FINAL

ENVIRONMENTAL ASSESSMENT

FOR THE

DEACTIVATION AND TURNOVER OF TITAN SPACE LAUNCH VEHICLE CAPABILITY

AT

CAPE CANAVERAL AIR FORCE STATION, FLORIDA

May 2005

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FINDING OF NO SIGNIFICANT IMPACT
AND FINDING OF NO PRACTICABLE ALTERNATIVE

DEACTIVATION AND TURNOVER OF
TITAN SPACE LAUNCH VEHICLE CAPABILITY

45th Space Wing, Florida

SEPTEMBER 2005

The United States Air Force (USAF) proposes to close out the Titan program and place Space Launch Complex 40 (SLC-40) and associated facilities at Cape Canaveral Air Force Station (CCAFS) in a deactivated state, after completion of the final launches in 2005. During scoping of the deactivation process, a range of alternatives was identified for the excess property. The 45th Space Wing (45 SW) considered reuse of the facilities, demolition of the facilities and placing facilities in a safe and secure state without reuse. The Proposed Action to close out and deactivate/demolish SLC-40 facilities is a result of the decision to implement the Evolved Expendable Launch Vehicle Program at Vandenberg Air Force Base and CCAFS. 45 SW determined that reuse of the facilities was not a viable alternative due to the lack of demand at CCAFS for these type of facilities. Therefore, only one alternative to the Proposed Action was identified, the No Action Alternative. Under the No Action Alternative, facilities would be placed in a safe and secure state but demolition would not occur. In accordance with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations and 32 Code of Federal Regulations 989, *Environmental Impact Analysis Process*, this Environmental Assessment (EA) evaluates the potential environmental consequences associated with the proposed Titan deactivation at CCAFS. The EA is attached and incorporated by reference.

Environmental Consequences of the Proposed Action

No significant environmental impacts were identified that would require the completion of an Environmental Impact Statement (EIS). Less than significant or beneficial impacts that were identified are summarized below.

Air Quality: Demolition activities could produce short-term, intermittent air quality impacts from fugitive emissions (particulate matter) and other common air pollutants (nitrogen oxides (NOx), carbon monoxide (CO) and sulfur dioxide (SO2) from construction equipment and ammonia, NOx and CO from explosive demolition). Asbestos-containing materials (ACMs) and ozone depleting chemicals would be removed prior to demolition. Lead-based paint (LBP) would be left in place, to avoid airborne exposure to workers.

Biological Resources: Several Threatened and Endangered (T&E) species and Species of Special Concern have the potential to occur in the vicinity of SLC-40, including Curtiss' milkweed, sand dune spurge, nodding pinweed, gopher tortoise and the Florida scrub jay. The Proposed Action areas also provide habitat for birds listed on the migratory bird list, all of which are protected by the Migratory Bird Treaty Act. The AF has consulted with the U.S. Fish and Wildlife Service regarding potential impacts to migratory birds and Federal-listed T&E species and no formal consultation is required.

Several State-listed plants could be present in the Proposed Action areas especially where mowed and maintained areas transition into native vegetation communities. Such species "will be protected when practicable," in accordance with AFI 32-7064, *Integrated Natural Resources Management,* Section 7.1.2.

Although not anticipated, removal of scrub jay habitat would require compensation at a rate of 4:1 (four acres restored for every acre destroyed) if there were a permanent removal of habitat. If permitted to re-grow, compensation would not be required.

When activities are likely to disturb gopher tortoise burrows, CCAFS biologists would relocate tortoises and indigo snakes (which could inhabit the burrows) to other suitable areas in accordance with the existing Gopher Tortoise Relocation Permit. Prior to beginning project activities, work areas would be surveyed for T&E animals; if found, they would be avoided or relocated to suitable habitat.

SLC-40 has been a contributing light source for sea turtle disorientation on the adjacent beaches. Nesting and hatchling sea turtles would benefit from the Proposed Action, since deactivation and demolition would result in less exterior lighting, which would reduce disorientation.

Great-horned owls, as well as other migratory bird species, have been known to nest on the Mobile Service Tower and Umbilical Tower in the past. If demolition activities were to occur during their nesting season, the AF would perform a survey to ensure no owls are nesting on the structures. Any eggs/young would be removed and transported to the Maitland Bird of Prey Center. Additionally, ospreys nest in high densities in the Integrated Titan Launch area and it is possible that negative impacts could result if enough structures are removed. Alternative nesting platforms for any nests that require removal may be required. Because it is impossible to schedule project activities outside the nesting seasons of all species, some direct mortality may occur.

Waters of the United States and state of Florida, including wetlands, located on the Proposed Action sites would be avoided. If activities require disturbance adjacent to these areas, Best Management Practices, such as the erection of silt fences, would be implemented.

Cultural Resources: SLC-40 is not currently considered an historic complex and there are no historic properties located in the immediate vicinity. Additionally, there are no known archaeological sites located either within or near the boundary of SLC-40.

Geology, Soil and Water Resources: Work activities have the potential to promote erosion and affect surface waters by disturbing upland and wetland areas. Best Management Practices identified in the Stormwater Pollution Prevention Plan, Industrial National Pollutant Discharge Elimination Permit (NPDES) and stormwater NPDES permit, if required, would be followed to mitigate impacts to soils and surface waters.

Hazardous Materials and Hazardous Waste: The Titan program at CCAFS contains several hazardous materials and waste storage sites that support launch operations. Hazardous materials and waste that may be encountered during deactivation/demolition activities include: fuel in storage tanks, fluorescent lamps, high intensity discharge lamps, refrigerants, LBP, ACM, materials containing polychlorinated biphenyls, batteries and mercury thermostats and switches. Materials that are no longer needed would be reallocated for reuse or properly removed and disposed. In addition, waste storage areas shall be properly closed in accordance with existing permits and regulations, including 45 SW guidance.

Health and Safety: Various safety hazards associated with heavy equipment operation, transportation of hazardous materials and waste and conventional or explosive demolition would exist. All appropriate regulations, including Occupational Safety and Health Administration regulation *29 CFR 1926, Safety and Health Regulations for Construction*, including *Subpart T "Demolition,"* would be followed during project activities, along with AF and 45 SW-specific guidance.

Some facilities are known or suspected of containing LBP and/or ACM. Limited removal of LBP would occur where necessary in order to facilitate demolition.

PCB-contaminated soils within SLC-40 would be removed prior to demolition activities, if possible, to avoid worker exposure.

Infrastructure and Transportation: The Proposed Action would result in the modification, transfer, recycling and/or demolition of existing infrastructure. State and Federal laws and procedures must be followed. Solid waste issues related to the debris generated from demolition activities would impact local landfills. Solid waste that is recycled during demolition activities would result in a positive environmental impact by landfill use avoidance and conservation of virgin materials.

Land Use and Zoning: The Proposed Action would render structures associated with SLC-40, including support facilities located outside of the Complex, safe and secure and ready for demolition or conversion for other uses such as the construction of new facilities or restoration to a native state for wildlife purposes. Activities would be compatible with existing and planned land uses and zoning.

Noise: Demolition activities would generate noise, which although not continuous, could be disruptive for brief periods to wildlife and individuals working in the immediate area.

Socioeconomics: An increase in local construction labor and environmental remediation work would result from the Proposed Action. The demand for demolition and transportation equipment would also increase.

No Action Alternative

Under the No Action Alternative, the Titan Launch Operations Contract would be closed out and SLC-40 would be rendered safe and secure as described for the Proposed Action; however, demolition of facilities would not occur. Should the No Action Alternative be selected, potential impacts to biological resources (delay in return of land to a native state) and land use and zoning (unavailability of land for immediate reuse) could occur. In addition, the unused site would still need to be secured from vandalism. Over time, a potential safety hazard may occur as the facilities degrade from lack of maintenance.

Cumulative Impacts

The SLC-40 (Titan) is concurrently being deactivated along with SLC-36 (Atlas). After facilities are demolished and removed, these areas would be available for revegetation and either allowed to return to their natural state, resulting in the creation of habitat for wildlife, or reused for the construction of new facilities, or for other mission-related activities. It is anticipated that hazardous materials and waste usage would be reduced, contributing to the AF's pollution prevention goals. However, local landfills, including the Cape's, would be impacted by these two demolition efforts.

