existing MSS would remain the same.

4.7.2 Proposed Action

4.7.2.1 General Impacts

The primary sources of noise associated with construction and demolition activities would be the use of heavy trucks (dump trucks and concrete mixers), bulldozers, backhoes, generators and ground compactors. These vehicles and equipment items would operate during daylight hours throughout the normal work week. Nearby workers would notice construction-related noise, which would be above background noise levels. Sound pressure decreases with increasing distance from the source. Typically, the noise energy dissipates in the air by 6 decibels as the distance doubles (USEPA 1974). **Table 3-6** indicates the noise levels generated by construction equipment at a distance of 50 feet. The decibel drops 20 decibels when the distance is 10 times greater, or at 500 feet. The noise level may interfere with outdoor conversations but the short-term impact from construction or demolition would not be significant.

The noise levels from MSS operation would be substantially less than the construction noise. USEPA regulates medium to heavy trucks (greater than 10,000 pounds gross vehicular weight) and says they must generate less than 80 a-weight decibels at 50 feet for trucks manufactured after 1988 (40 CFR 205.50). Although military vehicles are exempted from this regulation (40 CFR 205.5-2), it provides an approximate sound level for the trucks likely to be fueling at the MSS. At 500 feet, trucks with these noise emissions would drop to 60 a-weight decibels, which is typically acceptable for residential use (USAF 1999).

4.7.2.2 Altus Air Force Base

Within 500 feet of the MSS construction or demolition, the noise levels from heavy equipment would be within the ambient noise levels (Altus AFB 2010). There are no sensitive receptors within 500 feet of the existing or proposed MSS sites; therefore, the impact of noise generated during the construction of the new MSS or demolition of the existing MSS would be short term and minor.

4.7.2.3 Camp Bullis

The proposed MSS site is more than 1 mile from the Camp Bullis boundary; therefore, it would not have an adverse impact off base. At the barracks that are roughly 0.4 miles from the MSS, the construction noise levels would drop to nearly ambient levels for urban residential areas; therefore, the impact would be minor. These receptors are far enough away that they would not be disturbed by operational noise at the MSS.

4.7.2.4 Fort Sam Houston

The proposed MSS at FSH is in an industrial area and there are no sensitive receptors within 500 feet. Construction impacts would be short term and acceptable for an industrial area. Operational noise levels would drop to residential levels before reaching any residences or other sensitive receptors.

4.7.2.5 Laughlin Air Force Base

The ambient noise level at the proposed MSS site at Laughlin AFB is in the 70- to 75-decibel contour (PBS&J 2011). Neither the short-term construction noise nor the operation noise from the MSS would be greater than ambient levels beyond 500 feet. There are no sensitive receptors within 500 feet of the proposed or existing MSS.

4.7.2.6 Tyndall Air Force Base

The existing and proposed MSS locations at Tyndall AFB are within the 80+-decibel levels (Tyndall 2008). Even within 50 feet, the construction noise will only be a few decibels above ambient levels. The noise generated during construction, demolition, and operation would not have an adverse impact on noise levels in the vicinity. Because there would be no full-time employees stationed at the MSS, there would be no need to mitigate the ambient noise levels.

4.8 TRANSPORTATION

Impacts to transportation would be significant if traffic counts, roadway design and geometry, or signalization changed the level of service as a result of implementation of the proposed action.

4.8.1 No Action Alternative

Under the No Action Alternative, existing MSS sites would not be replaced. As such, temporary disruptions to transportation as a result of construction and demolition activities would not occur. Similarly, the potential shifts in traffic count and flow, as a result of relocating the MSS would not occur.

The types of fuel available for the military vehicle fleet at these installations would be limited to that which is currently available (See **Table 1-1**). This would not allow these installations to meet the requirements of EO 13423 to maintain and operate a fleet of vehicles that reduces the use of petroleum-based fuel products.

4.8.2 Proposed Action

4.8.2.1 General Impacts

Under the proposed action, the proposed MSS would be constructed in new locations. Once the proposed MSS is complete on an installation, the existing MSS would be demolished. During both the construction and demolition processes, traffic near locations in which the activity is occurring could experience traffic delays as a result of the presence of construction equipment and personnel; however, these delays are expected to be minor and would end upon completion of the project. Once the project is complete, there may be minor increases in traffic on roads that provide access to the new MSS as a result of the additional vehicles traveling to and from the MSS. In addition, special purpose vehicles that use the MSS (e.g., aircraft tow vehicles, forklifts, aircraft cargo loaders) may cause delays along these routes as some are not able to travel at the posted speed limits common on primary and secondary roads[2]. Correspondingly, a minor decrease in traffic and the presence of special purpose vehicles is expected on routes that had been used to access the old MSS once they have closed. Overall, the impacts to transportation under the Preferred Alternative are expected to be negligible.

4.8.2.2 Altus Air Force Base

On Altus AFB, the proposed MSS would remain on Ordnance Road, but would be located out of the motor pool area at South 6th Street and Ordnance Road, to a location closer to the aircraft parking ramps southeast of South 9th Street (See **Figure 1-1**). Approximately 700 linear feet of Ordnance Road would be reconstructed to support its use by large fuel trucks that will provide fuels to the proposed MSS. Locating the MSS in the proposed location would slightly increase accessibility and decrease travel distance for vehicles supporting flightline activities, yet may increase the travel time for vehicles from other locations on the base and the fuel trucks coming from off base. The proposed location for the MSS would increase the travel time for motor pool

[2] Some installations may provide fuel delivery services for special purpose vehicles when it is more time and/or cost effective.

personnel to fuel vehicles that are in maintenance or used for transportation (e.g., tractor-trailers, buses, vans, staff cars); however, the increased distance would not be a substantial change in distance or travel time.

4.8.2.3 Camp Bullis

The proposed MSS on Camp Bullis would be located near the northeast terminus of Camp Bullis Road (See **Figure 1-2**) in the southwest corner of the Camp. The construction of an additional 200 linear feet of road and 100 linear feet of low water crossing bridge would be needed to access the proposed MSS. This location would be within the 0.5-mile cantonment radius and in close proximity to the majority of the Camp's facilities. As discussed in **Section 3.9.2.2, Affected Environment—Camp Bullis**, Camp Bullis Road is a primary road and as such would provide easy access to the proposed MSS; moreover, locating the MSS in this area would provide easy access for vehicles utilizing the range roads in the Camp's training area. No substantial change to transportation is expected to Camp Bullis under the Preferred Alternative.

4.8.2.4 Fort Sam Houston

The existing MSS is located in Building 4050 on Wilson Way in the western portion of the Fort, in close proximity to the motor pool. Wilson Way is a main traffic artery for the installation. The proposed MSS would be located on Ludington Road, about 1 mile east of its current location (See **Figure 1-3**). Approximately 800 linear feet of Ludington Road would require reconstruction to facilitate access to the proposed MSS. This change would decrease travel distance for some users while increasing travel distance for others, such as the motor pool. There may be a slight increase in traffic as a result of the increased distance for motor pool vehicles to travel for fuel, but this change is not expected to be significant. While the proposed MSS would be moved from a main traffic artery onto a secondary roadway, vehicles traveling to and from the proposed MSS would still need to utilize primary roads. As such, impacts to transportation would not be substantially different from existing conditions.

4.8.2.5 Laughlin Air Force Base

On Laughlin AFB, the proposed MSS would be relocated from the intersection of California and Fourth Streets to the northwest corner of Alabama and Kansas Avenues, approximately 0.25 mile north of its current location (See **Figure 1-4**). Approximately 620 linear feet of Kansas Street would require reconstruction to support access to the proposed MSS. Due to the relative closeness of the proposed MSS to its existing location, there would be negligible positive or negative impacts from the change in distance experienced by various users. While the relocation would take the MSS off a primary traffic route (Fourth Street), vehicles would still have to travel on Liberty Drive, another primary route, in order to access the proposed MSS. As discussed in **Section 3.9.2.4, Affected Environment—Laughlin Air Force Base**, the intersections of Alabama, Arkansas, and Arizona Avenues along Liberty Drive are intersections in which traffic conflicts occasionally occur. Travel routes to the proposed MSS from most areas of the base would require the use of Liberty Drive and through at least one of these intersections. While it is not likely that the amount of vehicles travelling to and from the proposed MSS at any given time would be substantial enough to increase traffic conflicts at these intersections, slower special

purpose vehicles traveling to and from the proposed MSS may occasionally impede traffic movement along these routes; however, these impacts would be negligible.

4.8.2.6 Tyndall Air Force Base

The proposed MSS on Tyndall AFB would be located within 250 feet of its current location and would be accessible via the same routes (See **Figure 1-5**). There would be no impacts to transportation on Tyndall AFB under the proposed action.

4.9 UTILITIES

Impacts to utilities would be considered significant if services provided to the installations are changed as a result of the implementation of the proposed action and exceed the capacity of the utility. Because site-specific designs are not completed at this time, specific modifications to utilities that are needed for proposed MSS locations could not be analyzed.

4.9.1 No Action Alternative

Under the No Action Alternative, the proposed MSS relocations would not occur; therefore, there would be no changes to current utilities requirements. Similarly, temporary interruptions as a result of utility upgrades, realignment, or extension during construction of the proposed MSS would not occur.

4.9.2 Proposed Action

4.9.2.1 General Impacts

Under the proposed action, impacts to installation utilities would be negligible both in the short and long term. Improvements or additions to installation utilities are expected to be limited to minor upgrades, realignments, and extension of existing potable water, wastewater, stormwater, natural gas, electrical, and communication/data infrastructure. All proposed MSS locations are in relatively close proximity to existing facilities. There may be minor, temporary disruptions to utilities at the proposed and existing sites during construction and demolition activities, but widespread disruptions on the installations are not expected. After demolition of the existing MSS, the utilities that supported these facilities would be rerouted, removed, or left intact to support future facilities. The amount of impervious surface on each location would increase by approximately 1 acre for the MSS, and would also include additional roads necessary for access. While the amount of land that would be surfaced is not substantial and would not be expected to significantly impact stormwater management, the specific design at each location would have to take into account the measures necessary to properly control stormwater runoff and comply with the requirements for federal projects under Section 438 of EISA. No significant impacts to utilities are expected under the proposed action.

4.9.2.2 Altus Air Force Base

The proposed MSS at Altus AFB would be relocated off of Ordnance Road, between South 9th Street and the aircraft parking ramps (See **Figure 1-1**). While temporary and localized service

outages may be experienced when the utility systems are hooked up to the new MSS, no long-term interruptions to services would occur under the proposed action.

4.9.2.3 Camp Bullis

The proposed MSS on Camp Bullis would be located near the northeast terminus of Camp Bullis Road (See **Figure 1-2**) in the southwest corner of the installation. Construction of an MSS at the proposed site would require the reconstruction of the storm drainage structure located on Camp Bullis Road near Wilderness Trail. In addition, potable water lines and overhead communications lines would have to be extended approximately 1000 linear feet north to the site. An additional 2000 linear feet of sewer main, and potentially an additional lift station if the current force is not sufficient, would also be required to support the proposed MSS. The construction of the proposed MSS and subsequent demolition of the existing MSS may require localized and temporary outages of some services on Camp Bullis; however, these outages would only be temporary and would not have long-term impacts to Camp Bullis utilities.

4.9.2.4 Fort Sam Houston

The proposed MSS on FSH would be located on Ludington Road, approximately 200 feet northeast of Humphrey Road (See **Figure 1-3**). Construction of the proposed MSS would require an extension of potable water, communication, and electrical lines. Additionally, the wastewater service would require rerouting. Potential impacts to utilities on the installation would be limited to localized and short-term outages while utilities are modified or extended for the proposed MSS. Similarly, there may be short-term service disruptions as a result of the demolition of the existing MSS and modification or removal of utilities. There would be no long-term change in the services provided by utilities on FSH under the proposed action.

4.9.2.5 Laughlin Air Force Base

The proposed MSS on Laughlin would be located on the northwest corner of Alabama and Arkansas Avenues (see **Figure 1-4**). The relocation of the proposed MSS would require the extension of wastewater lines along Arkansas Street by an additional 213 linear feet and would need to be routed under Alabama Avenue. Currently, primary overhead electrical lines traverse the proposed MSS location; under the proposed action these lines would need to be buried or rerouted. The disruption of electrical service may be more widespread than other installations due to the requirement to bury or reroute these primary overhead electrical lines; however, this outage would be temporary. Other service disruptions would likely be temporary and localized. There would be no long-term changes to utility services on Laughlin AFB under the proposed action.

4.9.2.6 Tyndall Air Force Base

The proposed relocation of the MSS at Tyndall AFB would be approximately 250 linear feet from its current location (See **Figure 1-5**). Only minimal changes to utilities are expected, and these likely would be limited to the vicinity of the proposed MSS construction and existing MSS demolition as utilities are extended and modified. Under the proposed action, there would be no long-term changes to utilities on Tyndall AFB.

4.10 Unavoidable Significant Environmental Impacts

There are no unavoidable significant impacts associated with the proposed action. The proposed action will have minor, temporary impacts to air quality, traffic, and utilities during the construction and demolition phases of the project resulting from fugitive dust and construction vehicular combustion emissions, the need to reroute traffic while roads are being fortified, and the need to tap into utilities. None of these adverse impacts would be more than a minor inconvenience.

4.11 Compatibility of the Proposed Action with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

The proposed action is compatible with the objectives of federal, regional, state, and local land use plans, policies, and controls. Specifically, one of the major drivers for the action is to provide sufficient tank capacity for the MSS to offer alternative fuel mixes to satisfy the mandate of EO 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," which requires federal agencies to reduce their consumption of petroleum products and increase their use of non-petroleum-based fuels in their vehicle fleets. In addition, all of the proposed MSS would be located in industrial portions of the installations, thereby being compatible with the appropriate land use plan.

4.12 Irreversible and Irretrievable Commitments of Resources

NEPA CEQ regulations require environmental analyses to identify "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) which cannot be replaced within a reasonable time frame. Building construction materials, labor and fuel usage for construction equipment would constitute the consumption of non-renewable resources. These resources are currently plentiful in Oklahoma, Texas, and Florida and the proposed action would not significantly affect environmental resources.

5 CUMULATIVE IMPACTS

The CEQ defines cumulative effects as the "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). Although individual impacts of various actions might be minor, taken together their effects could be significant.

Cumulative effects most likely arise when a relationship exists between a Proposed Action and other actions expected to occur in a similar location or during a similar time period. Actions overlapping with or in proximity to the Proposed Action would be expected to have more potential for a relationship than those more geographically separated. Similarly, actions that coincide, even partially, in time have a potential for cumulative effects.

5.1 PAST, ONGOING, AND REASONABLY FORESEEABLE FUTURE ACTIONS

Each facility was asked to provide a list of past, ongoing, and reasonably foreseeable future actions that could have an effect or be affected by the proposed action. **Table 5-1** includes the list of projects received.

Table 5-1. Cumulative Environment and Effects.

Installation	Potential Cumulative Actions	Timeframe	Potential Cumulative Effects
Altus Air Force Base, Oklahoma	• Capital improvement projects listed in the General Plan consisting of several construction projects	2010-2016+	Similar construction impacts on soils, water, air, noise, and traffic
Camp Bullis, Texas	• Construction of 220,000-square foot medical training facility • BN Interrogation Training Center, • 470th and MI BN, Camp Bullis	2007-2012	Similar construction impacts on soils, water, air, noise, and traffic
Fort Sam Houston, Texas	• Demolition of the other bunkers • Construction of Tactical Equipment Maintenance Facility and new Entomology Building	2012 - 2015	Similar construction impacts on soils, water, air, noise, and traffic
Laughlin Air Force Base, Texas	• Capital improvement projects listed in the General Plan consisting of major street redevelopment projects	2011+	Similar construction impacts on soils, water, air, noise, and traffic
Tyndall Air Force Base, Florida	• Capital improvement projects listed in the General Plan consisting of several construction and demolition projects • Construction and operation of an alternative drone launch system • Addition to the munitions storage area	2010- 2030	Similar construction impacts on soils, water, air, noise, and traffic

MI=Military Intelligence; BN=Battalion

5.2 CUMULATIVE EFFECTS

This section addresses the impacts of the cumulative scenario and the extent that the proposed action would contribute to that impact. The geographic separation of the installations eliminates the need to evaluate the potential cumulative impacts of the five installations together. Camp

Bullis, FSH, and Laughlin AFB are within the same air quality management district (AQMD); however, the effects of the proposed action at each of those installations are small enough not to go beyond their boundaries; therefore, they would not produce a cumulative impact on air.

5.2.1 Altus Air Force Base

The General Plan for Altus AFB (Black and Veatch 2003) identifies construction projects that have occurred in the past 3 years as well as projects planned to occur in the next 3 years. Although these projects would have similar construction impacts as the proposed action, their addition would not create a significant adverse impact at Altus AFB.

5.2.2 Camp Bullis

The final environmental impact statement (FEIS) for base realignment and closure (BRAC) actions at FSH (and Camp Bullis) identified two construction projects at Camp Bullis proposed to accommodate the BRAC requirements (MATEC Engineering and Consulting 2007). The FEIS was completed in 2007 and the construction projects were estimated to be completed in 5 years, maybe longer. The FEIS concluded that "*The construction activities at Camp Bullis also would result in temporary, minor, localized unavoidable impacts to air quality and noise levels, but are not considered an environmental concern*." Adding the proposed action to these construction activities would not create a significant adverse impact at Camp Bullis.

5.2.3 Fort Sam Houston

As mentioned above, an FEIS for BRAC actions at FSH was completed in 2007. For its cumulative effects analysis, the FEIS compares the major BRAC activities with other DOD activities in the San Antonio region, specifically at Lackland and Randolph AFBs. The FEIS concluded that "*the expected cumulative environmental effects of the collective DOD actions in the San Antonio area are not significant*." (MATEC Engineering and Consulting 2007); therefore, the cumulative effects of the proposed action with other actions at FSH would not be significant.