Finding of No Practicable Alternative (FONPA) for Activities in Floodplains and Wetlands

According to the USAF Environmental Impact Analysis Process Supplement 1 (32 CFR Part 989), a FONPA is required for activities in floodplains and wetlands in compliance with Executive Order 11990, *Protection of Wetlands* and Executive Order 11988, *Floodplain Management.* No impacts to wetlands are anticipated. The majority of the Solid Motor Assembly and Ready Facility area and Vehicle Integration Building area are located within a 100-year floodplain. Although no new construction is associated with the Proposed Action, erosion control Best Management Practices would be used during demolition activities. The Proposed Action area would be re-seeded and/or planted with native species upon completion of demolition activities. No other more environmentally preferable alternative was identified that would satisfy mission requirements.

Pursuant to Executive Orders 11990 and 11988, the authority delegated by SAFO 780-1 and 32 CFR Part 989 and taking the submitted information into account, I find that there is no practicable alternative to this action that would avoid wetlands and floodplains and the proposed action includes all practical measures to minimize harm to the environment.

Finding of No Significant Impact (FONSI)

Based upon my review of the facts and analyses contained in the attached EA, conducted in accordance with the provisions of NEPA, the CEQ Regulations, AFI 32 7061, as amended by the interim change dated March 12, 2003, which adopted 32 CFR Part 989, I conclude that the Proposed Action should not have a significant environmental impact, either by itself or cumulatively with other ongoing projects at CCAFS. Accordingly, an EIS is not required. The signing of this FONSI completes the environmental impact analysis process.

5 Oct 05
Date

Thomas D Taverney
THOMAS D. TAVERNEY
Major General, USAF
Acting Vice Commander, AFSPC

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APPENDICES

Acronyms and Abbreviations

45SW	45th Space Wing
ACM	Asbestos Containing Material
AEIs	Air Emissions Inventories
AF	Air Force
AFB	Air Force Base
AFI	Air Force Instruction
AFOSH	Air Force Occupational Safety and Health
AFSPC	Air Force Space Command
AHA	Activity Hazard Analyses
ANFO	Ammonium Nitrate with Fuel Oil
ART	Asbestos Recovery Team
AST	Above Ground Storage Tank
BEHP	bis(2-ethylexyl)phthalate
BMPs	Best Management Practices
bsl	below sea level
C&D	Construction and Demolition
CAA	Clean Air Act
CCAFS	Cape Canaveral Air Force Station
CES/CEL	Civil Engineering Squadron/
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COCs	Contaminants of Concern
CWA	Clean Water Act
dB	decibel
dBA	“A-weighted” logarithmic scale
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EELV	Evolved Expendable Launch Vehicle
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement

EO	Executive Order
EPA	Environmental Protection Agency
ERA	Ecological Risk Assessment
ESA	Endangered Species Act
ESPA	Endangered Species Protection Act
FAAQS	Florida Ambient Air Quality Standards
FAC	Florida Administrative Code
FETSA	Florida Endangered and Threatened Species Act
FDEP	Florida Department of Environmental Protection
FFWCC	Florida Fish and Wildlife Conservation Commission
FGFWFC	Florida Game and Fresh Water Fish Commission
FONPA	Finding of No Practicable Alternative
HAPs	Hazardous Air Pollutants
HHRA	Human Health Risk Assessment
HID	High Intensity Discharge
HQ AFSPC	Headquarters Air Force Space Command
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
ITL	Integrated Titan Launch
J-BOSC	Joint-Base Operations Support Contract
KSC	Kennedy Space Center
LBP	Lead-based Paint
LDN	Day-Night Average Sound Level
LTM	Long Term Monitoring
LUCIP	Land Use Control Implementation Plan
LUCs	Land Use Controls
LVs	Launch Vehicles
MBTA	Migratory Bird Treaty Act
MCL	Maximum Contaminant Level
MRF	Materials Recycling Facility
msl	mean sea level
MST	Mobile Service Tower
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act

NESHAPS	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NRO	National Reconnaissance Office
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetland Inventory
O&M	Operations & Maintenance
ODC	Ozone Depleting Chemical
ODS	Ozone Depleting Substances
OSHA	Occupational Safety and Health Administration
PAFB	Patrick Air Force Base
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated biphenyls
PE	Program Element
PM	Particulate Matter
PMD	Program Management Directive
PNFFA	Preservation of Native Flora of Florida Act
ppm	parts per million
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RMP	Risk Management Plan
SCMLs	Secondary Maximum Contaminant Levels
SCS	Soil Conservation Service
SCTLs	Soil Cleanup Target Levels
SGS	Space Gateway Support
SHPO	State Historic Preservation Office
SJRWMD	Saint John’s River Water Management District
SLC	Space Launch Complex
SMARF	Solid Motor Assembly and Ready Facility
SPO	System Program Office
SRMs	Solid Rocket Motors

STP	Sewage Treatment Plant
SVOCs	Semivolatile Organic Compounds
SWMU	Solid Waste Management Unit
TCLP	Toxic Characteristics Leaching Procedure
T&E	Threatened and Endangered
TOVEX	Ammonium Nitrate Slurry with Monomethylamine thickener
TNT	Trinitrotoluene
TSCA	Toxic Substances and Control Act
UPS	Universal Power Supply
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
UT	Umbilical Tower
VIB	Vehicle Integration Building
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

In accordance with the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations, *Environmental Impact Analysis Process*, as amended by interim change dated March 12, 2003, which adopted 32 Code of Federal Regulations (CFR) Part 989, and the Department of Defense (DoD) Directive 6050, this Environmental Assessment (EA) evaluates the environmental consequences associated with the closeout and turnover of the Titan Space Launch Complex 40 (SLC-40) and supporting facilities at Cape Canaveral Air Force Station (CCAFS), located along the northeastern coast of Florida (Figures 1-1 and 1-2).

1.1 Background and Location

Cape Canaveral Air Force Station

Cape Canaveral Air Force Station occupies approximately 25-square-miles (15,800 acres) of land on Florida's Canaveral Peninsula. The Canaveral Peninsula is east of Merritt Island, a barrier island on the Atlantic coast of Florida. The main complex of CCAFS is located approximately 155 miles south of Jacksonville, 210 miles north of Miami and approximately 60 miles east of Orlando. The northern boundary of CCAFS adjoins the Kennedy Space Center (KSC) boundary on the barrier island. The Banana River separates CCAFS from KSC. The southern boundary abuts Port Canaveral. The Atlantic Ocean borders CCAFS along its eastern margin.

With 16 launch pads at 11 SLCs, CCAFS has the largest number of launch pads in the United States. These pads grew in number with each new mission and vehicle. Currently, eleven are active launch pads, two are being rebuilt, two have been deactivated, and one is being redeveloped as a test facility. At one time, there were 37 launch pads in 34 SLCs, but 20 of these have been dismantled and three have been indefinitely deactivated. Both dismantled and deactivated pads are available for redevelopment should the need arise. SLC-20, for example, has an approved site plan for a new commercial space launch venture. (General Plan, 2002)

Along with the various launch and support facilities, CCAFS maintains a centralized industrial complex to support the technical/mechanical and administrative needs of each launch program. The industrial complex contains structures that support the SLCs and includes warehouse and hangar space used to store critical spares and package payloads and serves as a base of operations for Civil Engineering, Base Operations, and command personnel.

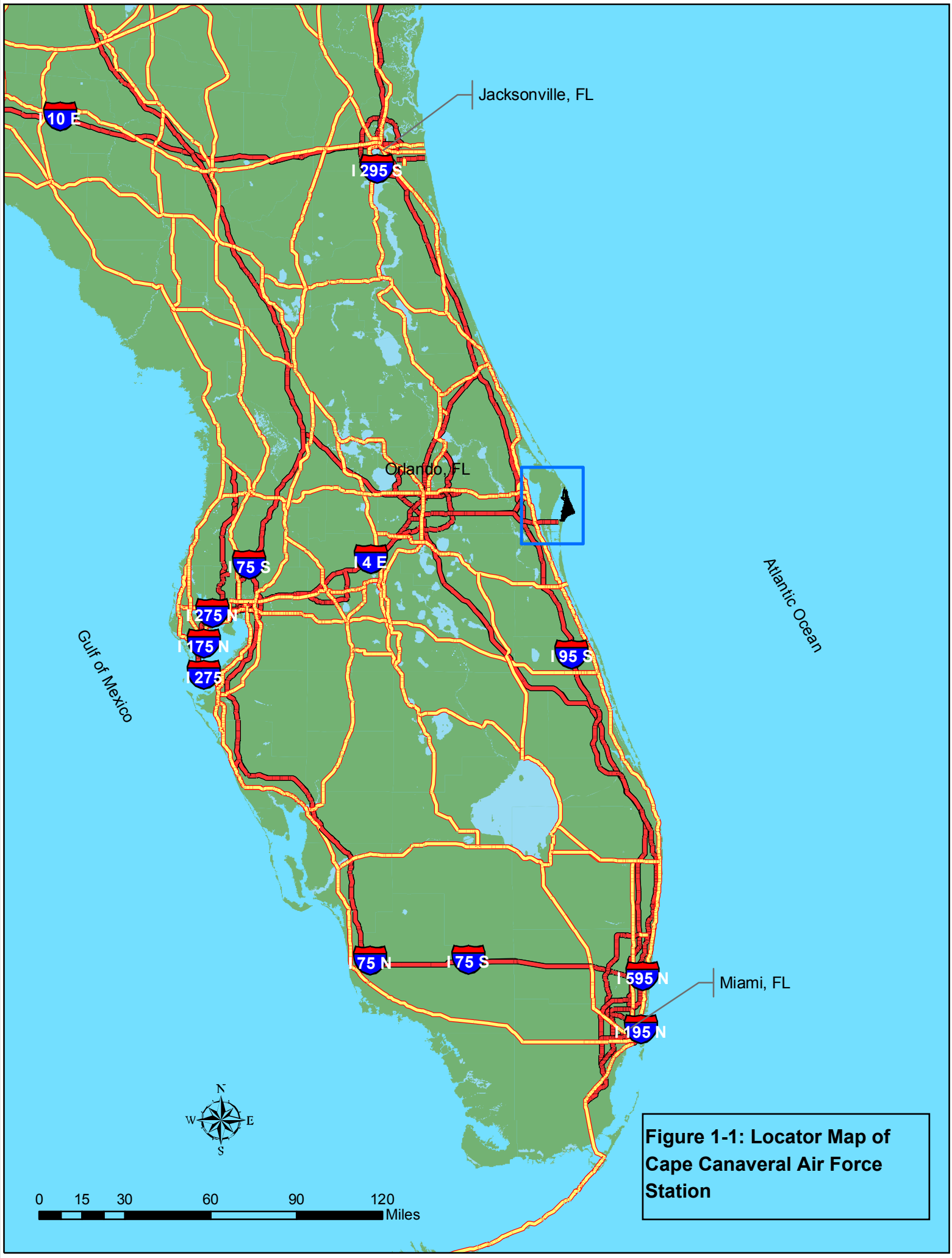


Figure 1-1: Locator Map of Cape Canaveral Air Force Station

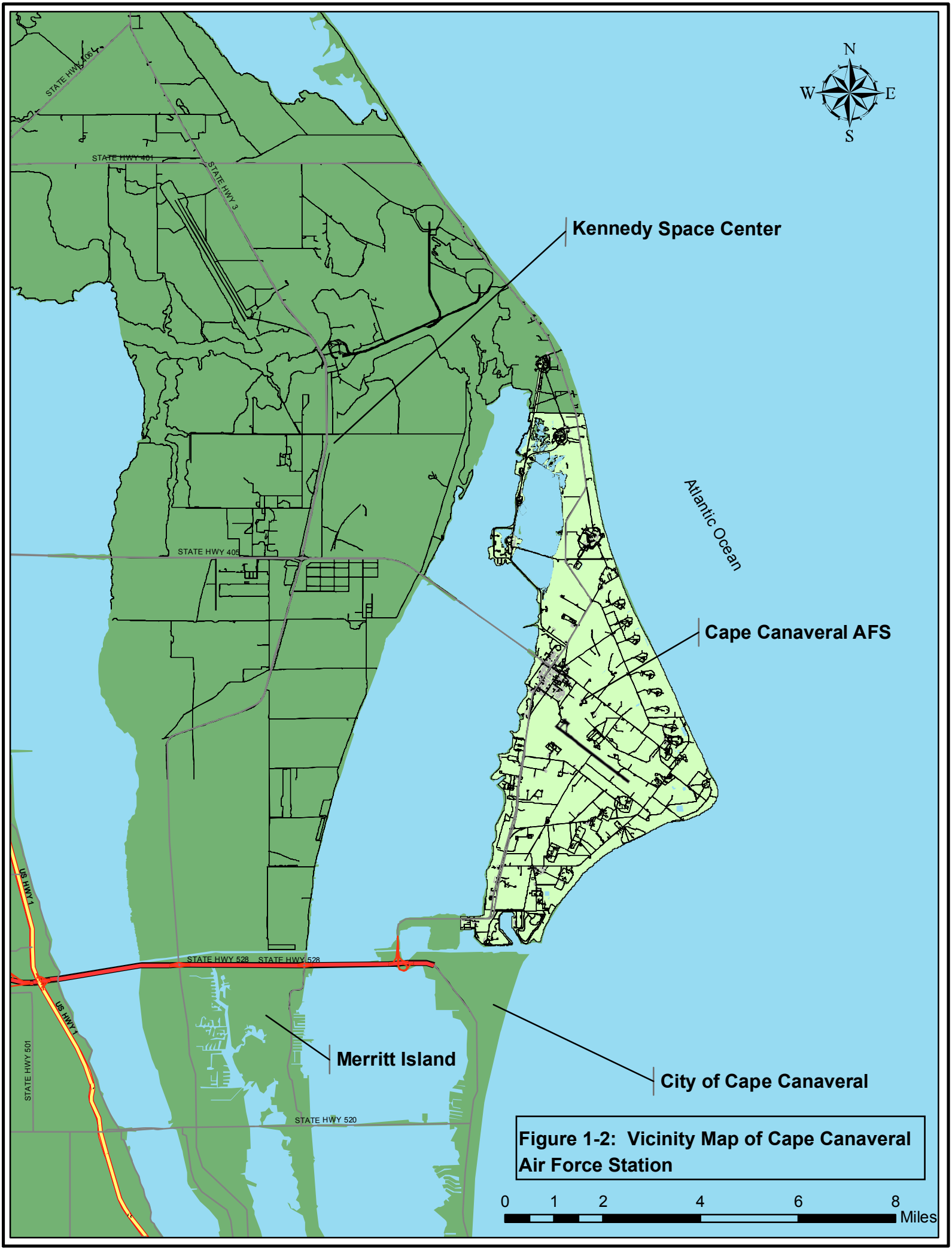


Figure 1-2: Vicinity Map of Cape Canaveral Air Force Station

Space Launch Complex 40

Space Launch Complex 40 and associated Titan facilities are located on the northern portion of CCAFS in the Integrated Titan Launch (ITL) area, approximately ½-mile west of the Atlantic Ocean and ¾-mile east of the Banana River (Figure 1-3 and 1-4). In 1964, SLC-40 was constructed for the Titan IIIC Missile Program owned by the AF and operated by Martin Marietta and Pan Am/Johnson Controls. The complex of launch facilities and assembly buildings was constructed to support the Titan III program, which anticipated up to 40 launches per year.

Lockheed Martin modified SLC-40 in 1992 from a Titan 34D configuration to a Titan IV configuration to support commercial space launches. Various launch support buildings are located on the site and include a ready building, complex support building, protective clothing building, and refrigeration building. The launch complex contains two security buildings, and is a restricted access area that is only accessible by authorized personnel. Titan facilities are also located in the Solid Motor Assembly Ready Facility (SMARF) area and Vehicle Integration Building (VIB) area (Figures 1-5 and 1-6).