5.2.4 Laughlin Air Force Base

The General Plan for Laughlin AFB (PBS&J 2011) identifies construction projects that are planned to occur in the next 5 years. Although these projects would have similar construction impacts as the proposed action, their addition would not create a significant adverse impact at Laughlin AFB.

5.2.5 Tyndall Air Force Base

In 2011 Tyndall AFB completed an EA for the F-22 Operational Squadron and T-38A Detachment Beddown. For its cumulative impact analysis, this EA describes several proposed construction, demolition, and renovation projects for facilities and infrastructure at Tyndall AFB. Although these projects would have similar construction impacts as the proposed action, their addition would not create a significant adverse impact at Tyndall AFB.

6 AGENCIES CONTACTED

Appendix A consists of the mailing list to which the USAF sent letters requesting comments relating to the proposed action. The following agencies/offices sent responses to the USAF:

- Florida Department of Environmental Protection
- Oklahoma State Historical Preservation Office
- Texas Commission on Environmental Quality
- Tonkawa Tribe of Oklahoma

Their issues or concerns were incorporated into the impact analysis.

During the Draft EA's 60-day comment period, the Air Force received 10 letters from Federal, Tribal, state, or local agencies:

- Alamo Area Council of Government
- Comanche Nation
- Federal Emergency Management Agency
- Florida Department of Environmental Protection
- Oklahoma Department of Environmental Quality
- Oklahoma State Historical Preservation Office
- San Antonio River Authority
- Texas Historical Commission
- US Army Corps of Engineers
- US Fish and Wildlife Service

Appendix F includes a matrix with their comments summarized and the Air Force response. The comments received are also included in **Appendix F**. Their substantive comments have been incorporated into the Final EA.

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7 LIST OF PREPARERS

Name	Company	Responsibilities	Years Experience
Karen Johnson, CEP	Geo-Marine, Inc.	Project Manager, DOPAA, Air Quality, Hazardous Materials/Waste, Noise, Cumulative	26
Susan Miller	Geo-Marine, Inc.	Geological and Water Resources	23
Joe Kaskey	Geo-Marine, Inc.	Biological Resources	39
Brian Bishop	Geo-Marine, Inc.	Transportation and Utilities	5
Michelle Wurtz, PhD	Geo-Marine, Inc.	Cultural Resources	10
Kevin Knight	Geo-Marine, Inc.	GIS	15
Anna Banda	Geo-Marine, Inc.	Editing/Formatting	8

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8 REFERENCES

AECOM Technical Services, Inc. (AECOM). 2011a. Draft conceptual site model for remedial investigation/feasibility study for Site ID SS026/SS020 (EPA OU 3). Prepared for Tyndall Air Force Base and Air Force Center for Engineering and the Environment. March.

AECOM Technical Services, Inc. (AECOM). 2011b. Draft remedial investigation/feasibility study workplan for ERP Site No. SS020/SS026 Study Area/EPA OU 3. Prepared for Tyndall Air Force Base and Air Force Center for Engineering and the Environment. March.

Air Force Center for Engineering and the Environment (AFCEE). 2009. Air emissions factor guide for Air Force mobile sources. December.

Altus Air Force Base (AFB). 2007. Hazardous waste/recovery waste management plan (32-J1). Altus Air Force Base, Oklahoma. 03 September.

Altus Air Force Base (AFB). 2009. Altus Air Force Base integrated natural resource management plan. 97th Air Mobility Wing, Altus Air Force Base, Oklahoma. 30 September.

Altus Air Force Base (AFB). 2010. Air installation compatible use zone study. Altus Air Force Base, Oklahoma. May.

Army and Air Force Exchange Service (AAFES). 2009. Draft environmental assessment addressing an Army and Air Force Exchange Service Lifestyle Center at Fort Sam Houston, San Antonio, Texas. Dallas, Texas: Army and Air Force Exchange Service.

Baer Engineering and Environmental Consulting, Inc. 2011. Summary of flora and fauna collected. Prepared for Laughlin Air Force Base.

Bailey, R.G. 1998. Ecoregions map of North America. Washington, D.C.: US Department of Agriculture, Miscellaneous Publication Number 1548.

Bitney, Mary, Environmental Remediation Program Manager, Altus AFB. 2012. Email to Karen Johnson, Geo-Marine, Inc, *et al*. 05 September.

Black and Veatch. 2003. General Plan. Altus Air Force Base. Prepared for the 97th Air Mobility Wing and the Air Education and Training Command. January.

Black and Veatch. 2004. General Plan. Tyndall Air Force Base. Prepared for the 325th Fighter Wing and the Air Education and Training Command. July.

Campbell, L. 1995. Endangered and threatened animals of Texas: Their life history and management. Austin: Texas Parks and Wildlife Department, Endangered Resources Branch.

Carter, B.J. and M.S. Gregory. 2008. Soil map of Oklahoma. Oklahoma Geological Survey Educational Publication 9. Accessed 22 August 2012. http://www.ogs.ou.edu /pubsscanned/EP9p16_19soil_veg_cl.pdf.

Clark, A, C. Blome, and J. Faith. 2009. Map showing geology and hydrostratigraphy of the Edwards Aquifer catchment area, Northern Bexar County, South-Central Texas. US

Geological Survey. Accessed 24 August 2012. http://pubs.usgs.gov/of/2009/1008/downloads/2009-1008_map.pdf

Clow, V.G., M. Prior, and T. Osburn (with contributions by P. Knowles, M. Wurtz, and C.F. Coffey). 2008. Camp Bullis integrated cultural resources management plan and environmental assessment. Geo-Marine, Inc., Plano, Texas. Submitted to the US Army Corps of Engineers, Fort Worth District.

Cole, G.A. 1994. Textbook of Limnology. Waveland Press, Inc. Prospect Heights, IL. 412pp.

Curtis, N., W.E. Ham, and K.S. Johnson. 2008. Geomorphic provinces of Oklahoma. Oklahoma Geological Survey Educational Publication 9. Accessed 22 August 2012. http://www.ogs.ou.edu/pubsscanned/EP9_2-8geol.pdf.

De Vore, S.L. 1993. Cultural resource assessment of Laughlin Air Force Base, Val Verde County, Texas. Interagency Archeological Services, National Park Service, Denver. Submitted to Headquarters, Air Education and Training Command, Randolph Air Force Base, Texas.

De Vore, S.L. 1995. Cultural resource assessment of Altus Air Force Base, Jackson County, Oklahoma. US Department of the Interior, National Park Service, Rocky Mountain Regional Office, Division of Partnerships and Outreach, Interagency Archeological Services.

Diamond, D. 1993. Plant communities of Texas (Series Level). Prepared for Texas Natural Heritage Program, Texas Parks and Wildlife Department.

Doyle, K.T. and E. King. 2012. Laughlin Air Force Base integrated cultural resources management plan. Tetra Tech, Inc.

ECOMAP. 1993. National hierarchical framework of ecological units. Washington, D.C.: United State Department of Agriculture Forest Service.

European Biofuels Technology Platform. 2011. Fatty Acid Methyl Esters—Biofuel Fact Sheet. Accessed 15 April 2013 from http://www.biofuelstp.eu/factsheets/fame-fact-sheet.pdf.

Federal Aviation Administration (FAA). 1997. Air quality procedures for civilian airports and Air Force bases. FAA-AEE-97-03. April.

Federal Emergency Management Agency 2012. Current Issued FEMA Floodmaps. Accessed 27 August 2012 from https://msc.fema.gov/webapp/wcs/stores/servlet/CategoryDisplay?storeId=10001&catalogId=10001&langId=-1&categoryId=12001&parent_category_rn=12001&type=1&stateId=&countyId=&communityId=&stateName=&countyName=&communityName=&dfirm_kit_id=&future=false&dfirmCatId=null&isCountySelected=1&isCommSelected=0&userType=G&urlUserType=G&sfc=0&cat_state=13043&cat_county=15147

Florida Department of Environmental Protection (FDEP). 1998a. 1998 303(d) Listed Water Segments in Bay County. Accessed 28 August 2012. http://www.dep.state.fl.us/water/watersheds/assessment/docs/303d/maps/bay.pdf.

Florida Department of Environmental Protection (FDEP). 1998b. 1998 303(d) List. Accessed 28 August 2012. http://www.dep.state.fl.us/water/watersheds/assessment/docs/303(d)-2.pdf.

Florida Department of State, Division of Library and Information Services. 2012. Final rule 62-204.240 ambient air quality standards (repealed) 2-16-2012. Accessed 17 July 2012. https://www.flrules.org/gateway/ruleno.asp?id=62-204.240.

Florida Fish and Wildlife Conservation Commission (FFWCC). 2011. Florida's endangered and threatened species. Panama City: Florida Fish and Wildlife Conservation Commission.

Florida Natural Areas Inventory (FNAI). 1994. Biological survey of Tyndall Air Force Base. Tallahassee: Florida Natural Areas Inventory.

Gerstle, A., T.C. Kelly, and C. Assad. 1978. The Fort Sam Houston Project: An archaeological and historical assessment. Submitted to the US Army Corps of Engineers, Fort Worth District.

Google Earth. 2012.

Grandstaff, G.M. 2010. Memorandum for AFPET, Subject: Optimization Study to Privatize AETC and Joint Base Military Service Stations. 16 February.

Haskew, Harold M. and Thomas F. Liberty. 2011. Exhaust and evaporative emissions testing of flexible-fuel vehicles. Coordinating Research Council, Inc. Report No. E-80. April.

Industrial Economics Incorporated. 2011. Economic analysis of critical habitat designation for nine Bexar County, Texas, invertebrates. Cambridge, Massachusetts: Industrial Economics Incorporated.

Johnson, K. 2008. Geologic map of Oklahoma. Oklahoma Geological Survey Educational Publication 9. Accessed 22 August 2012. http://www.ogs.ou.edu/pubsscanned/EP9_2-8geol.pdf.

Laughlin Air Force Base (AFB). 2012. Integrated natural resources management plan, Laughlin Air Force Base. USAF, 47th Civil Engineer Squadron, Laughlin Air Force Base, Texas.

Mace, Robert E. and Edward S. Mangle. 2004. Aquifers of the Edwards Plateau. Texas Water Development Board Report 360 Conference Proceedings. Accessed 28 August 2012. http://www.twdb.state.tx.us/publications/reports/numbered_reports/doc/R360/Ch01.pdf.

MACTEC Engineering and Consulting, Inc. 2007. Fort Sam Houston, Texas base realignment and closure (BRAC) actions final environmental impact statement. Kennesaw, Georgia: MACTEC Engineering and Consulting, Inc.

National Park Service (NPS). 2011. National Register Bulletin Guidelines for Local Surveys: A Basis for Preservation Planning. US Department of the Interior, National Park Service.

Natural Resources Conservation Service (NRCS). 2012a. Web soil survey, Bexar County, Texas. Accessed 23 August 2012. http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Natural Resources Conservation Service (NRCS). 2012b. Web soil survey, Val Verde County, Texas. Accessed 22 August 2012. http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Natural Resources Conservation Service (NRCS). 2012c. Web soil survey, Bay County, Florida. Accessed 23 August 2012. http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

Oberholser, H.C. 1974. The bird life of Texas. Austin: University of Texas Press.

O'Brien, Robert J., Kyle W. Blasch, and Grant T. Johnson. 1999. Air Emissions Inventory Guidance for Stationary Sources at Air Force Installations. Institute for Environmental Safety and Occupational Health Risk Analysis (AFMC). IERA-RS-BR-SR-1999-0001. May.

Oklahoma Department of Environmental Quality. 2010. 2010 Oklahoma 303(d) List of Impaired Waters. Accessed 29 August 2012. http://www.deq.state.ok.us/wqdnew/305b_303d/2010/2010%20Appendix%20C%20-%20303d.pdf.

Oklahoma Department of Wildlife Conservation. 2012. Oklahoma's threatened, endangered, and rare species. Accessed 24 July 2012. http://www.wildlifedepartment.com/wildlifemgmt/endangeredspecies.html.

Oklahoma Water Resources Board. 2012. Oklahoma Water Resources – Major Aquifers of Oklahoma. Accessed 29 August 2012. http://www.owrb.ok.gov/maps/pdf_map/major_aquifers.pdf.

Pagoulatos, P. 2008. Cultural resources survey of 4,250 acres and National Register testing of eleven prehistoric sites, Camp Bullis Military Installation, Bexar and Comal Counties, Texas.

PBS&J. 2011. General plan update Laughlin AFB. Prepared for the 47th Flying Training Wing. 01 April.

Peterson, R.T. 1988. A field guide to the birds of Texas and adjacent states. Boston, Massachusetts: Houghton-Mifflin Company.

Prentice Thomas and Associates, Inc. 2010. Tyndall Air Force Base integrated cultural resource management plan. Prepared for Tyndall Air Force Base.

Prior, M. and J.M. Forbes. 2010. Tyndall Air Force Base: inventory and assessment of Cold War-Era buildings constructed between 1956 and 1991. 2 Vols. US Air Force Air Education and Training Command Series, Reports of Investigations Number 17. Geo-Marine, Inc., Plano, Texas.

Reagan, J. A. and C. A. Grant. 1977. Special Report: Highway Construction Noise: Measurement, Prediction, and Mitigation. Federal Highway Administration Bulletin: 02 May 1977.

Reeves, R.D. and T.A. Small. 1973. Ground-Water Resources of Val Verde County, Texas. Texas Water Development Board Report 172. Accessed 28 August 2012. http://www.twdb.state.tx.us/publications/reports/numbered_reports/doc/R172/R%20172.pdf.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2004. Guide to Air Quality Assessment in Sacramento County. July.

Scott, A. 2000. Cultural resources survey of 280 acres along Salado Creek, Fort Sam Houston Military Reservation, Bexar County, Texas. Prewitt and Associates, Austin, Texas. Submitted to the US Army Corps of Engineers, Fort Worth District.

Scott, T. 1992. A geologic overview of Florida. Florida Geological Survey Open File Report No. 50. Accessed 23 August 2012. http://aquaticcommons.org/1509/1/UF00001048.pdf.

Scott, T., K. Campbell, F. Rupert, J. Arthur, T. Missimer, J. Lloyd, J.Yon, and J. Duncan. 2001. Geologic map of the state of Florida – Panhandle. Florida Geological Survey. Accessed 23 August 2012. http://sofia.usgs.gov/publications/maps/florida_geology/flmappanv.pdf.

Southeast Archeological Center (SEAC). 2003. Tyndall Air Force Base integrated cultural resources management plan (ICRMP). Prepared for Tyndall Air Force Base, Panama City, Florida.

Tennis, C., M. Renner, and R.J. Hard (ed.). 1996. Archaeological survey of Laughlin Air Base, Val Verde, Texas. Archaeological Survey Report No. 239. Center of Archaeological Research, The University of Texas at San Antonio.

Tesoro Refining and Marketing. 2011. Material Safety Data Sheet – Biodiesel.

Texas Bureau of Economic Geology. 1996. Physiographic map of Texas. University of Texas at Austin. Accessed 21 August 2012 from http://www.beg.utexas.edu/UTopia/images /pagesizemaps/physiography.pdf

Texas Commission on Environmental Quality. 2011. 2010 Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d). Accessed 28 August 2012. http://www.tceq.texas.gov/assets/public/compliance/monops/water/10twq i/2010_303d.pdf.

Texas Department of Water Resources. 1982. Geologic Atlas of Texas: San Antonio Sheet. Accessed 24 August 2012. http://www.twdb.state.tx.us/groundwater/aquifer/GAT/

Texas Parks and Wildlife Department (TPWD). 2012. Rare, threatened, and endangered species of Texas by county. Accessed 06 August 2012. http://www.tpwd.state.tx.us/landwater /land/maps/gis/ris/endangered_species/.

The Environmental Company (TEC). 2000. Environmental Assessment (EA) for the Overall Mission of Camp Bullis Military Reservation, Texas. August.

The Groundwater Foundation. 2009. What is Groundwater? Accessed 27 August 2012. http://www.groundwater.org/gi/whatisgw.html.

Thibodaux, Chris, Camp Bullis Environmental Office and Integrated Training Area Management (ITAM) Office. 2012. Written communication. 12 November.

Tyndall Air Force Base (AFB). 1987. Land management plan for Tyndall Air Force Base, Florida. Plan period: January 1987 to January 1992.

Tyndall Air Force Base (AFB). 2006a. Integrated natural resources management plan, Tyndall Air Force Base. Department of the Air Force, Natural Resources Branch, 325th Fighter Wing, Tyndall Air Force Base, Florida.

Tyndall Air Force Base (AFB). 2006b. Final environmental assessment: implementation of the Tyndall Air Force Base integrated natural resources management plan. Department of the Air Force, Air Education and Training Command (AETC), 325th Fighter Wing, Tyndall Air Force Base, Florida.

Tyndall Air Force Base (AFB). 2008. Air installation compatible use zone study. Tyndall Air Force Base, FL. January.

Tyndall Air Force Base (AFB). 2011. Final draft environmental assessment for the installation of a reclaimed water irrigation system improvement project. Department of the Air Force, Air Education and Training Command (AETC), 325th Fighter Wing, Tyndall Air Force Base, Florida.

United States Air Force (USAF). 1990. Decision document for ST-11 UST at bldg 126 Laughlin Air Force Base, Texas. Air Training Command. Randolph Air Force Base, Texas.

United States Air Force (USAF). 1996. Air Force Handbook 32-1084: Facility Requirements. 01 September 1996.

United States Air Force (USAF). 1999. Air Force Handbook 32-7084: AICUZ Program Manager's Guide. 01 March 1999.