Titan Program

The first successful launch of the Titan IIIC from SLC-40 was on 18 June 1965. In the 1970s, the Titan IIICs launched from SLC-40 placed mostly military satellites into very high, geosynchronous equatorial orbits. The last Titan IIIC lifted off SLC-40 in March 1982, followed by the first Titan 34D on 30 October 1982. On 15 October 1997, a Titan IVB/Centaur launched from SLC-40 lofted the Cassini orbiter and its attached Huygens probe into space for their journey to Saturn.

The AF continued to refine the Titan III configuration by stretching its core vehicle, adding a variety of different upper stages, and upgrading its twin solid rocket motors. These vehicles, launched from both CCAFS and Vandenberg Air Force Base under the designations of Titan IIID and Titan 34D, carried a wide range of military and intelligence spacecraft into orbit for almost a quarter-century.

A Titan III variation equipped with a powerful Centaur upper stage, labeled the Titan IIIE, was also used by National Aeronautics and Space Administration (NASA) in the mid-1970s to launch two Helios missions to the Sun, two Viking Mars landing expeditions, as well as the Voyager I and II spacecraft to explore the outer planets. A commercial variation of the Titan 34D, known as Commercial Titan, was launched four times in the early 1990s, but proved too costly for practical purposes. In all, a total of 84 Titan III variants with strap-on Solid Rocket Motors (SRMs) were launched from 1965 to 1992.

Built to boost the heaviest national security spacecraft into orbit, the Titan IV (later designated the Titan IVA) was first launched in 1989, incorporating the SRMs designed for the Titan IIIM of the 1960s. Flown with payload shrouds of varying dimensions and three different upper stage configurations (Centaur, Inertial Upper Stage, or No Upper Stage), Titan IVs are launched from both CCAFS and Vandenberg AFB.

47118
SLC 40

69800
SOLID MOTOR
ASSEMBLY READY FAC.

70000
SOLID MOTOR
ASSEMBLY BLDG

70500
VERTICAL
INTEGRATION BLDG.

TITAN II RD

CENTAUR RD

SATELLITE PARKWAY

PATROL RD

PATROL RD

SLC 40 and ITL (Integration, Transfer, and Lift) Area

Legend

Gate	Structures	OPEN_DRAINAGE
Fence	Railroad	PAVED_DITCH
Road Names	Road	UNPAVED_DITCH
Air Field	Parking	Water
Tower Site	Driveways	Named Areas
Shed		
Pavilion		

0 750 1,500 3,000 4,500 6,000 Feet

Figure 1-3: Site Map for Space Launch Complex 40 and Integration, Transfer and Lift Area

N
W E
S

47127
Security Entry Control Building

47121
Mobile Service Tower (MST)

47132
Refrigeration Building

47131
Fanhouse #2

47144
Camera Tower

47143
Camera Tower

47113
Fuel Holding Pond

47142
Fuel Vent Tower

47148
Gas Storage

47110
Protective Clothing Building

47145
Camera Tower

47103
Diesel Fuel Tank

47104
Generator Building

47115
Air Conditioning Building

32900
Camera Tower

47150
Fanhouse #3

47200
Camera Tower

47146
Camera Tower

47140
Sentry House

47130
Fanhouse #1

47149
Special Liquids Storage

47120
Supply & Issue Shop

47138
Storage Building

47139
EEAP

47137
Storage Building

47109
Ready Building

47108
Emergency Power Shelter

41910
Camera Tower

41911
Camera Tower

47117
Paint Storage Building

41900
Camera Tower

47119
Gaseous Nitrogen Holding Area

47105
Launch Stand and Umbilical Tower (UT)

47102
Special Liquids Storage

42000
Fuel Vent Tower

47114
Oxidizer Holding Area

47141
Lightning Suppression System

47135
Contaminated Oxidizer Tank

42001
Camera Tower

33011
Camera Tower

CENTAUR RD

SLC 40 and Surrounding Area

Legend

Gate	Railroad	OPEN_DRAINAGE
Fence	Road	PAVED_DITCH
Road Names	Parking	UNPAVED_DITCH
Air Field	Driveways	Fuel Sytems (Tanks)
Tower Site	Water	
Shed		
Pavilion		
Structures		