United States Air Force (USAF). 2002. Air Force Instruction 32-7062: Air Force Base Comprehensive Planning. 26 February 2002.

United States Air Force (USAF). 2009. General plan-based environment impact analysis process–environmental assessment, Altus Air Force Base. USAF, Air Education and Training Command, 97th Air Mobility Wing, Altus Air Force Base, Oklahoma.

United States Army Corps of Engineers (USACE). 2009a. Camp Bullis Cantonment Area – Area Development Plan. Prepared for Fort Sam Houston Directorate of Public Works. 19 November.

United States Army Corps of Engineers (USACE). 2009b. Real Property Master Plan Digest – Fort Sam Houston, Texas.

United States Department of the Army (US Army). 2005. Integrated natural resources management plan for Fort Sam Houston and Camp Bullis, San Antonio, Texas. San Antonio, Texas: US Department of the Army.

United States Department of the Army (US Army). 2006. Environmental assessment of current and proposed mission activities at Camp Bullis, Bexar and Comal Counties, Texas. San Antonio, Texas: US Department of the Army, Fort Sam Houston Garrison Command, Directorate of Safety, Environment, and Fire Environmental Division.

United States Department of the Army (US Army). 2010. Integrated natural resources management plan for Fort Sam Houston and Camp Bullis, San Antonio, Texas. San Antonio, Texas: US Department of the Army.

United States Environmental Protection Agency (USEPA). 1974. Information levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety. EPA/ONAC 550/9-74-004.

United States Environmental Protection Agency (USEPA). 1995. Compilation of Air Pollution Emission Factors – Volume I: Stationary Point and Area Sources, Fifth Edition and Supplements, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. (GPO-055-000-00251-7). Research Triangle Park, North Carolina.

United States Environmental Protection Agency (USEPA). 2007. Administrative Order, EPA Docket Number RCRA-04-2007-4011 re: Tyndall Air Force Base. Bay County. Panama City. Florida. November 21.

United States Environmental Protection Agency (USEPA). 2008a. Overview of Impaired Waters and Total Maximum Daily Loads Program. Accessed 27 August 2012. http://www.epa.gov/owow/tmdl/intro.html.

United States Environmental Protection Agency (USEPA). 2008b. Sole Source Aquifers: Edwards Aquifer I and II. Accessed 27 August 2012. http://www.epa.gov/region6/water/swp/ssa /maps/ssa_edwards.pdf.

United States Environmental Protection Agency (USEPA). 2009. Fact Sheet - Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. Accessed 04 September 2012. http://www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_factsht.pdf.

United States Environmental Protection Agency (USEPA). 2010. San Antonio Early Action Compact (EAC) Area. Accessed 15 March 2012. http://www.tceq.state.tx.us /implementation/air/sip/sa.html.

United States Environmental Protection Agency (USEPA). 2012a. Facility registry system. Accessed 03 September 2012. http://www.epa.gov/enviro/html/fii/fii_query_java.html.

United States Environmental Protection Agency (USEPA). 2012b. National ambient air quality standards. Accessed 17 July 2012. http://www.epa.gov/air/criteria.html

United States Environmental Protection Agency (USEPA). 2012c. The green book nonattainment areas for criteria pollutants, as of March 30, 2012. Accessed 17 July 2012. http://www.epa.gov/oaqps001/greenbk/

United States Environmental Protection Agency (USEPA). 2012d. 2008 State and County emissions data. Accessed 25 September 2012. http://www.epa.gov/air/emissions /where.htm

United States Environmental Protection Agency (USEPA). 2012e. Stinking Creek, Jackson County, Oklahoma. My Waters Mapper. Accessed 29 August 2012. http://watersgeo.epa .gov/mwm/?layer=305B&feature=OK310830020020_00&extraLayers=null.

United States Environmental Protection Agency (USEPA). 2012f. 303(d) Listed Waters: Oklahoma. Accessed 29 August 2012. http://ofmpub.epa.gov/tmdl/attains_impaired _waters.impaired_waters_list?p_state=OK&p_cycle=2008.

United States Environmental Protection Agency (USEPA). 2012g. My Waters Mapper. Accessed 29 August 2012. http://watersgeo.epa.gov/mwm/.

United States Fish and Wildlife Service (USFWS). 1999. Wetlands inventory for Fort Sam Houston and Camp Bullis, Bexar and Comal Counties, Texas. National Wetlands Inventory Program, St. Petersburg, Florida.

United States Fish and Wildlife Service (USFWS). 2005. Final programmatic biological opinion for the proposed implementation of the military mission and associated land management practices and endangered species management (ESMP) for the US Army's Camp Bullis in Bexar County, Texas. Austin, Texas: USFWS.

United States Fish and Wildlife Service (USFWS). 2007. Endangered and threatened wildlife and plants: Designation of critical habitat for Peck's cave amphipod, Comal Springs dryopid beetle, and Comal Springs riffle beetle. Federal Register 72(136):39248-39283.

United States Fish and Wildlife Service (USFWS). 2009. Final programmatic biological opinion for the proposed implementation of habitat mitigation process, Camp Bullis training site, Texas. Austin, Texas: USFWS.

United States Fish and Wildlife Service (USFWS). 2011a. Incremental effects memorandum for the economic analysis of the proposed rule to designate critical habitat for nine Bexar County invertebrates. Austin, Texas: USFWS.

United States Fish and Wildlife Service (USFWS). 2011b. Federal threatened, endangered, and other species of concern likely to occur in Bay County, Florida. Accessed 02 August 2012. http://www.fws.gov/panamacity/resources/pdf/Species%20Lists/Bay%20County.pdf.

United States Fish and Wildlife Service (USFWS). 2012a. Southwest region threatened and endangered species lists. Accessed 06 August 2012. http://www.fws.gov/southwest/es/EndangeredSpecies/EndangeredSpecies_Main.cfm.

United States Fish and Wildlife Service (USFWS). 2012b. Endangered and threatened wildlife and plants: Designation of critical habitat for nine Bexar County, TX, invertebrates. Federal Register 77(30):8450-8523.

United States Fish and Wildlife Service (USFWS). 2012c. National Wetland Inventory Wetland Mapper. Accessed 29 August 2012. http://107.20.228.18/Wetlands/WetlandsMapper.html.

United States Geological Survey (USGS). 1964. Altus, Oklahoma 1964 1:24000 topographic map. Accessed 22 August 2012. http://www.topoquest.com/map-detail.php?usgs_cell_id=72661.

United States Geological Survey (USGS). 1992. Camp Bullis, Texas 7.5' topographic map. Accessed 30 August 2012. http://www.topoquest.com/map-detail.php?usgs_cell_id=6908.

United States Geological Survey (USGS). 2003. Physiographic regions. Accessed 23 August 2012. http://tapestry.usgs.gov/physiogr/physio.html

Veni, G. 1996. Hydrogeologic and biological surveys of selected caves on Camp Bullis, Texas: Training areas 8, 9, 10, and 11. San Antonio, Texas: George Veni and Associates.

Veni, G. and Associates. 1998. Hydrogeologic, biological, and archeological investigations of caves and karst features, and continued biological monitoring of four Edwards Limestone Caves, Camp Bullis, Texas. San Antonio, Texas: George Veni and Associates.

Veni, G., J.R. Redell, and J.C. Cokendolpher. 2002. Management plan for the conservation of rare and endangered karst species, Camp Bullis, Bexar and Comal counties, Texas. Report for Garrison Public Works, Environment Division, Fort Sam Houston, Texas.

Veni, G., W.R. Elliot, R.S. Toomey, III, and J.R. Redell 1995. Environmental karst site assessment, Camp Bullis, Texas: Training Areas 8, 9, and 11, and Southern Cantonment Area. Report for EA Engineering, Science, and Technology, Inc. San Antonio, Texas: George Veni and Associates.

Weaver, R.E. and P.J. Anderson. 2010. Notes on Florida's threatened and endangered plants. Gainesville: Florida Department of Agriculture and Consumer Services.

Web Atlas of Oklahoma. 2012. Potential natural vegetation – Kulcher vegetation classification. Accessed 24 July 2012. http://www.okatlas.org/okatlas/biotic/vegetation/kulcher.html.

Yandell, Danny, Installation Restoration Manager, Laughlin Air Force Base. 2012. Personal communication with Karen Johnson, Geo-Marine, Inc. 25 September.

Young, B.S. 2008. Archeological survey for the Salado Creek Hike and Bike Trail between Houston Street and Benz-Engleman Road in the City of San Antonio, Bexar County, Texas. Blanton & Associates, Inc., Austin, Texas. Submitted to Lockwood, Andrews, & Newnam, Inc. and the City of San Antonio, Texas.

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APPENDICES

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APPENDIX A

INTERAGENCY/INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING (IICEP) LETTERS

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Federal Agencies		
US Fish and Wildlife Service Oklahoma Ecological Services Field Office 9014 E. 21st Street South Tulsa, OK 74129-1428	Mr. David C. Frederick Field Supervisor US Fish and Wildlife Service 10711 Burnet Road, Suite 200 Austin, TX 78758	Jannet Mizzi Panama City Ecological Services US Fish and Wildlife Service 1601 Balboa Avenue Panama City, FL 32405
Agency Representative USEPA, Region IV Sam Nunn Federal Center 61 Forsyth Street, SW Atlanta, GA 30303	Agency Representative US EPA Region VI 1445 Ross Avenue, Suite 1200 Dallas, TX 75202	Kyle Mills Federal Emergency Management Agency 800 North Loop 288 Denton, TX 76209
US Army Corps of Engineers Tulsa District, Environmental Restoration Mission 1645 S. 101 E Ave Tulsa, OK 74128-4609	Mr. Wayne Lea US Army Corps of Engineers Attn: CESWF-PER-R P.O. Box 17300 Fort Worth, TX 78612-0300	Jeanette Hannah Muskogee Area Director US Bureau of Indian Affairs Muskogee Area Office 3100 W. Peak Blvd. Muskogee, OK 74401
Ron L. Hillard State Conservationist US Department of Agriculture Natural Resources Conservation Service 100 USDA, Suite 206 Stillwater, OK 74074-2655		
State/Local Agencies		
Agency Representative Oklahoma Department of Wildlife Conservation Natural Resources Section 1801 North Lincoln Oklahoma City, OK 73505	Dr. David Sager Texas Parks and Wildlife Department Chief, Ecosystem/Habitat Assessment Branch 4200 Smith School Road Austin, TX 78744-3291	Margaret Graham Oklahoma Department of Environmental Quality Consumer Assistance Program P.O. Box 1677 Oklahoma City, OK 73201
Melvina Heisch Deputy State Historic Preservation Officer State Historic Preservation Office Oklahoma Historical Society 2401 N. Laird Ave Oklahoma City, OK 73105	Mr. F. Lawrence Oaks State Historic Preservation Office Texas Historical Commission P.O. Box 12276 Austin, TX 78111-2276	Lauren Milligan Florida Dept of Environ Protection FL State Clearing House 3900 Commonwealth Blvd, MS 47 Tallahassee, FL 32399-3000
Agency Representative Oklahoma Natural Heritage Inventory Oklahoma Biological Survey 111 E. Chesapeake Street Norman, OK 73019-0575	Mr. Richard A. Hyde, Deputy Director Office of Permitting and Registration Texas Commission on Environmental Quality, MC 122 P.O. Box 13087 Austin, TX 78711-3087	Ms. Denise S. Francis TRACs-Single Point of Contact P.O. Box 12428 Room 441-A Austin, TX 78711-2428

State/Local Agencies		
County Commissioners Board of County Commissioners Jackson County 101 North Main Altus, OK 73521	Ms. Tiffany Pickens Alamo Area Council of Governments Community Relations Coordinator 8700 Tesoro Drive, Suite 700 San Antonio, TX 78217	Dr. Joe Leverett President, Military Affairs Committee Drawer C Altus, OK 73521
Honorable David Webb 509 S. Main Street Altus, OK 73521	Ms Elizabeth Gray Altus City Administrator 509 S. Main Street Altus, OK 73521	Altus City Council 509 S. Main Street Altus, OK 73521
Tribal Agencies		
Bill Anoatubby Governor Chickasaw Nation P.O. Box 1548 Ada, OK 74280	Mr. Mark Chino President Mescalero Apache and Affiliated Tribes P.O. Box 227 Mescalero, NM 88340	Mr. Johnny Wauqua Chairman Comanche Tribe P.O. Box 908 Lawton, OK 73502
Wallace Coffey Tribal Chairman Comanche Nation P.O. Box 908 Lawton, OK 73502	Mr. Leslie Standing President Wichita and Affiliated Tribes P.O. Box 729 Andarko, OK 73005	Mr. Bill Steele Seminole Tribe of Florida Tribal Historic Preservation Officer Ah-tah-thi-ki Museum 34725 West Boundary Road Clewiston, FL 33440
Polly Edwards Environmental Director Caddo Indian Nation of Oklahoma P.O. Box 487 Binger, OK 73009	Mr. Donald Patterson President Tonkawa Tribe 1 Rush Buffalo Road Tonkawa, OK 74653	Poarch Band of Creek Indians Mr. Robert Thrower 5811 Jack Spring Road Altmore, AL 36502
Ms. Joyce A. Bear Muscogee (Creek) Nation P.O. Box 580 Okmulgee, OK 74447	Mr. Steven Terry Tribal Historic Preservation Officer Miccosuke Tribe P.O. Box 440021 Miami, FL 33144	Donna Prengiss Director Apache Tribe of Oklahoma P.O. Box 1220 Andarko, OK 73005
Chad "Corntassle" Smith Principal Chief Cherokee Nation, Oklahoma P.O. Box 948 Tahlequah, OK 74464		

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

MEMORANDUM FOR SEE DISTRIBUTION LIST

FROM: HQ AETC/A7N
266 F Street West
Joint Base San Antonio-Randolph, TX 78150-4319

SUBJECT: Intergovernmental and Interagency Coordination of Environmental Planning for the Proposed Privatization of the Military Service Stations (MSS) Supporting Five Military Installations

1. The Air Education Training and Command (AETC) Headquarters at Joint Base San Antonio (JBSA) Randolph, TX is preparing environmental documentation for the privatization of the MSS supporting five military installations. The five installations being assessed are: Altus AFB, OK; Laughlin AFB, TX, Tyndall AFB, FL; and two sub-installations of JBSA: Camp Bullis and Fort Sam Houston. The proposed action involves construction and operation of a new MSS on each installation and demolition of the existing MSS once the new ones are operational.

2. The Description of the Proposed Action and Alternatives (DOPAA) (Attachment 1) describes the proposed action, providing an explanation of the alternatives considered, including those eliminated from detailed study. The location of the existing MSS and proposed location of the new MSS are depicted on Figures 1-1 through 1-5 within the DOPAA. The proposed action at all five installations will utilize previously disturbed areas within each installation.

3. As a federally funded action, we are preparing an Environmental Assessment to evaluate the environmental, cultural and socioeconomic impacts associated with the proposed action pursuant to the National Environmental Policy Act of 1969, as amended (42 U.S. Code (USC) §4321 et seq.); the Council on Environmental Quality Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); and 32 CFR Part 989.

4. We welcome your participation in this analysis. We greatly appreciate your review of the attached DOPAA and look forward to your response. Please send written response and comments within 30-days to the address listed below:

HQ AETC/A7NR
266 F Street West
Joint Base San Antonio-Randolph, TX 78150-4319

5. Attachment 2 contains the distribution list of the agencies and organizations in receipt of this memorandum. In addition to receiving your input, we will ensure local citizens, groups, and

agencies, among others, have ample opportunity to review and comment on the information and alternatives addressed in the document. Please contact Ms. Kimberly Fornof at (210) 652-1961 or kimberly.fornof@us.af.mil if you have any questions.

Sincerely,

JAMES E. FITZPATRICK, P.E., CFM
Chief, Engineering Division

2 Attachments:
1. DOPAA
2. Distribution List

AACOG
Alamo Area Council
Of Governments

October 2, 2012

Mr. James E. Fitzpatrick, P.E., CFM
Chief, Engineering Office
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio – Randolph, TX 78150

RE: Description of the Proposed Action and Alternatives (DOPAA) for the Environmental Assessment (EA) of the Proposed Privatization of the Military Service Stations (MSS)

Dear Mr. Fitzpatrick,

This letter is to advise you that AACOG has completed a local staff review of the DOPAA for an EA of the privatization of MSS at five AETC installations.

At this time staff has no questions or comments and recommends a *Consensus to Proceed* for this project.

Should you have any questions, please contact me at 210-362-5212.

Sincerely,

Joe Ramos
Senior Director
Alamo Area Council of Governments

Florida Department of Environmental Protection
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

September 25, 2012

Ms. Kimberly Fornof
HQ AETC/A7NR
Department of the Air Force
266 F Street West
Joint Base San Antonio-Randolph, TX 78150-4319

RE: Department of the Air Force – Scoping Notice – Military Service Station Privatization at Five AETC Installations – Tyndall Air Force Base, Bay County, Florida.
SAI # FL201209256377C

Dear Ms. Fornof:

Florida State Clearinghouse staff has reviewed the subject public notice under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

Please be advised that the proposed service station construction activities may require the issuance of an Environmental Resource Permit from the Department or Northwest Florida Water Management District (NWFWMD) under Chapter 62-346, *Florida Administrative Code*. Please contact the NWFWMD's Crestview Field Office at (850) 683-5044 for further assistance and permitting information. An NPDES permit may also be required from the Department's NPDES Stormwater Program in Tallahassee – please call (850) 245-7522 for additional information.

For further assistance with the State of Florida's petroleum storage systems requirements, please contact Mr. John Svec, P.E., in the Department's Division of Waste Management, Storage Tank Regulation Section at (850) 245-8845 or John.Svec@dep.state.fl.us.