0 170 340 680 1,020 1,360 Feet

Figure 1-4: Site Map for Space Launch Complex 40

N W E S

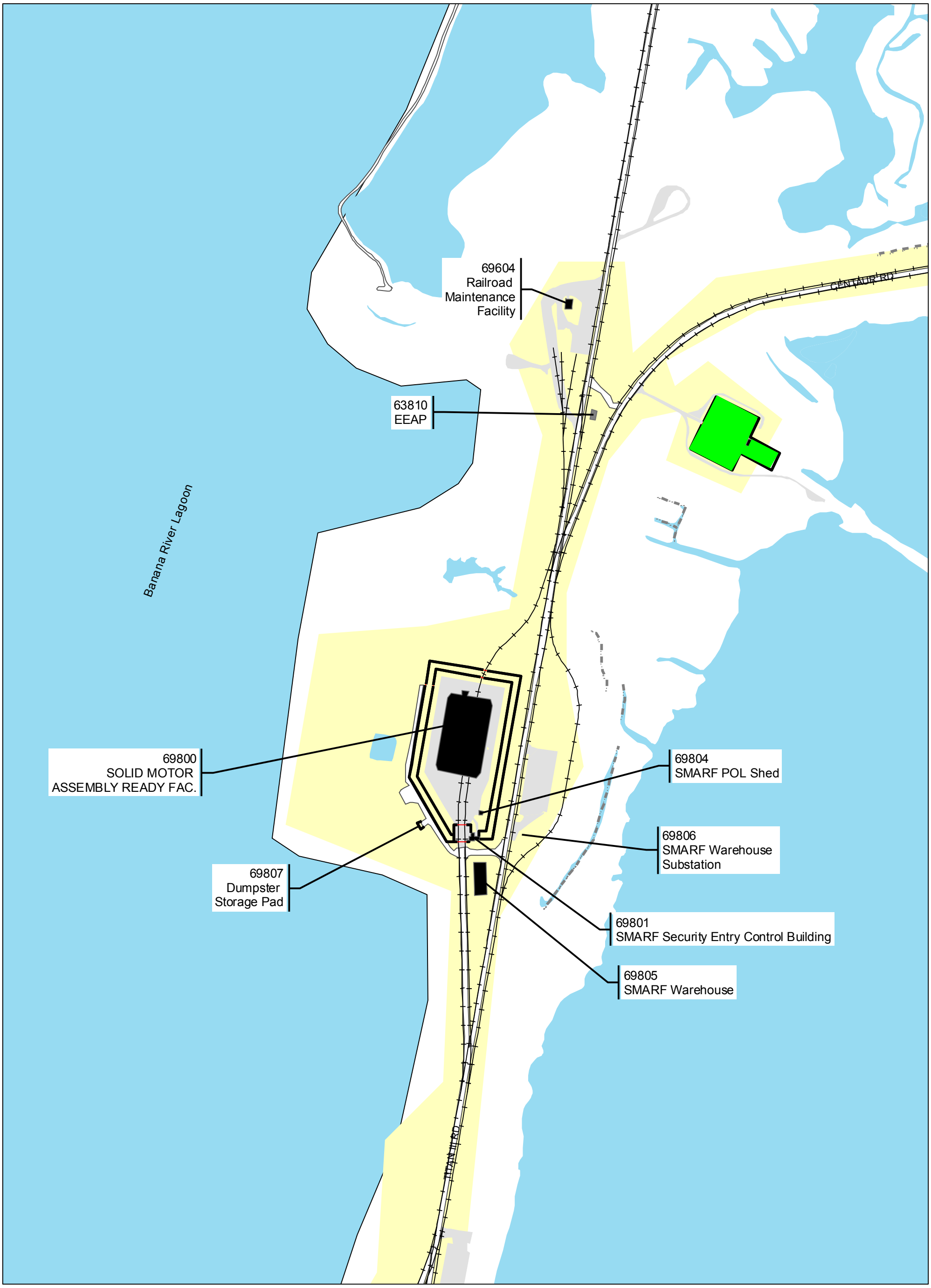
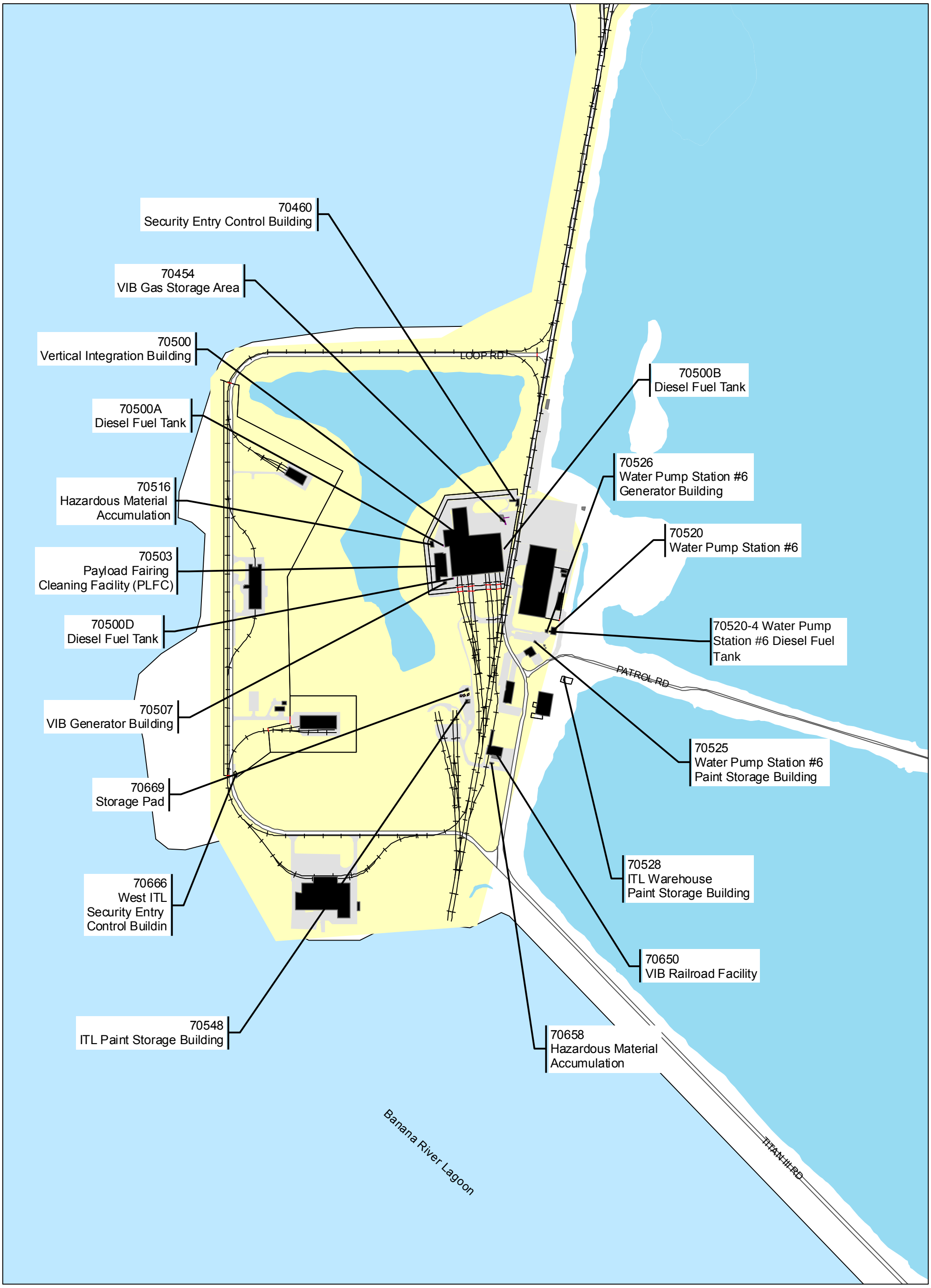


Figure 1-5: Site Map for Solid Motor Assembly Ready Facility Area



VIB Area

Legend

Gate	Structures	OPEN_DRAINAGE
Fence	Railroad	PAVED_DITCH
Road Names	Road	UNPAVED_DITCH
Air Field	Parking	Water
Tower Site	Driveways	Named Areas
Shed		Fuel Systems (Tanks)
Pavilion		

0 380 760 1,520 2,280 3,040 Feet

Figure 1-6: Site Map for
Vehicle Integration Building Area

N W E S

Equipped with more powerful and reliable SRMs, the Titan IVB was first flown in 1997, and is used exclusively to launch military and intelligence spacecraft, although NASA did use one Titan IVB (equipped with a Centaur upper stage) to launch the Cassini and Huygens spacecraft to Venus in 1997. The Titan IVB was capable of lifting more than 47,000 pounds (21,319 kilograms) into orbit.

Lockheed Martin delivered the last Titan IV heavy-lift launch vehicle to the AF in early 2002, ending a string of missions that began in February 1959 and a heritage dating back to the earliest days of the space age. The final Titan launch from SLC-40 is scheduled to occur in 2005. The Titan IV is being phased out in favor of the new Evolved Expendable Launch Vehicle (EELV) designated as the Atlas V.

1.2 Purpose and Need for Action

Air Force Instruction 32-1021, *Planning and Programming of Facility Construction Projects*, requires the AF to ensure existing facilities are used economically and efficiently and that excess facilities be evaluated for demolition. Chapter 2 of AFI 32-9004, *Disposal of Real Property*, identifies criteria for disposing of buildings on non-excess land. Installation commanders must dispose of unneeded or deteriorated buildings on excess land that meet one or more of the following conditions:

- deterioration is beyond the point of economical repair;
- interferes with a site approved for construction;
- dangerous to people, likely to damage adjoining structures, or creates a nuisance;
- requires more than normal maintenance and its disposal will not create a deficiency; and
- design is obsolete and it cannot be reasonably altered or economically used.

The Titan Program Management Directive (PMD) 0938(7)/Program Element (PE) 35144F (dated 18 September 2001) requires the deactivation of SLC-40 after the last Titan IV launch from CCAFS. Specifically, Air Force Materiel Command and the Titan System Program Office (SPO) are required to procure Titan IV vehicles to meet Department of Defense and civil launch needs. The Air Force Space Command (AFSPC) is tasked with providing the planning, programming, and budgeting activities to include launch operations, environmental compliance, conservation, pollution prevention, and restoration, contract/launch site closure, and clean-up requirements.

The Titan SPO is in receipt of a Headquarters Air Force Space Command (HQ AFSPC)/DOS memorandum (dated 06 Jul 2001) entitled "Closeout Requirements for Space Launch Complexes (SLCs) 3E, 4E, 4W, and 40." This memorandum states there are no additional launch requirements for SLC-40 beyond currently manifested missions. The last Titan IV launch from CCAFS is scheduled for 2005. As part of the closeout of the Titan launch capability, the Titan SPO will be implementing the closeout of the Titan Launch Operations Contract and the turnover of facilities utilized for the preparation and launch of Titan vehicles at CCAFS. This decision to define the appropriate actions to be taken to phase out Titan Launch Vehicles (LVs) and other heritage launch vehicle systems is a logical continuation of the decision to implement the EELV at Vandenberg AFB and CCAFS.

The Environmental Impact Statements (EISs) generated in support of the EELV implementation decision are:

- *EIS, EELV at Vandenberg AFB and CCAFS*, Jun 1998
- *Supplemental EIS, EELV at Vandenberg AFB and CCAFS*, May 2000

Currently, SLC-40 is scheduled to be deactivated, placed in a pre-demolition state, and transferred to the 45th Space Wing (45SW) from Lockheed Martin. After contractual release of these facilities, the 45SW would identify disposition of all SLC-40 facilities not needed to support commercial Titan launches at SLC-40 or other current or projected missions, such as office space needed to support contractor operations.