In addition, any onsite or offsite improvements associated with the project that impact Florida Department of Transportation (FDOT) right-of-way on US 98 will require the appropriate FDOT permits. Required permits may include utility, access management, drainage or other permits depending on the work planned. Please contact the FDOT's District Three Operations Office in Panama City at (850) 767-4990 for additional information.

Based on the information contained in the scoping notice and minimal project impacts, at this stage, the state has no objections to the proposed federal action. To ensure the project's consistency with the Florida Coastal Management Program (FCMP), the regulatory concerns identified above must be addressed prior to project implementation. The state's continued concurrence will be based on the activity's compliance with FCMP authorities, including federal and state monitoring of the activity to ensure its continued conformance, and the adequate resolution of issues identified during subsequent reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process, in accordance with Section 373.428, *Florida Statutes*.

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Ms. Lauren P. Milligan at (850) 245-2170.

Yours sincerely,

Sally B. Mann

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lm

Florida State Clearinghouse

Oklahoma Historical Society *Founded May 27, 1893*
State Historic Preservation Office
Oklahoma History Center • 800 Nazih Zuhdi Drive • Oklahoma City, OK 73105-7917
(405) 521-6249 • Fax (405) 522-0816 • www.okhistory.org/shpo/shpom.htm

October 1, 2012

Mr. James E. Fitzpatrick
Department of The Air Force
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio- Randolph, TX 78150-4319

RE: File #2339-12; DAF Privatization of Altus Air Force Base

Dear Mr. Fitzpatrick:

We have received and reviewed the documentation submitted on the referenced project in Jackson County. Additionally, we have examined the information contained in the Oklahoma Landmarks Inventory (OLI) files and other materials on historic resources available in our office. We find that there are no known historic properties affected within the referenced project's area of potential effect.

In addition to our review, you must contact the Oklahoma Archeological Survey (OAS), 111 E. Chesapeake, #102, Norman OK 73019-5111 (#405/325-7211, FAX #405/325-7604), to obtain a determination about the presence of prehistoric resources that may be eligible for the National Register of Historic Places. Should the OAS conclude that there are no prehistoric archaeological sites or other types of "historic properties," as defined in 36 CFR Part 800.16(l), which are eligible for inclusion in the National Register of Historic Places within the project area and that such sites are unlikely to occur, we concur with that opinion.

The OAS may conclude that an on-site investigation of all or part of the project impact area is necessary to determine the presence of archaeological resources. In the event that such an investigation reveals the presence of prehistoric archaeological sites, we will defer to the judgment of the OAS concerning whether or not any of the resources should be considered "historic properties" under the Section 106 review process. If sites dating from the historic period are identified during the survey or are encountered during implementation of the project, additional assessments by the State Historic Preservation Office will be necessary.

Should further correspondence pertaining to this project be necessary, please reference the above underlined file number. If you have any questions, please contact me at 405/522-4484. Thank you.

Sincerely,

Melvena Heisch
Deputy State Historic
Preservation Officer

MH:jr

Bryan W. Shaw, Ph.D., *Chairman*
Buddy Garcia, *Commissioner*
Carlos Rubinstein, *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 25, 2012

Mr. James Fitzpatrick
Dept. of the Air Force
266 F Street West
San Antonio, Texas 78150

Re: TCEQ Grant and Texas Review and Comment System (TRACS) #2012-386, City of San Antonio, Bexar County - Privatization of the MSS

Dear Mr. Fitzpatrick:

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced project and offers following comments:

A review of the project for General Conformity impact in accordance with 40 CFR Part 93 indicates that the proposed action is located in the City of San Antonio, Bexar County, which is currently unclassified or in attainment of the National Ambient Air Quality Standards for all six criteria air pollutants. Therefore, General Conformity does not apply.

Although any demolition, construction, rehabilitation or repair project will produce dust and particulate emissions, these actions should pose no significant impact upon air quality standards. Any and particulate emissions should be easily controlled by using standard dust mitigation techniques.

We do not anticipate significant long term environmental impacts from this project as long as construction and waste disposal activities associated with it are completed in accordance with applicable local, state, and federal environmental permits and regulations. We recommend that the applicant take necessary steps to insure that best management practices are utilized to control runoff from construction sites to prevent detrimental impact to surface and ground water.

Any debris or waste disposal should be at an appropriately authorized disposal facility.

Thank you for the opportunity to review this project. If you have any questions, please contact Mr. Michael Brow at (512) 239-6840 or Michael.Brow@tceq.texas.gov.

Sincerely,

Jim Harrison, Director
Intergovernmental Relations Division

TONKAWA TRIBE OF OKLAHOMA
NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT
• 1 RUSH BUFFALO ROAD, TONKAWA, OKLAHOMA 74653 •
• PHONE (580) 628-2561 • FAX: (580) 628-9903 •
WEB SITE: www.tonkawatribe.com

Department of the Air Force
Ms. Kimberly Fornof

kimberly.fornof@us.af.mil

Dear Sir or Madam,

Regarding your proposed projects,
Intergovernmental and Interagency Coordination of Environmental Planning for the Proposed Privatization of the Military Service Stations (MSS) Supporting Five Military Installations, we submit the following:

The Tonkawa Tribe has no specifically designated historical or cultural sites identified in the above listed project area. However if any human remains, funerary objects, or other evidence of historical or cultural significance is inadvertently discovered then the Tonkawa Tribe would certainly be interested in proper disposition thereof.

We appreciate notification by your office of the many projects on-going, and as always the Tonkawa Tribe is willing to work with your representatives in any manner to uphold the provisions of NAGPRA to the extent of our capability.

Respectfully,

Miranda "Nax'ce" Allen
NAGPRA Representative

Cc: Historical Director

APPENDIX B
NOTICES OF AVAILABILITY

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The Altus Times

Classifieds

LOCATION AND HOURS OF OPERATION
Our office is located at 218 W. Commerce St. Altus, OK and is open 8:30 A.M. to 5 P.M. Monday through Friday

PLACEMENT DEADLINES

DEADLINES FOR ALL ADS, CHANGES, CANCELLATIONS
Tuesday.....10:15 am on Monday
Wednesday.....10:15 am on Tuesday
Thursday.....10:15 am on Wednesday
Friday.....10:15 am on Thursday
Sunday.....4:00 pm on Thursday

LEGAL DEADLINES
Tuesday.....4:00 pm on Friday
Wednesday.....11:00 am on Monday
Thursday.....11:00 am on Tuesday
Friday.....11:00 am on Wednesday
Sunday.....4:45 pm on Wednesday

PAYMENT POLICIES
All classified ads must be paid in advance except for those persons having an established account in good standing with this newspaper. For your convenience also accept Visa and Mastercard. The Altus Times reserves the right to edit, reject or revise any ad.

ADVERTISERS, PLEASE CHECK YOUR ADS
Any errors must be reported to or office no later than 12 noon the day following the first insertion. In no event does the Altus Times assume liability in excess of the cost of the ads in error.

A100 Legals
A102 ANNOUNCEMENTS
A105 Birthday/Anniversary (ANNOUNC)
A110 Happy Ads
A115 Lost & Found (ANNOUNCE)
A120 Memory/ Thank You (ANNOUNCE)
A125 Notices (ANNOUNCE)
A130 Personals (ANNOUNCE)
A135 Wanted (ANNOUNCE)
A140 SERVICES
A145 Appliance Services (SERV)
A150 Automotive (SERV)
A155 Building Materials (SERV)
A165 Business (SERV)
A170 Catering (SERV)
A175 Child / Elderly Care
A180 Computers (SERV)
A185 Contractors (SERV)
A190 Domestics/ Janitorial
A195 Electrical (SERV)
A200 Financial (SERV)
A205 General Repairs (SERV)
A210 Health (SERV)
A215 Heating & Cooling (SERV)
A220 Home Improvements (SERV)
A225 Insurance (SERV)
A230 Lawn Service (SERV)
A235 Music/ Dance / Drama (SERV)
A240 Other Services (SERV)
A245 Plumbing/ Electrical (SERV)
A250 Professional Services (SERV)
A255 Repairs (SERV)
A260 Roofing (SERV)
A265 Security (SERV)
A270 Tax/ Accounting (SERV)
A275 Travel Entertainment (SERV)
A280 FINANCIAL
A285 Financial Services (FINANCE)
A290 Insurance (FINANCE)
A295 Money To Lend (FINANCE)
A300 EDUCATION
A305 Business & Trade School (EDU)
A310 Instruction & Training (EDU)
A315 Lessons (EDU)
A320 Personal (EDU)
A325 ANIMALS
A330 Animal Supplies (ANIMALS)
A335 Horses (ANIMALS)
A340 Livestock (ANIMALS)
A345 Pets (ANIMALS)
A350 Want To Buy (ANIMALS)
A355 AGRICULTURE
A360 Farm Equipment (AGRi)
A365 Garden & Produce (AGRi)
A370 Hay, Feed, Seed, Grain (AGRi)
A380 Hunting & Land (AGRi)
A385 Want To Buy (AGRi)
A390 MERCHANDISE
A395 Antiques (MERCH)
A400 Appliances (MERCH)
A405 Auctions (MERCH)
A410 Bargain Basement (MERCH)
A415 Collectibles (MERCH)
A420 Computers (MERCH)
A425 Equipment / Supplies (MERCH)
A430 Flea Markets (MERCH)
A435 Fuel / Oil / Coal / Wood / Gas
A440 Furniture (MERCH)
A445 Hobby/ Hunt & Sport (MERCH)
A450 Kid's Corner
A455 Miscellaneous (MERCH)
A460 Want To Buy (MERCH)
A465 Yard Sale (MERCH)
A470 RECREATIONAL VEHICLES
A475 ATVs (REC VEH)
A480 Bicycles (REC VEH)
A485 Boats / Accessories (REC VEH)
A490 Campers / RVs & Trailers (REC)
A495 Motorcycles (REC VEH)
A500 Other (REC VEH)
A505 Want To Buy (REC VEH)
A510 AUTOMOTIVE
A515 Auto Rental / Lease
A520 Autos (AUTO)
A525 Classic / Antiques (AUTO)
A530 Commercial / Industiral (AUTO)
A535 Parts & Accessories (AUTO)
A540 Sports Utility (AUTO)
A545 Trucks (AUTO)
A550 Utility Trailers (AUTO)
A555 Vans (AUTO)
A560 Want To Buy (AUTO)
A565 REAL ESTATE SALES
A570 Cemetery Plots (REAL ESTATE)
A575 Commercial (REAL ESTATE)
A580 Condominiums (REAL ESTATE)
A585 For Sale By Owner (REAL EST)
A590 Houses For Sale (REAL ESTATE)
A600 Land (Acreage) (REAL ESTATE)
A605 Lots (REAL ESTATE)
A610 Want To Buy (REAL ESTATE)
A615 REAL ESTATE RENTALS
A620 Apartments/Townhouses (RENT)
A625 Commercial (RENT)
A630 Condominiums (RENT)
A635 Houses For Rent (RENT)
A640 Land (Acreage) (RENT)
A645 Lease (RENT)
A650 Storage (RENT)
A655 Want to Rent (RENT)
A660 MANUFACTURED HOUSING
A665 Lots (MANUFACTURED)
A670 Movers (MANUFACTURED)
A675 Rentals (MANUFACTURED)
A680 Sales (MANUFACTURED)
A685 Supplies (MANUFACTURED)
A690 Want to Buy (MANUFACTURED)
A695 RESORT PROPERTY
A700 Resort Property for Sale
A704 Resort Property for Rent
A708 EMPLOYMENT
A712 Accounting / Financial (HW)
A716 Administrative/ Professional
A720 Cashier / Clerk (HW)
A724 Child/Elderly Care (HW)
A728 Clerical (HW)
A732 Construction (HW)
A736 Drivers & Delivery (HW)
A740 Education (HW)
A744 Electircal / Plumbing (HW)
A748 Employment Agencies
A752 Entertainment (HW)
A756 Food Services (HW)
A760 Government & Federal Jobs (HW)
A764 Help Wanted- General (HW)
A823 SERVICE / BUSINESS DIRECTORY
A827 Air Conditioning (SD)
A831 Appliances (SD)
A835 Auto Customs (SD)
A839 Auto Repair (SD)
A843 Auto Sales (SD)
A847 Automotive (SD)
A851 Boats (SD)
A855 Books (SD)
A859 Cable TV (SD)
A863 Church (SD)
A867 Cleaning (SD)
A871 Clocks (SD)
A875 Concrete (SD)
A879 Dirt (SD)
A883 Dove Release (SD)
A887 Electrical (SD)
A891 Fencing (SD)
A895 Firearms (SD)
A899 Garden Center (SD)
A903 Gold (SD)
A907 Grading (SD)
A911 Handyman (SD)
A915 Health Care (SD)
A919 Home Improvement (SD)
A923 Jewelers (SD)
A927 Land Services (SD)
A931 Landscaping (SD)
A935 Lawn Care (SD)
A939 Manufactured Homes (SD)
A943 Massage Therapy (SD)
A947 Miscellaneous (SD)
A951 Painting (SD)
A955 Pet Cremation (SD)
A959 Pet Grooming (SD)
A963 Phone Service (SD)
A966 Plumbing (SD)
A969 Pools / Spas (SD)
A972 Produce (SD)
A975 Recycling (SD)
A978 Retirement (SD)
A981 Roofing (SD)
A984 Satellite TV (SD)
A987 Small Engines (SD)
A990 Tree Service (SD)
A993 Upholstery (SD)
A996 Welding (SD)
A999 Window Tinting (SD)

Help Wanted General

Diesel Mechanic & Refrigerated Trailer Mechanic

Diesel Mechanic needed to perform maintenance such as changing oil, lubrication and various repairs of Diesel Trucks and Trailers.
Must have basic tools.
Southwest Dedicated Transport, 601 Eastside Dr, Altus, OK.
60439642

KWIK–KAR
is currently accepting applications for full-time positions. Must be energetic, friendly & hard-working.
Apply 2100 N. Main, Altus
60437284

QUALITY MANAGER
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Seeking an RN/ LPN for Quality Manager (Part-Time) at Grace Living Center Mangum. We offer competitive compensation. Email resume or inquiries to amber.nowling@gracelivingcenters.com or fax to (405) 943-4917.
60440019

Western Oklahoma State College
is accepting applications for Two Part-Time Help Desk Support Technicians. For more information visit our website at http://jobs.wosc.edu or come by our office at 2801 N. Main, Office A6B, Altus OK 73521 Positions are open until filled. AA/EOE

Altus Times
Updating carrier applications for all areas of Altus.
Apply in person.
Altus Times 218 W. Commerce. 482-1221.
60439572

EDUCATION

REAL ESTATE SALES

Houses For Sale

1200/1202 Chestnut, Duplex, monthly income with 2 storages $40,000 (817)300-2047

3BR, Owner financing with down payment. West (405)527-4553.

4BR, 2BA, 2 story, Laundryroom, den, patio, in-ground pool, fenced, trees, corner lot, $60,000 (580)481-4795.

810 N. Hudson, 3BD/1BA Freshly painted $35,000 (817)300-2047

Lots

6 lots for sale, $4,000, best offer, on the corner of Everett and Baucum (580)482-0743.

REAL ESTATE RENTALS

Apartments/Townhouses

Houses For Rent

1108 York- 3BR, 1BA, stove, refrigerator, storm cellar, fenced yard, $455/mo., deposit, pets friendly, (580)301-7952.

2BR, No pets (580)482-2466.

3BR, 1.5BA, 1 Car garage, fenced yard, covered patio, storm cellar, non-smoking, no pets, $700/mo. (580)482-0944 or (405)204-5975.

1, 2, 3, & 4 bedroom homes. Could be HUD approved. Call 477-0614 for info.

Houses For Rent

500 N. Horizon Dr., 3BR, 2BA, 2-car garage, large rooms, no appliances, $700/mo., $250/dep., (580)482-4248.

718 W. Cypress 2/BD, 1/BA, Laundry room (580)471-9480

813 N. Forrest, 1BR, appliances, stove, refrigerator, $375/mo., $375/dep. (580)477-2643.

MANUFACTURED HOUSING

Sales

Got Land? $0 down! Free 55" PLASMA TV! No Land? Low down! Se habla espanol. Programas de ITIN. Call today 405-631-3200 wac

RESORT PROPERTY

ANIMALS

AGRICULTURE

AUTOMOTIVE

AUTOMOTIVE AFTER MARKET

MERCHANDSE FOR SALE

SERVICE / BUSINESS DIRECTORY

RELIGION PAGE

OBITUARIES

SERVICE / BUSINESS

RECREATIONAL VEHICLES

ANNOUCEMENTS

SERVICES

FINANCIAL

EDUCATION

ANIMALS

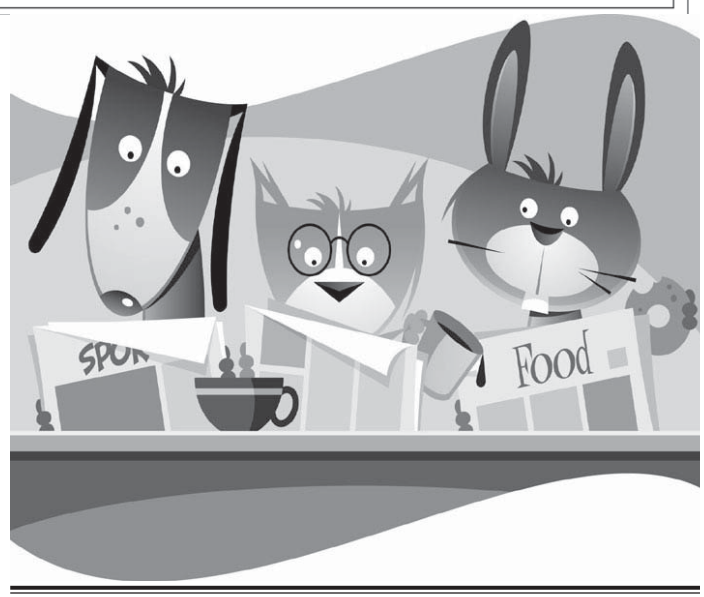
AGRICULTURE

MERCHANDISE

RECREATIONAL VEHICLES

AUTOMOTIVE

REAL ESTATE SALES



Miscellaneous

Apartments/Townhouses

One Month Free! (on new rentals)

Briarwood Apartments
201 N. Veteran's Drive

1 BR starting at $299
2 BR starting at $349

Call (580) 482-4555 or come by for details
~OHFA vouchers accepted~
60430725

Miscellaneous

NOTICE OF AVAILABILITY

Draft Environmental Assessment for the Proposed Privatization of the Military Service Stations Supporting Five Military Installations

The Air Education Training and Command (ATEC) Headquarters at Randolph Air Force Base (AFB) announces the availability of a draft environmental assessment (EA) that evaluates the potential environmental impacts of activities associated with privatization of military service stations (MSS) at five installations: Altus AFB, Oklahoma; Laughlin AFB, Texas; Tyndall AFB, Florida and two Joint Base San Antonio Texas locations, Camp Bullis and Fort Sam Houston. The activities associated with the proposed action include construction and operation of a new MSS at each installation, and demolition of the existing MSS after the new MSS is operational. The need for the proposed action is to upgrade by repair or replacement the substandard MSS facilities existing at each of the installations without interrupting mission-readiness and to provide the facilities to meet the mandate from Executive Order 13423 to use more non-petroleum-based fuels.

The resources analyzed in this draft EA are geologic, water, biological, and cultural resources; hazardous materials and wastes; air quality; noise; transportation; and utilities. Minor, temporary impacts were identified for construction and demolition activities. Most of the operational impacts would be negligible.

Copies of the draft EA have been placed in public libraries in Altus, OK; Del Rio, TX; Panama City, FL; and San Antonio, TX, and on AETC and installation websites for public review.

You are encouraged to submit comments through October 4, 2013. Comments should be provided to Kim Fornof, HQ AETC/A7NR, 266 F Street West, Randolph AFB, TX 78150, or email AETC.NEPA.INBOX@us.af.mil.
60440167

Help Wanted General

Health Watch
"We Watch With Care"

Splash into summer with new career at one of the largest and fastest growing home health agencies in Oklahoma. HealthWatch Home Health, an entity of Mays Home Health currently has the following positions avaliable:

• Full-Time Field Registered Nurse
• Admissions Coordinator (Marketer)

******Now offering a $1,000 Sign-On Bonus for all Full-Time Registered Nurses!!******

Wouldn't you like to become a part of a team who is dedicated to serving our loved ones with the best care possible? Don't wait any longer! Contact us today!

Please contact: Krista Henson, Recruiter
Phone) 580-745-9355
Fax) 580-931-8288
Email: knhenson@mayshomecare.com or
On the Internet @ www.mayshomecare.com

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SAN ANTONIO EXPRESS NEWS
AFFIDAVIT OF PUBLICATION

STATE OF TEXAS:
COUNTY OF BEXAR

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared: Lynette Nelson, who after being duly sworn, says that she is the BOOKKEEPER of THE HEARST CORPORATON (SAN ANTONIO EXPRESS-NEWS DIVISION), a daily newspaper published in Bexar County, Texas and that the publication, of which the annexed is a true copy, was published to wit:

Customer ID: 826424
Customer Name: Geo-marine, Inc.
Order ID: 2468858

Publication	Pub Date
EN Classified	06-AUG-13

Lynette Nelson
Bookkeeper

Sworn and subscribed to before me, this 6th **day of** Aug. **A.D.** 2013

Notary public in and for the State of Texas

OLIVIA D. CHAVERRIA
MY COMMISSION EXPIRES
July 17, 2014

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The resources analyzed in this draft EA are geologic, water, biological, and cultural resources; hazardous materials and wastes; air quality; noise; transportation; and utilities. Minor, temporary impacts were identified for construction and demolition activities. Most of the operational impacts would be negligible.

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DEL RIO NEWS HERALD

2205 N. BEDELL AVE.
DEL RIO, TEXAS 78840
(830) 775-1551 / FAX: (830) 774-2610

Customer's Name: Karen Johnson — Date: 08/07/20 13

Address

City — State — Zip

Retail	Reader	Circ.	Misc.
X			

Description	Amount
Public Notice for Thurs. 08/08/13	148 32
Privatization of Service Stations	

☒ Credit Card ☐ Cash ☐ Check — Tax

Received By: Hernan Cuevas — Total 148 32

№ 070116 **Thank You!**

From: nhclass@pcnh.com
Sent: Tuesday, August 06, 2013 2:47 PM
To: Karen Johnson
Subject: The News Herald Order 15122 Approved

Dear Karen Johnson:

Thank you for your order at The News Herald. Your order has been approved.

Comment:

Your order is described below:

Order 15,122

Order Date: August 5, 2013 3:32:16 PM GMT-05:00
Status: Approved

Description

Category: Announcements
Publication: News Herald
Heading: Public Notices/Announcement
Start Date: Wednesday, August 07, 2013
Duration: 1 Issue
New Today Banner: Yes
Top Ad: Yes
Text Code: Yes
Attention Getter: None
Your Ad Headline: NOTICE OF AVAILABILITY
Ad Copy: Draft Environmental Assessment for the Proposed Privatization of the Military Service Stations Supporting Five Military Installations

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If you did not place this order, please contact us.

Classifieds Department
The News Herald
Phone: 850-747-5020
E-mail: nhclass@pcnh.com
Website: http://www.newsherald.com

APPENDIX C
APPLICABLE DIRECTIVES

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APPENDIX C
APPLICABLE DIRECTIVES

This is a list of potentially applicable requirements that the Service Provider (SP) would need to follow during construction, demolition or operation of the military service stations (MSS). This list is not all-inclusive and may change over time or vary according to the location of the terminal facility. The SP would remain responsible for knowing and complying with all specified and applicable federal, state and local laws, regulations, guidelines, Executive Orders (EOs), Department of Defense (DoD), Air Force, Air Education and Training Command (AETC), and individual installation policies and publications throughout the term of their contract.

Federal Acquisition Regulation
Defense Federal Acquisition Regulation Supplement
DLA Energy Policies and Procedures
DoD 4140.25-M, DoD Management of Bulk Petroleum Products, Natural Gas, and Coal
DoD 4140.25-M, DESC Interim Guidance
DoD 4140.25, DoD Management Policy for Energy Commodities and Related Services
DoD 4170.11, Installation Energy Management Fuels, Lubricants, and Related Products
DoD 5202.1, DoD Executive Agent
DoD 5101.8, Department of Defense (DoD) Executive Agent (EA) for Bulk Petroleum
Guidebook for Performance-Based Services Acquisition (PBSA) in the DoD
MIL-HDBK-201B, Notice 1, Petroleum Operation
MIL-STD-161, Military Standard Identification Methods for Bulk Petroleum Products Systems
MIL-STD- 3004A, DoD Standard Practice Quality Surveillance for Fuels, Lubricants and Related Products
29 CFR 1910.120, Hazardous Waste Operations and Emergency Response
29 CFR 1910.132, Personal Protective Equipment
29 CFR 1910.134, Respiratory Protection Program
29 CFR 1910.146, Confined Space Entry
29 CFR 1919.147, Energized Equipment, Lockout/Tagout
29 CFR 1910.1025 Toxic Substances - Lead
29 CFR 1910.1200, Hazardous Communication Program
29 CFR 1904, Reporting of Occupational Injuries and Illnesses
29 CFR 1925, Safety & Health Standards for Federal Service Contracts
33 CFR 154, Oil Pollution Prevention Operations Manual
40 CFR 112, Oil Pollution Prevention
40 CFR 122, NPDES Permit Plan
40 CFR 260-268, EPA Hazardous Waste Management System Plan (2nd link)
40 CFR 280, Underground Storage Tanks
41 CFR 50-204, Safety & Health Standards for Federal Supply Contracts
49 CFR 171, Hazardous Materials Regulations
49 CFR 172, Hazardous Materials Regulations
49 CFR 195, (Pipeline Safety – Where Applicable)
Oil Pollution Act of 1990
National Fire Protection Association (NFPA)/Uniform Fire Code (UF)
NFPA 30, Flammable and Combustible Liquids Code
UFC 3-460-01, Petroleum Fuel Facilities
UFC 3-460-03F, Operation and Maintenance: Maintenance of Petroleum Systems

UFC 3-120-1, Air Force Sign Standards and the Base Architectural Compatibility Guide
UFC 3-201-02, DOD Landscape Architecture
API 510, Pressure Vessel Inspection Code: Maintenance Inspection, Rating, Repair, and Alteration
API 570, Pipeline Inspection Code
API 620, Design and Construction of Large, Welded, Low-Pressure Storage Tanks
API 650, Welded Steel Tanks for Oil Storage
API 653, Tank Inspection, Repair, Alteration and Reconstruction
API 2610, Design, Construction, Operation, Maintenance, and Inspection of Terminal & Inspection of Terminal & Tank Facilities
API Manual of Petroleum Measurement Standards (MPMS) Chapter 3, Method of Gauging Petroleum Products
API MPMS Chapter 4, Proving Systems
API MPMS Chapter 5, Metering
API MPMS Chapter 7, Methods of Measuring the Temperature of Petroleum Products
API MPMS Chapter 8, Sampling
API MPMS Chapter 9, Section 1 Density Determination
API MPMS Chapter 11.1, Volume Correction Factors
API MPMS Chapter 12, Calculation of Petroleum Quantities, Section1 – Calculation of Static Petroleum Quantities, Part 1 – Upright Cylindrical Tanks and Marine Vessels
API MPMS Chapter 17 Marine Measurement, All Sections
Air Force Handbook 32-1084 Facility Requirements

APPENDIX D
FLORIDA COASTAL ZONE CONSISTENCY NEGATIVE DECLARATION

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APPENDIX D
FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) NEGATIVE DETERMINATION

Introduction

This document provides the State of Florida with the U.S. Air Force's Negative Determination under Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, and 15 C.F.R. Part 930.35. The information in this Negative Determination is provided pursuant to 15 C.F.R. Section 930.35.

This negative determination addresses the Proposed Action for privatization of the military service station (MSS) at Tyndall AFB, Florida, as well as construction and operation of a new MSS by the contracted service provider at each installation, and demolition of the existing MSS after the new MSS is operational.

Proposed Federal agency action:

The United States Air Force (USAF) proposes to privatize the MSS operations at Tyndall and four other USAF installations that are not located in Florida. The purpose of the proposed action is to provide a retail fuels facility or MSS at each of the five installations that would meet assigned vehicle fueling requirements and comply with all applicable federal, state, and local laws and regulations; Department of Defense (DoD) and Air Force guidelines and instructions; the National Fire Protection Association (NFPA) Uniform Fire Code (UFC); and American Petroleum Institute (API) standards. The MSS are vital components of mission-readiness at each of the installations. Without adequate fueling facilities, the training mission at each installation would be compromised.

The need for the Proposed Action is to upgrade by repair or replacement the substandard MSS facilities existing at each of the installations without interrupting mission-readiness and to provide the facilities to meet the mandate from Executive Order (EO) 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," which requires federal agencies to reduce their consumption of petroleum products and increase their use of non-petroleum-based fuels in their vehicle fleets (Sec. 2[g]). The existing fuel stations at all five installations are in need of major repairs and are costly to maintain and operate. None of the five meet the current requirements for fueling facilities.

Federal Review

The Florida Coastal Management Program (FCMP) consists of a network of Florida Statutes administered by eight state agencies and five water management districts. After review of the FCMP and its enforceable policies, the USAF has made a determination that this activity is one that will not have an effect on the state of Florida coastal zone or its resources.

Florida Coastal Management Program Consistency Review

Statute	Consistency	Scope
Chapter 161 *Beach and Shore Preservation*	The proposed project would not adversely affect beach and shore management, specifically as it pertains to: • The Coastal Construction Permit Program. • The Coastal Construction Control Line (CCCL) Permit Program. • The Coastal Zone Protection Program. All land activities would occur on federal property.	Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the states' beaches.
Chapter 163, Part II *Growth Policy; County and Municipal Planning; Land Development Regulation*	The proposed action would not affect local government comprehensive plans.	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 *State and Regional Planning*	The proposed action would not have a negative affect on state plans for water use, land development or transportation.	Details state-level planning requirements. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 *Emergency Management*	The proposed action would not increase the state's vulnerability to natural disasters. Emergency response and evacuation procedures would not be impacted by the proposed action.	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 *State Lands*	All activities would occur on federal property, therefore there would be no impact to state or public lands.	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.
Chapter 258 *State Parks and Preserves*	State parks, recreational areas and aquatic preserves would not be affected by the proposed action.	Addresses administration and management of state parks and preserves (Chapter 258).
Chapter 259 *Land Acquisition for Conservation or Recreation*	Tourism and outdoor recreation would not be affected.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands (Chapter 259).
Chapter 260 *Recreational Trails System*	Opportunities for recreation on state lands would not be affected.	Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system (Chapter 260).

Chapter 375 *Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation*	Opportunities for recreation on state lands would not be affected.	Develops comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs (Chapter 375).
Chapter 267 *Historical Resources*	The proposed action would not have an impact on historic and/or cultural resources.	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 *Commercial Development and Capital Improvements*	The proposed action would occur on federal property. The proposed action would not have an effect on future business opportunities on state lands, or the promotion of tourism in the region.	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy.
Chapter 334 *Transportation Administration*	The proposed project would not have an impact on transportation.	Addresses the state's policy concerning transportation administration (Chapter 334).
Chapter 339 *Transportation Finance and Planning*	The proposed project would have no effect on the finance and planning needs of the state's transportation system.	Addresses the finance and planning needs of the state's transportation system (Chapter 339).
Chapter 370 *Saltwater Fisheries*	The proposed action would not have an effect on saltwater fisheries.	Addresses management and protection of the state's saltwater fisheries.
Chapter 372 *Wildlife*	The proposed action would not have a negative impact on wildlife resources.	Addresses the management of the wildlife resources of the state.
Chapter 373 *Water Resources*	The proposed action could increase the potential for impact from the increased rate and volume of stormwater runoff, due to a slight increase in impervious surface area. In order to limit the effects the proposed action would have on water resources, best management practices will be used to control erosion and stormwater runoff. Applicable permitting requirements will be satisfied in accordance with 62-25 Florida Administrative Code (FAC) and National Pollutant Discharge Elimination System (NPDES). Tyndall AFB would submit a notice of intent to use the generic permit for stormwater discharge under the NPDES program prior to project initiation according to Section 403.0885, Florida Statutes (FS). The Proposed Action would also require coverage under the generic permit for stormwater discharge from construction activities that disturb one or more acres of land (FAC 62-621).	Addresses the state's policy concerning water resources.

Chapter 376 *Pollutant Discharge Prevention and Removal*	The proposed action will not have an impact on the transfer, storage, or transportation of pollutants.	Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.
Chapter 377 *Energy Resources*	Energy resource production, including oil and gas, and the transportation of oil and gas, would not be affected by the proposed action.	Addresses regulation, planning, and development of oil and gas resources of the state.
Chapter 380 *Land and Water Management*	The proposed action would occur on federally owned lands. Under the proposed action, development of state lands with regional (i.e. more than one county) impacts would not occur. No changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing or construction would occur.	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.
Chapter 381 *Public Health, General Provisions*	The proposed action does not involve the construction of an on-site sewage or treatment system.	Establishes public policy concerning the state's public health system.
Chapter 388 *Mosquito Control*	The proposed action would not affect mosquito control efforts.	Addresses mosquito control effort in the state.
Chapter 403 *Environmental Control*	The proposed action would have no impact on water quality, air quality, pollution control, solid waste management, or other environmental control efforts. Reasonable precautions would be taken to minimize fugitive particulate emissions during ground-disturbing/construction activities in accordance with FAC 62-296.	Establishes public policy concerning environmental control in the state.

APPENDIX E
AIR QUALITY CALCULATIONS

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AIR QUALITY CALCULATIONS

Combustive Emissions

Step 1: Determine number of days and area of construction/demolition. Assumed that the area exposed by demolition of the existing MSS is also 1 acre.

Area of construction	1 acre	180 days
Area of demolition	1 acre	180 days

Step 2: Identify equipment needed and estimate number of days (out of the 180 total) that each piece would operate. Assumed all except the water trucks would only be operational 90 of the 180 days (half-time)

Equipment	No. Reqd per 10 acres [1]	Days	NOx[1] (lb/day)	VOC[1] (lb/day)	CO[1] (lb/day)	PM10 [1] (lb/day)
Construction						
Land clearing/grubbing						
Loader	1	90	7.86	1.35	11.52	0.22
Haul truck	1	90	20.89	3.6	30.62	0.58
Trenching						
Trencher	1	90	5.82	1	8.53	0.16
Loader	1	90	7.86	1.35	11.52	0.22
Grading						
Bulldozer	1	90	29.40	3.66	25.09	1.17
Grader	1	90	10.22	1.76	14.98	0.28
Water truck	1	180	20.89	3.6	30.62	0.58
Concrete slab pouring						
Cement truck	1	90	20.89	3.6	30.62	0.58
Asphalt paving						
Paving machine	1	90	7.93	1.37	11.62	0.22
Roller	1	90	5.01	0.86	7.34	0.14
Architectural coating						
Air compressor	1	90	5.25	0.85	7.00	0.16
Demolition						
Bulldozer	1	90	29.40	3.66	25.09	1.17
Loader	1	90	7.86	1.35	11.52	0.22
Haul truck	1	90	20.89	3.6	30.62	0.58
Water truck	1	180	20.89	3.6	30.62	0.58

[1] Data from SMAQMD 2004

Step 3: Multiply the number of days and the emission rate i to get the pounds of compounds emitted.