1.3 Scope of Environmental Assessment

This EA will evaluate the environmental consequences associated with closeout and demolition of Titan facilities for which no continuing requirements have been identified at CCAFS (Proposed Action) and the No Action Alternative. The potential impacts associated with the tasks required for the orderly transition of SLC-40 facilities to its pre-demolition state are addressed. Included are those efforts required to decontaminate facilities as part of the pre-demolition process. If possible, contaminated soils would be removed prior to demolition to eliminate risks to demolition workers. This Resource Conservation and Recovery Act (RCRA) activity is a separate activity and therefore is not analyzed in this document. However, when this RCRA-driven activity has the potential to affect Proposed Action activities, such as the health of pre-demolition workers, the effects are discussed.

The following documents provide an environmental description of the facilities being phased out:

- *Final EA, USAF Space Launch Vehicles*, *CCAFS & Vandenberg AFB*, Feb 1975
- *EA, Complementary Expendable Vehicle*, CCAFB, Jun 1986
- *Biological Assessment of Impacts to Threatened and Endangered Marine Turtles (Caretta caretta and Chelonia mydas) Resulting from Operation at Launch Complexes 40 and 41*, CCAFS, 1988
- *Supplemental EA, Titan IV Program, CCAFS,* May 1988
- *Light Management Plan, SLC-40, Facility 47100*, *CCAFS*, Oct 1989
- *BA, Titan IV SLC-40 and SLC 41*, *CCAFS*, Dec 1989
- *Final EA, Titan IV/SRMU Program*, *Cape Canaveral Air Force Station and Vandenberg Air Force Base,* Feb 1990
- *EA, Centaur Processing Cryogenic Tanking Facility and Centaur Processing Facility*, *CCAFS*, Oct 1991
- *Survey, Historic Properties*, *CCAFS*, Dec 1993
- *Final EA, Long-Term Staging Of Than IV SRM Upgrades, Vandenberg AFB and CCAFS*, Apr 1994

- *Site Investigation Report and RI/FS Work Plan, Vol 15-SLC-40*, *CCAFS*, Jan 1995

According to the Titan Program Management Plan 0938(7)/PE35144F, CCAFS facilities are to be turned over to AFSPC, through the 45SW, who has responsibility for disposition as agreed upon and documented by HQ AFSPC.

2.0 DESCRIPTION OF ALTERNATIVES

This Section describes the alternatives to the Proposed Action, potential environmental issues, and regulatory requirements. The only alternative considered to the Proposed Action is the No Action Alternative.

2.1 Proposed Action

Contract closeout of the Titan portion of the Titan and Atlas Launch Operations Contract entails Space and Missile Systems Center (SMC) contractual release of the CCAFS launch facilities used in support of Titan launches. The AF is conducting an evaluation of SLC-40 facilities to determine which facilities may be reused. Facilities for which no continuing requirements are identified would be scheduled for deactivation/demolition. Each facility to be deactivated and potentially demolished, and its vicinity, is being evaluated to determine the extent, if any, of environmental contamination (*e.g.*, presence of asbestos-containing materials (ACM) and lead-based paint (LBP) in structures, contaminated soils, etc.).

Pre-Demolition Activities

Facilities and Real Property Installed Equipment (RPIE) would be placed in a "Pre-Demolition" state to ensure that abandonment will not result in inadvertent contamination or present an unexpected future hazard to individuals who may access the abandoned facilities or RPIE systems in the future. A "Pre-Demolition" state refers to all functions involved in preparing SLC-40 and its unique production facilities for eventual disposition, deactivation and/or demolition. This includes, but is not limited to, preparing the Ground Support Equipment (GSE), Aerospace Ground Equipment (AGE), support structures, and RPIE for these activities. This effort's overall goal is maximum preparatory work toward the 45SW final deactivation/demolition requirements. All site-unique supporting equipment would be removed to the maximum extent possible.

Immediately following post-launch securing of SLC-40, the Contactor would ensure that all systems have been placed in a safe and secure/shutdown condition in order to prevent inadvertent environmental contamination and eliminate hazards to individuals who may access abandoned facilities subsequent to completion of safe and secure/shutdown activities. The effort to safe and secure/shutdown systems would include, but not be limited to, the following:

- *Propellant Systems* – Off-load commodities, purge system, and clean (flush) system; prepare piping, valves, and components for disposal; dispose of all hazardous waste.

- *Pneumatic Systems* - Depressurize system; eliminate points of entry for toxic asphyxiation hazards; prepare lines for removal.

- *Cryogenic Systems* – Off-load commodities, purge system, and leave with a five (5) pounds per square inch gauge (psig) ambient blanket pressure.

- *Gaseous Supply Systems* - Vent system and leave with a five (5)-psig ambient blanket pressure.

- *Electronic Systems* - Disconnect electronic systems from power (lock-out); remove batteries, and cap all electrical feeds (*i.e.*, MST drive system, etc). Disconnect underground electrical cable at the nearest power transformer or disconnect switch outside of the building. If the nearest power transformer or disconnect switch is within 5 feet of the building, disconnect power at the nearest high voltage switch. Overhead electrical cable shall be disconnected from the building at the nearest power pole. If the nearest power pole is within 5 feet of the building, the power cable will then be removed back to the next power pole.

- *AC/DC Power* – Secure electrical power associated with each system with the exception of the MST 20-ton bridge crane and elevators, which shall remain energized and operational.

- *Hydraulic Systems* - Drain, deliver, and dispose of hydraulic oil; dispose of piping and hoses through the appropriate government/contracted avenues.

- *Heating, Ventilation, and Air Conditioning (HVAC) Systems* – Maintain until the latter phases of the demolition process. Excludes all portable/window units.

- *Cranes & Elevators* – Leave operational and certified until the latter phases of the demolition process.

- *Service Towers* – Leave the MST in the maintenance position (away from launch pad) and apply hurricane tie-downs. Secure/drain all hydraulic fluids from all systems, with the exception of the MST 20 Ton Bridge crane and elevators.

- *Walking/Working Surfaces, Confined Spaces, and Access Control* – Ensure all areas left in a pre-demolition state are appropriately marked and identified to abate personnel hazards and to prevent unauthorized access to government property.

- *Water Lines* - Turn off underground water supply at the nearest butterfly valve along the run of pipe outside of the building. If there is a main branch near the building, turn off water as close to the main branch as possible. If no valve exists, turn off water at the nearest backflow preventor as close to the main branch as possible.

- *Deluge Water System* – Drain non-potable water lines. Fire suppression system will remain operational to be maintained by the AF.

- *Sewer Lines* - Turn off sewer piping at the nearest butterfly valve along the run of pipe outside of the building. If there is a main branch near the building, block off sewer line as close to the main branch as possible. If no valve exists, turn off sewer line as close to the main branch as possible.

- *Communications* – Remove communication cables (*e.g.*, copper and fiber optic) back to the nearest communication manhole. The Owner will be responsible for isolating the communication cables from the base communication system.

- *Wastes* - The Contractor shall ensure all hazardous commodities, products, and wastes are properly delivered for disposal through the appropriate government/contracted agency.

Demolition Activities

Verification of Facility Isolation

The demolition contractor will perform a walk-through with government representative(s) to verify that the buildings are isolated from all active systems prior to intrusive activities. This walk-through will identify any follow-up items requiring isolation or document readiness needed to proceed.

Types of Demolition

Conventional Demolition

Conventional demolition is commonly defined as demolition of a structure using a tracked excavator and front-end loader or other types of machines to raze a structure. After the structure has been toppled or brought to the ground and separated from its foundation, metal shears or another appropriate tools would be used to cut steel beams to the proper size in preparation for removal and transportation from the site. Grapples or other appropriate tools would be used to remove rubble and small debris that would be loaded into removal containers.

Explosion Demolition

Explosive demolition refers to bringing down tall structures such as the Mobile Service Tower (MST), Umbilical Tower (UT), Vehicle Integration Building (VIB), or other tall structures by selective use of explosive devices. The explosive demolition contractor would use drawings of the building structure to determine which beams and columns should be weakened by cutting and then sheared by explosive means in order to bring the structure down. This type of demolition eliminates the risk of individuals falling from structures at height. This type of demolition has been proven more time efficient than conventional demolition since most of the work can then be done at ground level. Once the structure is brought down, the completion of demolition and scrap removal is completed using shears and grapples in a conventional manner.