Equipment		Days	NOx (lb)	VOC (lb)	CO (lb)	PM10 (lb)
Construction						
Land clearing/grubbing						
Loader	1	90	707.4	121.5	1036.8	19.8
Haul truck	1	90	1880.1	324	2755.8	52.2
Trenching						
Trencher	1	90	523.8	90	767.7	14.4
Loader	1	90	707.4	121.5	1036.8	19.8
Grading						
Bulldozer	1	90	2646	329.4	2258.1	105.3
Grader	1	90	919.8	158.4	1348.2	25.2
Water truck	1	180	3760.2	648	5511.6	104.4
Concrete slab pouring						
Cement truck	1	90	1880.1	324	2755.8	52.2
Asphalt paving						
Paving machine	1	90	713.7	123.3	1045.8	19.8
Roller	1	90	450.9	77.4	660.6	12.6
Architectural coating						
Air compressor	1	90	472.5	76.5	630	14.4
Demolition						
Bulldozer	1	90	2646	329.4	2258.1	105.3
Loader	1	90	707.4	121.5	1036.8	19.8
Haul truck	1	90	1880.1	324	2755.8	52.2
Water truck	1	180	20.89	648	5511.6	104.4

Step 4: Total the amount of each compound for the construction and demolition projects (lb), then divide by 2,000 lb/T for tons.

Combustion Emission Total (lb)	19,916.29	3,816.90	31,369.50	721.80
Combustion Emission Total (T)	9.96	1.91	15.68	0.36

Assuming that both construction and demolition occur within the same year, these totals can be reported as tons/year.

Construction Commuter Emissions

Assumptions:
The average round-trip commute for a construction worker is 40 miles
Number of construction days=180
Number of construction workers=20

	NOx	VOC	CO	PM10
Emissions factor (lb per mile)	0.00065484	0.00070227	0.00660353	0.00009185
Construction commuter emissions (lb)	94.30	101.13	950.91	13.23
Construction commuter emissions (T)	0.05	0.05	0.48	0.01

Source: South Coast Air Quality Management District. 2007. EMFAC v. 2.3 Emissions factors for on-road vehicles. Retrieved from www.aqmd.gov/ceqa/handbook/onroad/onroad.html May 27, 2013.

Fugitive dust emissions

	E=0.11 T/acre/month	
Construction	E=0.11*1 acre*6 months=	0.66 T
Demolition	E=0.11*1 acre*6 months=	0.66 T

Source: Calif. Air Resources Control Board (CARB). 2002. Emissions Inventory Areawide Source Methodologies. Section 7.7 Building Construction Dust. Last updated September 2002. Retreived from http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-7prev.pdf May 27, 2013.

Evaluate Project Emissions vs. County Total Emissions

Step 5: Compare the Combustion Emissions Total (T) to the County Emissions for the counties the bases are in. Add the Fugitive Dust Emissions total (1.32 T) to the PM10 Cumbustion Emissions. Divide the County Emissions into the project Emissions and multiply by 100 for percentage.

	NOx	VOC	CO	PM10
Jackson Co, OK (2008 emissions [T/yr])[2]	1,033	871	4,577	452
Total project emissions[3]	10.01	1.96	16.16	1.69
Project emissions as % of County annual emissions	0.97	0.22	0.35	0.37
Bexar Co, TX (2008 emissions [T])[2]	94,806	46,218	4,525,664	57,805
Project emissions as % of County annual emissions	0.0106	0.0042	0.0004	0.0029
Val Verde Co, TX (2008 emissions [T])[2]	1,962	2,375	6,351	3,017
Project emissions as % of County annual emissions	0.51	0.08	0.25	0.06
Bay County, FL (2008 emissions [T])[2]	11,593	9,266	48,695	4,962
Project emissions as % of County annual emissions	0.09	0.02	0.03	0.03

[2]Data from USEPA 2012d

[3]PM10 includes fugitive emissions

Combustive Hazardous Air Emissions

Weight Fractions	Acetal-dehyde	Acrolein	Benzene	1,3-Butadiene	Ethyl benzene	Formal-dehyde	Hexane	MTBE	POM	Propion-aldehyde	Styrene	Toluene	Xylene
Diesel	7.43	1.15	2.03	0.186	0.31	14.96	0.159	NA	0.000627	0.985	0.0594	1.5	1.06
Gasoline	0.41	0.07	5.25	0.952	1.98	1.17	0.992	16.01	0.00151	0.188	0.0758	7.18	6.78

Construction	VOC(lb)	Acetal-dehyde	Acrolein	Benzene	1,3-Butadiene	Ethyl benzene	Formal-dehyde	Hexane	MTBE	POM	Propion-aldehyde	Styrene	Toluene	Xylene	
Land clearing/grubbing															
Loader	121.5	9.03	1.40	2.47	0.23	0.37665	18.1764	0.193185		0.000762	0.22842	0.07	1.8225	1.29	
Haul truck	324.0	24.07	3.73	6.58	0.60	1.0044	48.4704	0.51516		0.002031	0.60912	0.19	4.86	3.43	
Trenching															
Trencher	90.0	6.69	1.04	1.83	0.17	0.279	13.464	0.1431		0.000564	0.1692	0.05	1.35	0.95	
Loader	121.5	9.03	1.40	2.47	0.23	0.37665	18.1764	0.193185		0.000762	0.22842	0.07	1.8225	1.29	
Grading															
Bulldozer	329.4	24.47	3.79	6.69	0.61	1.02114	49.27824	0.523746		0.002065	0.619272	0.20	4.941	3.49	
Grader	158.4	11.77	1.82	3.22	0.29	0.49104	23.69664	0.251856		0.000993	0.297792	0.09	2.376	1.68	
Water truck	648.0	48.15	7.45	13.15	1.21	2.0088	96.9408	1.03032		0.004063	1.21824	0.38	9.72	6.87	
Concrete slab pouring															
Cement truck	324.0	24.07	3.73	6.58	0.60	1.0044	48.4704	0.51516		0.002031	0.60912	0.19	4.86	3.43	
Asphalt paving															
Paving machine	123.3	9.16	1.42	2.50	0.23	0.38223	18.44568	0.196047		0.000773	0.231804	0.07	1.8495	1.31	
Roller	77.4	5.75	0.89	1.57	0.14	0.23994	11.57904	0.123066		0.000485	0.145512	0.05	1.161	0.82	
Architectural coating															
Air compressor	76.5	5.68	0.88	1.55	0.14	0.23715	11.4444	0.121635		0.00048	0.14382	0.05	1.1475	0.81	
Demolition															
Bulldozer	329.4	24.47	3.79	6.69	0.61	1.02114	49.27824	0.523746		0.002065	0.619272	0.20	4.941	3.49	
Loader	121.5	9.03	1.40	2.47	0.23	0.37665	18.1764	0.193185		0.000762	0.22842	0.07	1.8225	1.29	
Haul truck	324.0	24.07	3.73	6.58	0.60	1.0044	48.4704	0.51516		0.002031	0.60912	0.19	4.86	3.43	
Water truck	648.0	48.15	7.45	13.15	1.21	2.0088	96.9408	1.03032		0.004063	1.21824	0.38	9.72	6.87	***Total***
Total (lbs)		283.60	43.89	77.48	7.10	11.83	571.01	6.07	0.00	0.02	7.18	2.27	57.25	40.46	**1,108.16**
Total (T)		0.14	0.02	0.04	0.00	0.01	0.29	0.00	0.00	0.00	0.00	0.00	0.03	0.02	**0.5541**

VOCs from Step 3 (lbs)

Operational Emissions-Existing

Data from TANKS4.09 runs

Source of data:	EA Table 2-1	Data from base	These three columns are from TANKS409 runs			Unit conversion
Tank ID	**Volume gal**	**Throughput gal/yr**	**Working Loss VOC (lbs)**	**Breathing Los VOC (lbs)**	**Total Loss VOC (lbs)**	**VOC (T)**
A-354G	12,000	73,802	669.27	1740.99	2410.26	1.20513
A-378B20	20,096	36,817	0.89	4.92	5.8	0.0029
CB-6101G	10,000	22,285	191.63	UST	191.63	0.095815
CB-6101JP8	10,000	63,205	2.0569	UST	2.0569	0.00102845
					193.6869	0.09684345
FSH-4050G1	10,000	3,339	28.71	UST	28.71	0.014355
FSH-4050G2	10,000	6,000	51.59	UST	51.59	0.025795
FSH-4050JP8	10,000	8,198	0.27	UST	0.27	0.000135
FSH-4050D	10,000	35,893	0.95	UST	0.95	0.000475
L-2109G	10,000	74,021	754.41	4180.66	4934.8	2.4674
L-2109B20	10,000	47,043	1.62	6.1	7.72	0.00386
T-562G	2,000	149,250	1458.14	1142.81	2600.94	1.30047
T-562B20	2,000	33,543	1.08	1.84	2.93	0.001465

HAPs

Compound	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Naphthalene	Toluene	224-TMP	Xylenes
Gasoline (from Table 15-2 in O'Brien et al 1999)				Wt % vapor divided by 100 equals vapor weight					
Wt %-vapor	0.6	0.02	0.04	0.5	4.6	negligible	0.7	0.7	0.2
Diesel (from Table 13-3 in O'Brien, et al. 1999)									
Wt %-vapor	7.2	0.4	0.7	2.3		negligible	4.1		2.5
JP-8 (from Table 13-2 in O'Brien, et al. 1999)									
Wt %-vapor	0.613	0.33	0.271			0.003	1.143	0.01	1.877
E85 (from Haskew and Liberty 2011 Table 8)									
Wt-% fuel	0.11		0.07	0.53			0.95	0.9	0.39
B20 (from Biodiesel MSDS from Tesoro 2011)						5			1

HAP Calculations

Multiply VOC (T/yr) calculated by TANKS by vapor weight for the appropriate fuel

Tank	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Naphthalene	Toluene	224-TMP	Xylenes
A-354-020 (gas)	0.0046	0.0002	0.0003	0.0038	0.0350		0.0053	0.0053	0.0015
A-378 (B20)	0.0002	0.0000	0.0000	0.0001		0.0001	0.0001		0.0000
Total Altus	0.0048	0.0002	0.0003	0.0039	0.0350	0.0001	0.0054	0.0053	0.0015
CB-6101 (gas)	0.0006	0.0000	0.0000	0.0005	0.0044		0.0007	0.0007	0.0002
CB6101 (JP-8)	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Total CB	0.0006	0.0000	0.0000	0.0005	0.0044	0.0000	0.0007	0.0007	0.0002
FSH-4050G1	0.0001	0.0000	0.0000	0.0001	0.0007		0.0001	0.0001	0.0000
FSH-4050G2	0.0002	0.0000	0.0000	0.0001	0.0012		0.0002	0.0002	0.0001
FSH-4050JP8	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
FSH-4050D	0.0000	0.0000	0.0000	0.0000			0.0000		0.0000
Total FSH	0.0003	0.0000	0.0000	0.0002	0.0018	0.0000	0.0003	0.0003	0.0001
L-2109G	0.0148	0.0005	0.0010	0.0123	0.1135		0.0173	0.0173	0.0049
L-2109B20	0.0003	0.0000	0.0000	0.0001		0.0002	0.0002		0.0000
Total Laughlin	0.0151	0.0005	0.0010	0.0124	0.1135	0.0002	0.0174	0.0173	0.0050
T-562G	0.0078	0.0003	0.0005	0.0065	0.0598	0.0000	0.0091	0.0091	0.0026
T-562B20	0.0001	0.0000	0.0000	0.0000			0.0001		0.0000
Total Tyndall	0.0079	0.0003	0.0005	0.0065	0.0598	0.0000	0.0092	0.0091	0.0026

Blanks are where there is no vapor weight percent provided. 0.0000 is HAP emission of less than 0.00005 TPY.

Operational Emissions-Proposed Action

Data from TANKS4.09 runs

Source of data:	EA Table 2-1	Data from base	These three columns are from TANKS409			Unit conversion
Tank ID	Total Vol	Throughput (gal)	Working Loss VOC (lbs)	Breathing Loss VOC (lbs)	Total Loss VOC (lbs)	Total Loss VOC (T)
A-ULSD	20,000	18,408	0.53	9.78	10.31	0.005155
A-Gas	20,000	36,901	334.63	5336.76	5671.4	2.8357
A-E85	20,000	36,901	115.23	1837.54	1952.77	0.976385
A-B20	20,000	18,409			10.31	0.005155
Total					7644.79	3.822395
CB-ULSD	12,000.00	3,715.00	0.13	9.54	9.66	0.0048
CB-Gas	12,000.00	7,431.00	74.97	5,593.93	5,668.90	2.8345
CB-E85	12,000.00	7,431.00	23.48	1,108.96	1,132.44	0.5662
CB-B20	12,000.00	3,716.00	0.13	9.54	9.66	0.0048
CB-JP-8	12,000.00	63,205.00	2.67	11.86	14.53	0.0073
						3.4176
FSH-ULSD	12,000.00	17,747.00	0.60	9.54	10.14	0.0051
FSH-Gas	12,000.00	4,669.00	47.10	5,593.93	5,685.56	2.8428
FSH-E85	12,000.00	4,669.00	14.76	1,091.63	1,106.39	0.5532
FSH-B20	12,000.00	17,746.00	0.60	9.54	10.14	0.0051
FSH-JP-8	12,000.00	8,198.00	1.56	11.86	13.42	0.0067
					6,825.65	3.4128
L-ULSD	12,000.00	23,522.00	0.81	9.62	10.43	0.0052
L-Gas	12,000.00	37,010.00	377.99	2,201.44	2,579.44	1.2897
L-E85	12,000.00	37,011.00	118.60	1,147.37	1,265.97	0.6330
L-B20	12,000.00	23,521.00	0.81	9.62	10.43	0.0052
					3,866.27	1.9331
T-ULSD	25,000.00	16,772.00	0.54	10.30	10.84	0.0054
T-Gas	15,000.00	74,625.00	729.07	3,546.57	4,275.64	2.1378
T-E85	15,000.00	74,625.00	225.28	1,161.13	1,386.41	0.6932
T-B20	25,000.00	16,771.00	0.54	10.30	10.84	0.0054
T-JP-8	15,000.00	55,268.00	2.21	7.92	10.13	0.0051
				4,736.22	5,693.86	2.8469

Throughput calculation assumptions

1-Assumed that half of the gas would be E85 and half of the diesel would be B20; therefore, divided the
2-Camp Bullis-existing throughput only for gas and JP-8. Put full throughput for JP-8 for new JP-8
3-For B20 HAPs, used diesel fraction weights from diesel and then added a 5% fraction of naphthalene
4-Since Tyndall did not have JP-8 before, throughput is from AGE JP-8 usage that will transfer to the proposed MSS.

HAPs

Compound	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Naphthalene	Toluene	224-TMP	Xylenes
Gasoline (from Table 15-2 in O'Brien et al 1999)									
Wt %-vapor	0.6	0.02	0.04	0.5	4.6	negligible	0.7	0.7	0.2
Diesel (from Table 13-3 in O'Brien, et al. 1999)									
Wt %-vapor	7.2	0.4	0.7	2.3		negligible	4.1		2.5
JP-8 (from Table 13-2 in O'Brien, et al. 1999)									
Wt %-vapor	0.613	0.33	0.271			0.003	1.143	0.01	1.877
E85 (Haskew and Liberty 2011)									
Wt-% fuel	0.11		0.07	0.53			0.95	0.9	0.39
B20 (from MSDS from Tesoro)						5			1

HAP Calculations

Multiply VOC (T) calculated by TANKS by Wt %-vapor for the appropriate fuel

A-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
A-Gas	0.0170	0.0006	0.0011	0.0142	0.1304		0.0198	0.0198	0.0057
A-E85	0.0011		0.0007	0.0052			0.0093	0.0088	0.0038
A-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
Total Altus	0.0188	0.0006	0.0019	0.0196	0.1304	0.0003	0.0295	0.0286	0.0097
CB-ULSD	0.0003	0.0000	0.0000	0.0001			0.0002		0.0001
CB-Gas	0.0170	0.0006	0.0011	0.0142	0.1304		0.0198	0.0198	0.0057
CB-E85	0.0006		0.0004	0.0030			0.0054	0.0051	0.0022
CB-B20	0.0003	0.0000	0.0000	0.0001		0.0002	0.0002		0.0000
CB-JP-8	0.0000	0.0000	0.0000			0.0004	0.0001	0.0000	0.0001
Total CB	0.0184	0.0006	0.0016	0.0174	0.1304	0.0006	0.0257	0.0249	0.0082
FSH-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
FSH-Gas	0.0169	0.0006	0.0011	0.0141	0.1297		0.0197	0.0197	0.0056
FSH-E85	0.0006		0.0004	0.0029			0.0053	0.0050	0.0022
FSH-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
FSH-JP-8	0.0000	0.0000	0.0000			0.0000	0.0001	0.0000	0.0001
Total FSH	0.0183	0.0006	0.0016	0.0173	0.1297	0.0003	0.0255	0.0247	0.0081
L-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
L-Gas	0.0077	0.0003	0.0005	0.0064	0.0593		0.0090	0.0090	0.0026
L-E85	0.0007		0.0004	0.0034			0.0060	0.0057	0.0025
L-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
Total Laughlir	0.0092	0.0003	0.0010	0.0100	0.0593	0.0003	0.0155	0.0147	0.0052
T-ULSD	0.0004	0.0000	0.0000	0.0001			0.0002		0.0001
T-Gas	0.0128	0.0004	0.0009	0.0107	0.0983		0.0150	0.0150	0.0043
T-E85	0.0008		0.0005	0.0037			0.0066	0.0062	0.0027
T-B20	0.0004	0.0000	0.0000	0.0001		0.0003	0.0002		0.0001
T-JP-8	0.0000	0.0000	0.0000			0.0000	0.0001	0.0000	0.0001
Total Tyndall	0.0144	0.0005	0.0014	0.0146	0.0983	0.0003	0.0221	0.0212	0.0073