Site Demolition Requirements

The site demolition portion of this project pertains to roads, railroad tracks, underground utilities and demolition or abandonment of buried structures. In general, the following list of site requirements would be followed.

- Electrical duct banks would be abandoned in place provided there is no risk of future injury or collapse.
- Main and auxiliary water supply lines would be cut, capped, and encased in concrete.
- All manholes no longer required would be filled with clean fill and the manhole covers removed. The fill would be excavated and/or imported, free of lumps larger than 6-inches, rocks larger than 3-inches, and debris.
- Railroad tracks would be removed when no longer needed.
- All large underground duct banks shall be removed and filled with clean fill.

- The SLC concrete apron would be removed to 2-feet below grade and filled with clean topsoil.
- All underground and under-facility voids would be filled with clean fill.
- All pad equipment and tanks would be removed.
- Deluge basins would be filled with clean fill to provide positive drainage on the site.

The Titan facilities and support equipment evaluated to date that would be affected by the Proposed Action are listed in Table 2-1. A summary of the proposed activities is included. Appendix A contains pictures of major structures slated for demolition and/or deactivation.

Table 2-1*: Titan Program Facilities/Support Equipment Currently Scheduled for Demolition and/or Deactivation

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
Camera Towers for SLC-40	25400	Camera Towers	30	Remove cameras during the safe and secure deactivation phase. Demolish towers and de-energized utility hardware.
	32900		30	
	33011		30	
	41900		48	
	41910		156	
	41911		48	
	42001		48	
	47143		48	
	47144		30	
	47145		30	
	47146		30	

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
	47200		30	
Oxidizers; Gas and Fuel Infrastructure for SLC-40	42000	Fuel Vent Tower	100	Demolish with conventional mechanical method
	47112 (47100F)	Fuel Holding Area	10014	Remove large tanks and contaminated piping. Framing, infrastructure, and small pressure vessels would remain intact.
	47113 (47100G)	Fuel Holding Pond	1000	Demolish with conventional mechanical method.
	47114 (47100X)	Oxidizer Holding Area	4015	Remove large tanks and contaminated piping. Framing, infrastructure, and small pressure vessels would remain intact.
	47119 (47100V)	Gaseous Nitrogen Holding Area	1153	
	47124 (47100AD)	Liquid Hydrogen Holding Area	1500	
	47135	Contaminated Oxidizer Tank	1500	Remove prior to demolition.
	47142	Fuel Vent Tower	100	Demolish with conventional mechanical method.
	47148	Gas Storage	120	Remove large tanks and contaminated piping. Framing, infrastructure, and small pressure vessels would remain intact.

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
	47102	Special Liquids Storage	262	Demolish with conventional mechanical method.
Ancillary structures supporting SLC-40	47104	Generator Building	3,074	Demolish with conventional mechanical method.
	47108 (47100U)	Emergency Power Shelter	451	
	47109 (47100R)	Ready Building	13,339	
	47110 (47100E)	Protective Clothing Building	128	
	47115 (47100D)	Air Conditioning Building	6,042	
	47117 (47100T)	Paint Storage Building	120	
	47120 (47100Q)	Supply & Issue Shop	2,000	
	47127	Security Entry Control Building	880	
	47128	Access Control Device	N/A	Remove prior to demolition.
	47130 (47100AC)	Fanhouse #1	288	Demolish with conventional mechanical method.
	47131 (47100L)	Fanhouse #2	288	
	47132 (47100K)	Refrigeration Building	288	
	47137	Storage Building	1,920	
	47138	Storage Building	1,920	
	47139	EEAP	813	
	47140	Sentry House	43	

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
	47149	Special Liquids Storage	238	
	47150	Fanhouse #3	200	
Utility Facilities	47122	Substation	40	Demolish with conventional mechanical method.
	47123	Substation	40	
	47126	Substation Street Lighting	40	
	47147	Substation	40	
	47151	Sanitary Lift Station	64	
Railroad Facility	20350	Railroad Track System	7,574 Linear Feet	Dismantle and recover recyclable materials. Demolish remainder with conventional mechanical demolition.
Fences	No Facility Numbers	Fence line	19,566 Linear Feet	Dismantle, reuse, and recycle fence and stone layer.
Security Camera Towers		Security Camera Towers	16	Towers would remain intact and cameras would be removed.
Roads		Asphalt Road and Support Drives	315,000	Demolish roads.
VIB Facilities	70454	VIB Gas Storage Area	3,718	Large Tanks and contaminated piping removed. Smaller pressure vessels, framing, and infrastructure to remain “safe and secure.”

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
VIB Facilities	70460	Security Entry Control Building	773	Demolish with conventional mechanical method.
	70465	EEAP	813	
	70500	Vertical Integration Building	118,753	Potential explosive demolition.
	70503	Payload Fairing Cleaning Facility (PLFCF)	17,792	Demolish with conventional mechanical method.
	70507	VIB Generator Building	658	
	70516	Hazardous Material Accumulation	741	Materials to be removed. Framing and infrastructure to remain.
	No Facility Numbers	VIB Railroad Facility	10,814 Linear Feet	Dismantle and recover recyclable materials. Demolish remainder with conventional mechanical demolition.
		VIB Fenceline and Security Camera Towers	9,060 Linear Feet	Dismantle, reuse, and recycle fence and stone layer.
		VIB Asphalt and Concrete Drives	94,214	Cameras would be removed. Towers and de-energized utility to be demolished.
SMARF Facilities	63810	EEAP	813	Demolish with conventional mechanical method.
	69604	Railroad Maintenance Facility	1,200	
	69609	Railroad Unloading Ramp	1,440	
	69800	Solid Motor Assembly and Refurbishment Facility (SMARF)	58,793	Candidate for explosive demolition. Recycle steel and concrete.

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
SMARF Facilities	69801	SMARF Security Entry Control Building	649	Demolish with conventional mechanical method.
	69804	SMARF POL Shed	193	
	69805	SMARF Warehouse	5,500	
	No Facility Numbers	SMARF Railroad Facility	2,344 Linear Feet	Dismantlement and recovery of recyclable materials. Demolish with conventional mechanical method.
		SMARF Fenceline and Security Camera Towers	7,144 Linear Feet	Dismantle, reuse, and recycle stone layer.
		SMARF Asphalt and Concrete Drives	65,950	Cameras would be removed. Towers and de-energized utility to be demolished.
	69806	SMARF Warehouse Substation	40	Demolish with conventional mechanical method.
	69807	Dumpster Storage Pad	225	
ITL Area Facilities	70520	Water Pump Station #6	1,771	Equipment to be removed. Demolish with conventional mechanical method.
	70520-4	Water Pump Station #6 Diesel Fuel Tank	250	
	70521	Water Pump Station #6 Water Tank	35 Diameter	Dismantlement and recovery of recyclable materials. Possible re-use of material.
	70522	Water Pump Station #6 Substation	40	Equipment to be removed. Demolish with conventional mechanical method.

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
ITL Area Facilities	70525	Water Pump Station #6 Paint Storage Building	144	
	70526	Water Pump Station #6 Generator Building	333	
	70528	ITL Warehouse Paint Storage Building	144	
	70548	ITL Paint Storage Building	224	
	70644	Office Module	700	
	70650	Railroad Engine Refurbishment Facility	6,061	Demolish with conventional mechanical method.
	70651	Substation	40	Equipment to be removed. Demolish with conventional mechanical method.
	70656	POL Shed	144	
	70657	POL Shed	144	
	70658	Hazardous Material Accumulation	741	Materials to be removed. Framing and infrastructure to remain.
	70666	West ITL Security Entry Control Building	480	Demolish with conventional mechanical method.
	70667	Sanitary Lift Station	64	Equipment to be removed. Demolish with conventional mechanical method.
	70669	Storage Pad	400	

Facility Type and Location	Facility Number	Facility Type/Name	Size (Square Feet)	Proposed Activities Summary
UT, CSB, AGE, MST, and LSS for SLC-40	47105	Launch Stand and Umbilical Tower (UT)	3,898	Candidate for explosive demolition; recycle steel and concrete.
	47111 (47100M)	Complex Support Building (CSB)	7,931	Demolish with conventional mechanical method.
	47118 (47100A)	Aerospace Generation Equipment (AGE) Building	11,495	Some furniture to remain. Building will be collapsed.
	47121	Mobile Service Tower (MST)	13,500	Candidate for explosive demolition; recycle steel and concrete.
	47141	Lightning Suppression System	3,362	Demolish towers and de-energized utility hardware.
Get Away Special Warehouse Facilities	40431	Get Away Special (GAS) Warehouse	3,950	Materials to be removed. Demolish with conventional mechanical method.
	40432	Sentry House	43	Materials to be removed. Framing and infrastructure to remain.
	40433	Septic Tank	100	Dismantlement and recovery of recyclable materials.