Comparison Calculations

Altus	Throughput (gal/yr)	Base Total VOCs	Existing Total Losses (lb/yr) [Column F]	Proposed Total Losses (lb/yr VOCs) [Column F]	Change in emissions (impact of proposed action)	Change as a percentage of base VOC emissions
GUR	73,802		2,410.26	7,624.17		
B20	36,817		5.80	20.62		
total		7,178.00	2,416.06	7,644.79	5,228.73	72.84
					2.614365	T
Camp Bullis	Throughput (gal/yr)	Base Total VOCs	Existing Total Losses (lb/yr) [Column F]	Proposed Total Losses (lb/yr VOCs) [Column F]	Change in emissions (impact of proposed action)	Change as a percentage of base VOC emissions
gas	22,285		191.63	6,801.34		
diesel			0	19.32		
JP8	63,205		2.0569	14.53		
total		1,580.00	193.69	6,835.19	6,641.50	420.35
					3.3207516	T
Fort Sam Houston	Throughput (gal/yr)	Base Total VOCs	Existing Total Losses (lb/yr) [Column F]	Proposed Total Losses (lb/yr VOCs) [Column F]	Change in emissions (impact of proposed action)	Change as a percentage of base VOC emissions
gas	9,339		80.3	6,685.56		
diesel	35893		0.95	19.08		
JP8	8,198		0.27	11.86		
total		4,720.00	81.52	6,716.50	6,634.98	140.57
					3.31749	T

Notes

existing gas tank is VFR

both existing and proposed run as petroleum distillate #2

2011 Altus emissions reported as 3.589 T

2011 CB VOC emissions given as 0.79 T

going from UST to HFR AST, breathing losses jump

gas emissions from 2 tanks added together

2010 FSH VOC emissions given as 2.36 T

going from UST to HFR AST, breathing losses jump

Laughlin	Throughput (gal/yr)	Base Total VOCs	Existing Total Losses (lb/yr) [Column F]	Proposed Total Losses (lb/yr VOCs) [Column F]	Change in emissions (impact of proposed action)	Change as a percentage of base VOC emissions
gas	74,021		4934.8	3,845.41		
diesel	47,043		7.72	20.86		
JP8	0		0			
total		63,036.70	4,942.52	3,866.27	-1,076.25	-1.71
					-0.538125	T
Tyndall	Throughput (gal/yr)	Base Total VOCs	Existing Total Losses (lb/yr) [Column F]	Proposed Total Losses (lb/yr VOCs) [Column F]	Change in emissions (impact of proposed action)	Change as a percentage of base VOC emissions
gas	149,250		2600.94	5,662.05		
diesel	33,543		2.93	20.60		
JP8	0		0			
total		29,573.80	2,603.87	5,693.86	3,089.99	10.45
					1.544995	T

both existing and proposed diesel run as petroleum distillate #2

both existing and proposed run as petroleum distillate #2

2011 emissions total reported as 14.7869 T

HAPs

Altus	Benzene	Cumene	Ethylbenzene	Hexane	MTBE	Naphthalene	Toluene	224-TMP	Xylenes	Total
Existing	0.0046	0.0002	0.0003	0.0038	0.0350	0.0000	0.0053	0.0053	0.0015	0.0559
Proposed	0.0188	0.0006	0.0019	0.0196	0.1304	0.0003	0.0295	0.0286	0.0097	0.2395
Change	0.0143	0.0005	0.0016	0.0158	0.0955	0.0003	0.0242	0.0233	0.0081	0.1835
Camp Bullis										
Existing	0.0006	0.0000	0.0000	0.0005	0.0044	0.0000	0.0007	0.0007	0.0002	0.0071
Proposed	0.0184	0.0006	0.0016	0.0174	0.1304	0.0006	0.0257	0.0249	0.0082	0.2278
Change	0.0178	0.0006	0.0016	0.0169	0.1260	0.0006	0.0250	0.0243	0.0080	0.2207
Fort Sam Houston										
Existing	0.0003	0.0000	0.0000	0.0002	0.0018	0.0000	0.0003	0.0003	0.0001	0.0030
Proposed	0.0364	0.0012	0.0032	0.0345	0.2582	0.0012	0.0510	0.0495	0.0162	0.4516
Change	0.0362	0.0012	0.0032	0.0343	0.2564	0.0012	0.0507	0.0492	0.0162	0.4485
Laughlin										
Existing	0.0151	0.0005	0.0010	0.0124	0.1135	0.0002	0.0174	0.0173	0.0050	0.1824
Proposed	0.0092	0.0003	0.0010	0.0100	0.0593	0.0003	0.0155	0.0147	0.0052	0.1156
Change	-0.0059	-0.0002	0.0000	-0.0024	-0.0542	0.0001	-0.0020	-0.0025	0.0003	-0.0668
Tyndall										
Existing	0.0079	0.0003	0.0005	0.0065	0.0598	0.0000	0.0092	0.0091	0.0026	0.0959
Proposed	0.0112	0.0004	0.0016	0.0142	0.0650	0.0003	0.0227	0.0213	0.0081	0.1447
Change	0.0033	0.0001	0.0010	0.0077	0.0052	0.0003	0.0135	0.0122	0.0055	0.0487

2. Carbon Dioxide Emission Factors for Transportation Fuels[1]

Transportation Fuel	Emission Factors	
	Pounds CO_2 Per Unit of Volume	Kilograms CO_2 Per Million Btu
Aviation Gasoline	18.33 per gallon	69.19
Biodiesel		
-B100	0 per gallon	0
-B20	17.89 per gallon	59.44
-B10	20.13 per gallon	66.35
-B5	21.25 per gallon	69.76
-B2	21.92 per gallon	71.8
Diesel Fuel (No. 1 and No. 2)	22.37 per gallon	73.15
Ethanol/Ethanol Blends		
-E100	0 per gallon	0
-E85	2.93 per gallon	14.71
-E10 (Gasohol)	17.59 per gallon	65.94
Methanol/Methanol Blends		
-M85	10.68 per gallon	64.01
Motor Gasoline	19.54 per gallon	70.88
Jet Fuel, Kerosene	21.09 per gallon	70.88
Natural Gas	feet	53.06
Propane	12.67 per gallon	63.10
Residual Fuel (No. 5 and No. 6	26.00 per gallon	78.80

[1] Emissions factors calculated from data in: (1) Energy Information Administration, Documentation for Emissions of Greenhouse Gases in the U.S. 2005, DOE/EIA-0638 (2005), October 2007, Tables 6-1, 6-4, and 6-5. (Non-biogenic carbon content and gross heat of combustion for motor gasoline and diesel (distillate fuel)). (2) U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Alternative Fuels & Advanced Vehicles Data Center, Fuel Properties web page (http://www.eere.energy.gov/afdc/fuels/properties.html). (Biodiesel gross heat of combustion). (3) Energy Information Administration, Annual Energy Review 2006, DOE/EIA-0384(2006), June 2007, Table A3, p. 361. (Gross heat of combustion for ethanol). (4) Stacy C. Davis and Susan W. Diegel, Transportation Energy Data Book, Edition 26, Oak Ridge National Laboratory, ORNL-6978, 2007, Table B.7 Tables 6.7 and B.4. (Density and gross heat of combustion of methanol.)

Existing MSS Tanks

Multiply throughput per year by pounds CO2 per gallon and divide by 2000 to get tons CO2 per year

Tank ID	Throughput gal/yr	CO2 (T/yr)
A-354GUR	73,802	721.05
A-378B20	36,817	329.33
Total T/yr CO2		1,050.37
CB-6101GUR	22,285	217.72
CB-6101JP8	63,205	666.50
Total T/yr CO2		884.22
FSH-4050G1	3,339	32.62
FSH-4050G2	6,000	58.62
FSH-4050JP8	8,198	86.45
FSH-4050D	35,893	401.46
Total T/yr CO2		579.15
L-2109GUR	74,021	723.19
L-2109B20	47,043	420.80
Total T/yr CO2		1,143.98
T-562GUR	149,250	1,458.17
T-562B20	33,543	300.04
Total T/yr CO2		1,758.21

Proposed MSS Tanks

Multiply throughput per year by pounds CO2 per gallon and divide by 2000 to get tons CO2 per year

Tank ID	Throughput gal/yr	CO2 (T/yr)
A-ULSD	18,408	205.89
A-GUR	36,901	360.52
A-E85	36,901	54.06
A-B20	18,409	164.67
Total T/yr CO2		785.14
CB-ULSD	3,715.00	41.55
CB-GUR	7,431.00	72.60
CB-E85	7,431.00	10.89
CB-B20	3,716.00	33.24
CB-JP-8	63,205.00	666.50
Total T/yr CO2		824.78
FSH-ULSD	17,747.00	198.50
FSH-GUR	4,669.00	45.62
FSH-E85	4,669.00	6.84
FSH-B20	17,746.00	158.74
FSH-JP-8	8,198.00	86.45
Total T/yr CO2		496.14
L-ULSD	23,522.00	263.09
L-GUR	37,010.00	361.59
L-E85	37,011.00	54.22
L-B20	23,521.00	210.40
Total T/yr CO2		889.30
T-ULSD	16,772.00	187.59
T-GUR	74,625.00	729.09
T-E85	74,625.00	109.33
T-B20	16,771.00	150.02
T-JP-8	55,268.00	582.80
Total T/yr CO2		1,758.82

APPENDIX F

DRAFT ENVIRONMENTAL ASSESSMENT COMMENT AND RESPONSE MATRIX AND COMMENT LETTERS

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Appendix F. Draft Environmental Assessment Comment and Response Matrix

Agency	Signature	Date	Comment	Air Force Response
Alamo Area Council of Government	Joe Ramos	30 Aug 13	Consensus to proceed	Thank you for your review and comment.
Comanche Nation	Jimmy W. Arterberry, THPO	22 Aug 13	Based on the information provided and a search within the Comanche Nation Site Files, we have determined that there are **no properties** affected by the proposed undertaking.	Thank you for your review and comment.
Federal Emergency Management Agency	Mayra G. Diaz, Floodplain Management and Insurance Branch	14 Aug 13	We would request that the local floodplain administrator be contacted for the review and possible permit requirements for this project. If Federally funded, we request that the project be in compliance with EO 11988 and EO 11990.	We will advise the project proponent that in addition to needing a permit from the US Army Corps of Engineers under Section 404 of the Clean Water Act (for the low water crossing upgrade on Camp Bullis), they will also need to contact the City of San Antonio Floodplain Administrator for any construction modifying the floodplain of Salado Creek.
Florida Department of Environmental Protection	Lauren P. Milligan, Coordinator, Florida State Clearinghouse	7 Oct 13	1) Within 30 days of completion of the installation, the tank owner should submit a Storage Tank Facility Registration Form indicating the installation of the relocated tanks. Staff also notes that the submission of an additional registration form will be required when the tanks are removed indicating that the current facility is closed. 2) Based on the information contained in the draft EA and the enclosed state agency comments, the state has determined that, at this stage, the proposed activity is consistent with the Florida Coastal Management Program (FCMP), pending the tank registration requirements above.	We will advise the project proponent for Tyndall AFB that both the aboveground storage tank installations and the closure of the existing tanks need to be registered with the DEP within 30 days of completion.
Florida Department of State Division of Historical Resources	Robert F. Bendus, Director Division of Historical Resources and State Historical Preservation Officer	22 Oct 13	Based on the information provided, this office concurs with your determination that no historic properties would be affected by this undertaking.	Thank you for your review and comment.
Oklahoma Department of Environmental Quality	Quiana Fields, Administrative Programs Officer	23 Aug 13	Our agency has reviewed your request. As identified in the document, Altus has a RCRA corrective action permit.	Thank you for your review and comment.

Appendix F (continued). Draft Environmental Assessment Comment and Response Matrix

Agency	Signature	Date	Comment	Air Force Response
San Antonio River Authority	Amanda Nesto and Ronald Hernandez	No date	1) The location at Ft Sam was previously a munitions bunker. Soil samples should take place to ensure that contaminated soils are disposed of properly. 2) Section 3.3.2.2 refers to a "US Army 2010"; however, it is not mentioned in the References section of the EA. 3) Sections 1.1.3 and 1.1.4: Aboveground storage tanks (ASTs) are preferred over underground storage tanks (USTs). If USTs are removed, we recommend that site remediation follow all City requirements and the TCEQ's Guidance Manual for Leaking Petroleum Storage Tank in TX. All contractors must be a registered UST contractor with the State of TX. 4) If ASTs are installed, we recommend secondary containment be sufficient to hold or contain spills plus freeboard for precipitation to prevent any hazardous substances from entering any waters of the State. 5) We also recommend an Emergency/Incident Response Plan and SPCC plan be in place.	1) The demolition of the former ammo bunker at the proposed action site was not part of this action, as it was planned and conducted prior to this action. During the research for the EBS conducted on the site, there was no evidence to suggest that there might have been a release of hazardous or petroleum substances; therefore, sampling was not warranted. 2) During the preparation of the EA, we received a Camp Bullis INRMP that had been reviewed and signed in 2010. The information in the EA for Camp Bullis that was referenced to (US Army 2005) should be referenced to (US Army 2010). These reference changes will be noted in the Errata. 3) UST removal will follow all TCEQ requirements. 4) As specified in Section 2.2 of the EA, the ASTs installed will all include appropriate secondary containment. 5) The new MSS facilities would be incorporated into the Installation Spill Contingency and Spill Control and Countermeasures Plans.
Texas Historical Commission	Mark Wolfe, Executive Director	30 Aug 13	The THC concurs with your assessment of No Historical Properties Affected for Laughlin AFB, Camp Bullis, and Ft. Sam Houston.	Thank you for your review and comment.
Oklahoma Historical Society	Catharine Wood, Historical Acheologist	26 Aug 13	Fill out the Historic Preservation Resource Form and send in hardcopy of the form with photographs for buildings more than **45** years old.	The existing MSS at Altus is 46 years old. USAF will comply with requirement
US Army Corps of Engineer	Stephen Brooks, Chief Regulatory Branch	19 Aug 13	Elisha Bradshaw will be the regulatory project manager for this project. Project # SWF-2013-00381	No further comment received from the USACE by 18 Oct 13. Information will be forwarded to the Ft Sam/Camp Bullis MSS project manager for accomplishment during the design phase. CWA 404 permit may be required for construction at low water crossing
US Fish and Wildlife Service	Adam Zerrenner, Field Supervisor	6 Sep 13	No Action	Thank you for your review and comment.

AACOG
Alamo Area Council
Of Governments

August 30, 2013

Mr. James E. Fitzpatrick, P.E., CFM
Chief, Engineering Division
HQ AETC/A7N
266 F Street West
Joint Base San Antonio, TX 78150-4440

RE: Review of Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the proposed Privatization of the Military Service Stations (MSS) supporting five (5) military installations.

Dear Mr. Fitzpatrick,

A subcommittee of the AACOG Economic Development and Environmental Review Committee (EDERC) has reviewed your submitted draft EA and FONSI as described above.

At this time the subcommittee has no additional questions or comments and recommends a "*Consensus to Proceed*" for this project.

Should you have any questions or require additional information, please contact me at 210-362-5212.

Sincerely,

Joe Ramos
Senior Director of Regional Services
Alamo Area Council of Governments

Karen Johnson

From: Jimmy Arterberry [jimmya@comanchenation.com]
Sent: Thursday, August 22, 2013 11:19 AM
To: AETC/A7N_NEPA
Subject: Proposed Privatization of the Military Service Stations (MSS) supporting five Military installations (Altus AFB, Laughlin AFB, Tyndall AFB, Camp Bullis and Fort Sam Houston)

In response to your request, the above referenced project has been reviewed by staff of this office. Based on the information provided and a search within the Comanche Nation Site Files, we have determined that there are ***no properties*** affected by the proposed undertaking.
If you require additional information or are in need of further assistance, please contact this office at (580) 595-9960 or 9618.
This review is performed in order to identify and preserve the Comanche Nation and State's cultural heritage, in conjunction with the State Historic Preservation Office.

Jimmy W. Arterberry, THPO
Comanche Nation
P.O. Box 908
Lawton, Oklahoma 73502
(580) 595-9960 or 9618
(580) 595-9733 FAX

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U. S. Department of Homeland Security
FEMA Region 6
800 North Loop 288
Denton, TX 76209-3698

FEMA

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION VI
MITIGATION DIVISION

NOTICE REVIEW/ENVIRONMENTAL CONSULTATION

☐ We have no comments to offer. ☒ We offer the following comments:

WE WOULD REQUEST THAT THE LOCAL FLOODPLAIN ADMINISTRATOR BE CONTACTED FOR THE REVIEW AND POSSIBLE PERMIT REQUIREMENTS FOR THIS PROJECT. IF FEDERALLY FUNDED, WE WOULD REQUEST PROJECT TO BE IN COMPLIANCE WITH EO11988 & EO 11990.