*The information contained in this table was provided by AMEC Earth and Environmental and the 45SW. A complete list of storage tanks is located in Section 3.5 (Table 3-3).

2.2 Alternatives Eliminated from Further Consideration

The USAF has evaluated all Titan facilities on CCAFS for reuse. It was determined that no other requirements exist for these facilities. In addition, due to the age of the facilities and the potential for environmental contamination (*e.g.*, presence of asbestos and Lead-based Paint (LBP) in structures, contaminated soils, etc.), the facilities will not be considered for reuse. Therefore, this alternative was eliminated from further consideration.

2.3 No Action Alternative

Under the No Action Alternative, SLC-40 would be rendered safe and secure as described for the Proposed Action; however, demolition of facilities would not occur. Should this alternative be selected, potential impacts to biological resources (delay in return of land to native state) and land use and zoning (unavailability of land for immediate reuse) could occur. In addition, the unused site would need to be secured from intrusion and/or vandalism. Over time, a potential safety hazard may develop as the facilities degrade from lack of routine maintenance.

Selection of the No Action Alternative is not considered a viable option since it would not enable CCAFS to utilize the best option in support of mission requirements and therefore would not be in the best interest of the DoD.

2.4 Potential Environmental Issues

Potential, though not significant impacts, from implementation of the Proposed Action have been identified for the following areas: air quality; biological resources; cultural resources; geology, soil, and water resources; hazardous materials and waste; health and safety; infrastructure and transportation; land use and zoning; noise; and socioeconomics.

A comparison matrix of the potential environmental consequences associated with implementation of the Proposed Action or the No Action Alternative by individual resource is provided in Table 2-2. Three levels of impact are defined as follows:

- No Impact - No impact is predicted.
- Not Significant Impact - An impact is predicted, but the impact does not meet the intensity/context significance criteria for the specific resource.
- Significant Impact - An impact is predicted that meets the intensity/context significance criteria for the specific resource.

Table 2-2: Environmental Impact Matrix

Environmental Components	Proposed Action	No Action Alternative
Air Quality	No Significant Impact and Potential Beneficial Impact	Potential Beneficial Impacts
Biological Resources	No Significant Impact and Potential Beneficial Impact	No Impact
Cultural Resources	No Impact	No Impact
Geology, Soils, and Water Resources	No Significant Impact	No Impact
Hazardous Materials and Waste	No Significant Impact and Potential Beneficial Impact	Potential Beneficial Impact
Health and Safety	No Significant Impact	No Impact
Infrastructure and Transportation	No Significant Impact	No Impact
Land Use and Zoning	Potential Beneficial Impact	No Impact
Noise	No Significant Impact	No Impact
Socioeconomics	Potential Beneficial Impact	No Impact

3.0 AFFECTED ENVIRONMENT

In compliance with NEPA and CEQ guidelines, this Chapter describes the existing environment within the Proposed Action areas at CCAFS. This information serves as a baseline from which to identify and evaluate potential environmental changes resulting from implementation of the Proposed Action or the No Action Alternative. These resources include the following areas: air quality; biological resources; cultural resources; geology, soil, and water resources; hazardous materials and waste; health and safety; infrastructure and transportation; land use and zoning; noise; and socioeconomics. The level of information presented for each category varies depending on the relevance of the alternative to the specific category. For example, more background information is provided for hazardous materials and waste due to the higher potential for impacts, both positive and negative, on the environment.

The region of influence for the Proposed Action is SLC-40, the VIB area, the SMARF area, existing roads, and adjacent areas.

3.1 Air Quality

The Proposed Action areas are located in Brevard County, FL, which is in attainment with National Ambient Air Quality Standards (NAAQS) and Florida Ambient Air Quality Standards (FAAQS). This AF Station is considered a major source of air pollution (*i.e.*, criteria and hazardous air pollutants (HAPs)) and is therefore subject to the Title V Air Operating Permit requirements of the Clean Air Act (CAA). Currently, CCAFS operates under an active Title V Permit. In 2004, an air emissions inventory concluded that HAP emissions were below the major source thresholds. As a result, the AF is preparing an application package for submission to the Florida Department of Environmental Protection (FDEP) for modification of the Title V Air Operating Permit requesting limitations on HAPs for facility-wide emission sources. If FDEP grants the limitation then CCAFS would not be subject to the new National Emission Standards for Hazardous Air Pollutants (NESHAPs).

To meet the requirements of Section 112(r) of the CAA and 40 CFR Part 68, CCAFS prepared a Risk Management Plan (RMP). This plan is required because CCAFS stores reportable quantities of regulated and extremely hazardous chemicals. The chemical holdings for which RMPs have been prepared are for hydrogen at SLC's 17, 36, and 40, and hydrazine and Aerozine-50 at SLC-40. Hydrogen was removed from the RMP during the most recent revision due to the fuel exemption provision of the RMP regulations (40 CFR Part 68); therefore, hydrazine and Aerozine-50 at SLC-40 are the only chemicals addressed in the current RMP.

3.2 Biological Resources

Biological resources covered in this Section include native and naturalized vegetation communities and special-status species. Vegetation communities include both upland and wetland habitats. Special-status species include State and Federal Species of Special Concern (SSC) and Threatened and Endangered (T&E) species, and migratory birds. A list of common wildlife species that have been observed on CCAFS can be found in the Installation's 2001 Integrated Natural Resources Management Plan (INRMP).

3.2.1 Invasive Species

Woody exotics are present outside the fenced area of SLC-40. Brazilian pepper predominates the invasive flora around SLC-40 and the associated Titan facilities as seen in Figures 3-1 through 3-3. Within the fenceline, the vegetation is characterized as mowed and maintained.

3.2.2 Native Communities

The topographic position of natural communities on CCAFS reflects the various erosional and depositional processes of coastal land formation. Generally, older communities are found on the western margin of the Canaveral Peninsula, along the Banana River; newer and successional communities are forming along the eastern coast. The current vegetative communities found on and adjacent to SLC-40 facilities are described below. Plant and animal species, including T&E species and SSC, are discussed by vegetation community.

Oak Scrub

Coastal oak scrub borders the east side of the Complex outside of the fenced areas. Coastal oak scrub consists of dense, salt-pruned thickets of live oak (*Quercus virginiana*), sand live oak (*Q. geminata*), myrtle oak (*Q. myrtifolia*), and buckthorn (*Bumelia [Sideroxylon] tenax*), sometimes densely interwoven with catbrier (*Smilax auriculata*). Hog plum (*Ximenia americana*) and gopher apple (*Licania michauxii*) are common in openings and around margins of small outcroppings.

Openings and edges in oak scrub, where oaks have been mechanically removed and bare sand is exposed, support a number of rare plant and animal species. Rare plant species found in clearings in scrub on CCAFS include Curtiss' milkweed (*Asclepias curtissii*), nodding pinweed (*Lechea cernua*), and sand-dune spurge (*Chamaesyce cumulicola*).

Several rare animal species utilize openings in scrub, with the Florida scrub jay being the most high profile at this time. Gopher tortoises also use openings in scrub habitat. Scrub was identified as a high use area for indigo snakes at neighboring Merritt Island National Wildlife Refuge. It is likely that these snakes co-inhabit gopher tortoise burrows in oak scrub, although this has not been documented on CCAFS.