K.M. Rahman, PE, CFM
Floodplain Administrator
City of San Antonio
P.O. Box 839966
San Antonio, TX 78283

210-207-7785

REVIEWER:

Mayra G. Diaz
Floodplain Management and Insurance Branch
Mitigation Division
(940) 898-5541

DATE: August 14, 2013

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

2013 AUG 13 A 10: 12

MEMORANDUM FOR: SEE DISTRIBUTION LIST

FROM: HQ AETC/A7N
266 F Street West
Bldg 901
Joint Base San Antonio, TX 78150-4440

SUBJECT: Draft Environmental Assessment (EA) for the Proposed Privatization of the Military Service Stations (MSS) supporting five military installations

1. The Air Education Training and Command Headquarters has prepared environmental documentation for the privatization of the MSS supporting five military installations. The five installations assessed were Altus AFB, Oklahoma; Laughlin AFB, Texas; Tyndall AFB, Florida and two Joint Base San Antonio, Texas locations; Camp Bullis and Fort Sam Houston. The proposed action involves construction and operation of a new MSS on each installation and demolition of the existing MSS once the new ones are operational.

2. As a federally funded action, we prepared an EA to evaluate the environmental, cultural, and socio-economic impacts associated with the proposed action pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code (USC) §4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); and 32 CFR Part 989.

3. We request your participation and solicit comments on the attached Draft EA and Draft Finding of No Significant Impact (FONSI). Please provide written comments within 60-days of this correspondence via email to: AETC.NEPA.INBOX@us.af.mil or by regular mail to:

Kim Fornof
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio, TX 78150

4. The Draft EA has been distributed to the agencies and organizations listed on Attachment A. In addition to receiving your input, we will ensure local citizens, groups, and agencies, among others, have ample opportunity to review and comment on the information and alternatives addressed. Please contact Ms. Kimberly Fornof at (210) 652-1961 for any questions.

James E Fitzpatrick

JAMES E. FITZPATRICK, P.E., CFM,
Chief, Engineering Division

Enclosures:

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

MARJORY STONEMAN DOUGLAS BUILDING
3900 COMMONWEALTH BOULEVARD
TALLAHASSEE, FLORIDA 32399-3000

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

October 7, 2013

Ms. Kim Fornof
Department of the Air Force
HQ AETC/A7NR
266 F Street West
Randolph AFB, TX 78150

RE: Department of the Air Force Base – Draft Environmental Assessment (EA) of Military Service Station Privatization at Five AETC Installations (Tyndall Air Force Base) – Bay County, Florida.
SAI # FL201308086676C

Dear Ms. Fornof:

The Florida State Clearinghouse has coordinated a review of the referenced draft EA under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Department of Environmental Protection's (DEP) Division of Waste Management staff notes that relocation of the existing Aboveground Storage Tanks (ASTs, registered as DEP FACID 981659) to a new location near Building 578 will require that the tank owner notify (verbal or written) the DEP 30 days prior to the installation. Within 30 days of completion of the installation, the tank owner should submit a Storage Tank Facility Registration Form indicating the installation of the relocated tanks. Staff also notes that the submission of an additional registration form will be required when the tanks are removed indicating that the current facility is closed. Please be advised that a closure assessment for the existing "Convault" ASTs at the current location is not required, as these secondarily contained systems are exempt from this requirement under § 62-762.801(4)(b)2, *Florida Administrative Code*. The registration form for both the new facility and closed facility can be found on the following DEP website: http://www.dep.state.fl.us/waste/categories/tanks/pages/registration.htm.

For further information on the state's storage tank registration requirements, please contact Mr. Rick Vail at (850) 245-8856 or Richard.Vail@dep.state.fl.us. For additional information on notification of installation, please contact Mr. David Brazile with the Escambia County Health Department, which covers Bay County, at (850) 258-8550 or David_Brazile@doh.state.fl.us.

Based on the information contained in the draft EA and the enclosed state agency comments, the state has determined that, at this stage, the proposed activity is consistent with the Florida

Florida State Clearinghouse

Coastal Management Program (FCMP). To ensure the project's continued consistency with the FCMP, the concerns identified by the DEP must be addressed prior to project implementation. The state's continued concurrence will be based on the activity's compliance with FCMP authorities, including federal and state monitoring of the activity to ensure its continued conformance, and the adequate resolution of issues identified during this and any subsequent regulatory reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process, in accordance with Section 373.428, *Florida Statutes*, if applicable.

Thank you for the opportunity to review the proposed project. Should you have any questions regarding this letter, please contact Ms. Jillaine M. Owens at (850) 245-2187.

Yours sincerely,



Lauren P. Milligan, Coordinator
Florida State Clearinghouse
Office of Intergovernmental Programs

LPM/jmo

cc: Brandy Smith, DEP, Northwest District
Wayne Kiger, DEP, DWM

Florida State Clearinghouse

RECEIVED
OCT 30 2013
DEP Office of
Intergovt'l Programs

FLORIDA DEPARTMENT of STATE

RICK SCOTT
Governor

KEN DETZNER
Secretary of State

Florida State Clearinghouse
Agency Contact and Coordinator (SCH)
3900 Commonwealth Blvd. MS-47
Tallahassee, Florida 32399-3000

October 22, 2013

Re: DHR Project File No.: 2013-4703 / Received by DHR: August 13, 2013
Section 106 Review: Department of the Air Force – Draft Environmental Assessment of Military Service Station Privatization at Five AETC Installations (Tyndall Air Force Base)
Bay County, Florida

To Whom It May Concern:

Our office received and reviewed the referenced project in accordance with the *National Environmental Policy Act of 1969*, and implementing regulations. The State Historic Preservation Officer is to advise and assist state and federal agencies when identifying historic properties, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

Based on the information provided, this office notes that the ca. 1972 military service station to be replaced at Tyndall Air Force Base is not considered a historic resource, and the surrounding buildings were not considered eligible for listing in the *National Register*. Based on the information provided, this office concurs with your determination that no historic properties will be affected as a result of the proposed undertaking.

For any questions concerning our comments, please contact Desiree Estabrook, Historic Sites Specialist, at Desiree.Estabrook @dos.myflorida.com or by phone at 850.245.6333 or 800.847.7278. We appreciate your continued interest in protecting Florida's historic properties.

Sincerely,

Robert F. Bendus, Director
Division of Historical Resources
and State Historic Preservation Officer

Karen Johnson

From: Fields, Quiana [quiana.fields@deq.ok.gov]
Sent: Friday, August 23, 2013 10:06 AM
To: AETC/A7N_NEPA
Subject: Draft Environmental Assessment for the Proposed Privatization of the Military Service Stations supporting five military installations
Attachments: Skonicaasd_13082309510.pdf.pdf

Ms. Kim Fornof

Our agency has reviewed your request. As identified in the document, Altus has a RCRA corrective action permit. If there are any questions please contact Gail Hamill at (405) 702-5106 and/or Dawson Lawson at (405) 702-5104.

Sincerely,
Quiana Fields

Quiana Fields, Administrative Programs Officer
Office of the Executive Director
Oklahoma Department of Environmental Quality
Phone: (405) 702-7152
Fax: (405) 702-7101
quiana.fields@deq.ok.gov

SAN ANTONIO
RIVER AUTHORITY
Leaders in Watershed Solutions

Environmental Science Department: Environmental Investigations

The Draft Environmental Assessment (EA) for the Proposed Privatization of the Military Service Station (MSS) for Joint Base San Antonio Texas locations; Camp Bullis and Fort Sam Houston was reviewed by the San Antonio River Authority Environmental Investigations team. Below are our comments.

1. The location at Fort Sam was previously a munitions bunker. Soil samples should take place to ensure that contaminated soils are discarded properly.

2. Section 3.3.2.2 refers to a "US Army 2010" publication; however, is not mentioned in the References section of the EA.

3. Sections 1.1.3 and 1.1.4: Above Ground Storage Tanks (ASTs) are preferred over Underground Storage Tanks (USTs). If USTs are removed we recommend that site remediation follow all City requirements and the TCEQ's Guidance Manuel for Leaking Petroleum Storage Tank Clean-Ups in Texas. Also, contractors performing UST closure must be a registered UST contractor with the State of Texas.

   If ASTs are installed, we recommend that secondary containment be sufficient to hold or contain spills plus freeboard for precipitation to prevent any regulated substances from entering waters of the State. We also recommend that an Emergency/Incident Response Plan or a Spill Prevention Control and Countermeasures (SPCC) be in place.

Thank you for the opportunity to review the Draft EA.

Reviewers:

Amanda L. Nasto

Ronald G. Hernandez

Honorable David Webb 509 S. Main Street Altus, OK 73521	Ms Elizabeth Gray Altus City Administrator 509 S. Main Street Altus, OK 73521	Altus City Council 509 S. Main Street Altus, OK 73521
Mr. Daniel Aguilar Assistant Director of Public Works 114 W. Commerce Street San Antonio, Texas 78205	Ms. Diane Bartlett FPA Bexar County 233 North Pecos Street, Suite 420 San Antonio, Texas 78207	Mr. Michael Segner, CFM NFIP State Coordinator Texas Water Development Board P.O. Box 13231 Austin, Texas 78711-3231
Russell A. Persyn, P.E., Ph.D. Manager, Watershed Engr Dept San Antonio River Authority P.O. Box 839980 San Antonio, Texas 78283		
Tribal Agencies		
Bill Anoatubby Governor Chickasaw Nation P.O. Box 1548 Ada, OK 74280	Mr. Mark Chino President Mescalero Apache and Affiliated Tribes P.O. Box 227 Mescalero, NM 88340	Mr. Johnny Wauqua Chairman Comanche Tribe P.O. Box 908 Lawton, OK 73502
Wallace Coffey Tribal Chairman Comanche Nation P.O. Box 908 Lawton, OK 73502	Mr. Leslie Standing President Wichita and Affiliated Tribes P.O. Box 729 Andarko, OK 73005	Chad "Corntassle" Smith Principal Chief Cherokee Nation, Oklahoma P.O. Box 948 Tahlequah, OK 74464
Polly Edwards Environmental Director Caddo Indian Nation of Oklahoma P.O. Box 487 Binger, OK 73009	Mr. Donald Patterson President Tonkawa Tribe 1 Rush Buffalo Road Tonkawa, OK 74653	
Ms. Joyce A. Bear Muscogee (Creek) Nation P.O. Box 580 Okmulgee, OK 74447	Donna Prengiss Director Apache Tribe of Oklahoma P.O. Box 1220 Andarko, OK 73005	

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

MEMORANDUM FOR: SEE DISTRIBUTION LIST

FROM: HQ AETC/A7N
266 F Street West
Bldg 901
Joint Base San Antonio, TX 78150-4440

SUBJECT: Draft Environmental Assessment (EA) for the Proposed Privatization of the Military Service Stations (MSS) supporting five military installations

1. The Air Education Training and Command Headquarters has prepared environmental documentation for the privatization of the MSS supporting five military installations. The five installations assessed were Altus AFB, Oklahoma; Laughlin AFB, Texas; Tyndall AFB, Florida and two Joint Base San Antonio, Texas locations; Camp Bullis and Fort Sam Houston. The proposed action involves construction and operation of a new MSS on each installation and demolition of the existing MSS once the new ones are operational.

2. As a federally funded action, we prepared an EA to evaluate the environmental, cultural, and socio-economic impacts associated with the proposed action pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S. Code (USC) §4321 et seq.); the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508); and 32 CFR Part 989.

3. We request your participation and solicit comments on the attached Draft EA and Draft Finding of No Significant Impact (FONSI). Please provide written comments within 60-days of this correspondence via email to: AETC.NEPA.INBOX@us.af.mil or by regular mail to:

Kim Fornof
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio, TX 78150

4. The Draft EA has been distributed to the agencies and organizations listed on Attachment A. In addition to receiving your input, we will ensure local citizens, groups, and agencies, among others, have ample opportunity to review and comment on the information and alternatives addressed. Please contact Ms. Kimberly Fornof at (210) 652-1961 for any questions.

James E Fitzpatrick

JAMES E. FITZPATRICK, P.E., CFM,
Chief, Engineering Division

Enclosures:

TEXAS HISTORICAL COMMISSION
real places telling real stories

August 30, 2013

Kim Fornof
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio, Texas 78150

Re: Draft Environmental Assessment for the Proposed Privatization of the Military Service Stations supporting five military installations.

Dear Ms. Fornof:

Our review staff, led by William McWhorter, has reviewed your submission. This letter serves as comment on the above mentioned project from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC).

The THC has reviewed your letter of notification and accompanying report, *Draft Environmental Assessment for the Proposed Privatization of the Military Service Stations supporting five military installations.* In addition to two out of state DOD sites, this report covers three military installations in Texas: Laughlin Air Force Base, Camp Bullis, and Fort Sam Houston. From the project described in your aforementioned report, the THC concurs with your determination of **NO HISTORIC PROPERTIES AFFECTED** for the Laughlin Air Force Base – military service station; Camp Bullis – military service station; and Fort Sam Houston – military service station.

Thank you for your cooperation in the federal review process, and for your efforts to preserve the irreplaceable heritage of our nation. If you have any questions concerning this review or if we can be of further assistance, please contact William McWhorter at 512/463-5833.

Sincerely,

William McWhorter

for: Mark Wolfe
Executive Director
State Historic Preservation Office

Oklahoma Historical Society *Founded May 27, 1893*
State Historic Preservation Office
Oklahoma History Center • 800 Nazih Zuhdi Drive • Oklahoma City, OK 73105-7917
(405) 521-6249 • Fax (405) 522-0816 • www.okhistory.org/shpo/shpom.htm

August 26, 2013

Mr. Kim Fornof
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio, TX 78150

RE: File #2135-13; Altus AFB, Proposed Construction of New MSS, Altus, Jackson County, Oklahoma

Dear Mr. Fornof:

We have received the documentation submitted concerning the above referenced project in Jackson County.

We are unable to process your request for review at this time and ask that you supply a completed Historic Preservation Resource Identification Form and appropriate photographs for each of the structures to be affected by the project. (Please send hard copies of the forms and photographs, please do not send via CD.)

NOTE: If these properties are less than 45 years old, Historic Preservation Resource Identification Forms and photos are not required. However, your review request must include the address and date (or year) of construction of each property.

If these properties are 45 years old or older, and you have not received Historic Preservation Resource Identification Forms and the Review and Compliance Manual which is necessary to complete the forms, you may call or write to request hard copies from our office, or go directly on line at www.okhistory.org and select "SHPO," then "Programs," then "Section 106," then click on *"Review & Compliance (Section 106 Process) Manual"* which includes instructions and the form.

If you have any questions regarding this request, you may reach me at 405/521-6381. Your response must reference the above underlined file number. Thank you.

Sincerely,

Catharine M. Wood
Historical Archaeologist

CMW:pm

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

August 19, 2013

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2013-00381, Privatization of Military Service Stations

Kim Fornof
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio, TX 78150

Dear Ms. Fornof:

Thank you for your letter received August 13, 2013, concerning a proposal by the Air Education Training and Command Headquarters for new construction and demolition located Bexar and Val Verde Counties, Texas. This project has been assigned Project Number SWF-2013-00381. Please include this number in all future correspondence concerning this project.

Ms. Elisha Bradshaw has been assigned as the regulatory project manager for your request and will be evaluating it as expeditiously as possible.

You may be contacted for additional information about your request. For your information, please reference the Fort Worth District Regulatory Branch homepage at www.swf.usace.army.mil/Missions/Regulatory.aspx and particularly guidance on submittals at www.media.swf.usace.army.mil/pubdata/environ/regulatory/introduction/submital.pdf and mitigation at www.usace.army.mil/Missions/Regulatory/Permitting/Mitigation.aspx that may help you supplement your current request or prepare future requests.

If you have any questions about the evaluation of your submittal or would like to request a copy of one of the documents referenced above, please contact Ms. Elisha Bradshaw at the address above or telephone 817-886-1738 and refer to your assigned project number. Please note that it is unlawful to start work without a Department of the Army permit if one is required.

Please help the Regulatory Program improve its service by completing the survey on the following website: http://per2.nwp.usace.army.mil/survey.html.

Stephen L Brooks
Chief, Regulatory Branch

02ETAUCO-2013-TA-0274

DEPARTMENT OF THE AIR FORCE
AIR EDUCATION AND TRAINING COMMAND

USFWS RECEIVED AUG 14 2013 ECOLOGICAL SERVICES AUSTIN, TEXAS

NO ACTION
Date: 6 Sept 2013
Consultation #: 02ETAUCO-2013-TA-0274
Approved by [signature] for 05SEP13
Adam Zerrenner, Field Supervisor
U.S. FISH & WILDLIFE SERVICE, AUSTIN, TEXAS

FWES
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T.S.
OAS
FILE

Reg 14 AUG 2013 CJC

MEMORANDUM FOR: SEE DISTRIBUTION LIST

FROM: HQ AETC/A7N
266 F Street West
Bldg 901
Joint Base San Antonio, TX 78150-4440

SUBJECT: Draft Environmental Assessment (EA) for the Proposed Privatization of the Military Service Stations (MSS) supporting five military installations

1. The Air Education Training and Command Headquarters has prepared environmental documentation for the privatization of the MSS supporting five military installations. The five installations assessed were Altus AFB, Oklahoma; Laughlin AFB, Texas; Tyndall AFB, Florida and two Joint Base San Antonio, Texas locations; Camp Bullis and Fort Sam Houston. The proposed action involves construction and operation of a new MSS on each installation and demolition of the existing MSS once the new ones are operational.

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3. We request your participation and solicit comments on the attached Draft EA and Draft Finding of No Significant Impact (FONSI). Please provide written comments within 60-days of this correspondence via email to: AETC.NEPA.INBOX@us.af.mil or by regular mail to:

Kim Fornof
HQ AETC/A7NR
266 F Street West
Joint Base San Antonio, TX 78150

4. The Draft EA has been distributed to the agencies and organizations listed on Attachment A. In addition to receiving your input, we will ensure local citizens, groups, and agencies, among others, have ample opportunity to review and comment on the information and alternatives addressed. Please contact Ms. Kimberly Fornof at (210) 652-1961 for any questions.

James E Fitzpatrick
JAMES E. FITZPATRICK, P.E., CFM,
Chief, Engineering Division

Enclosures: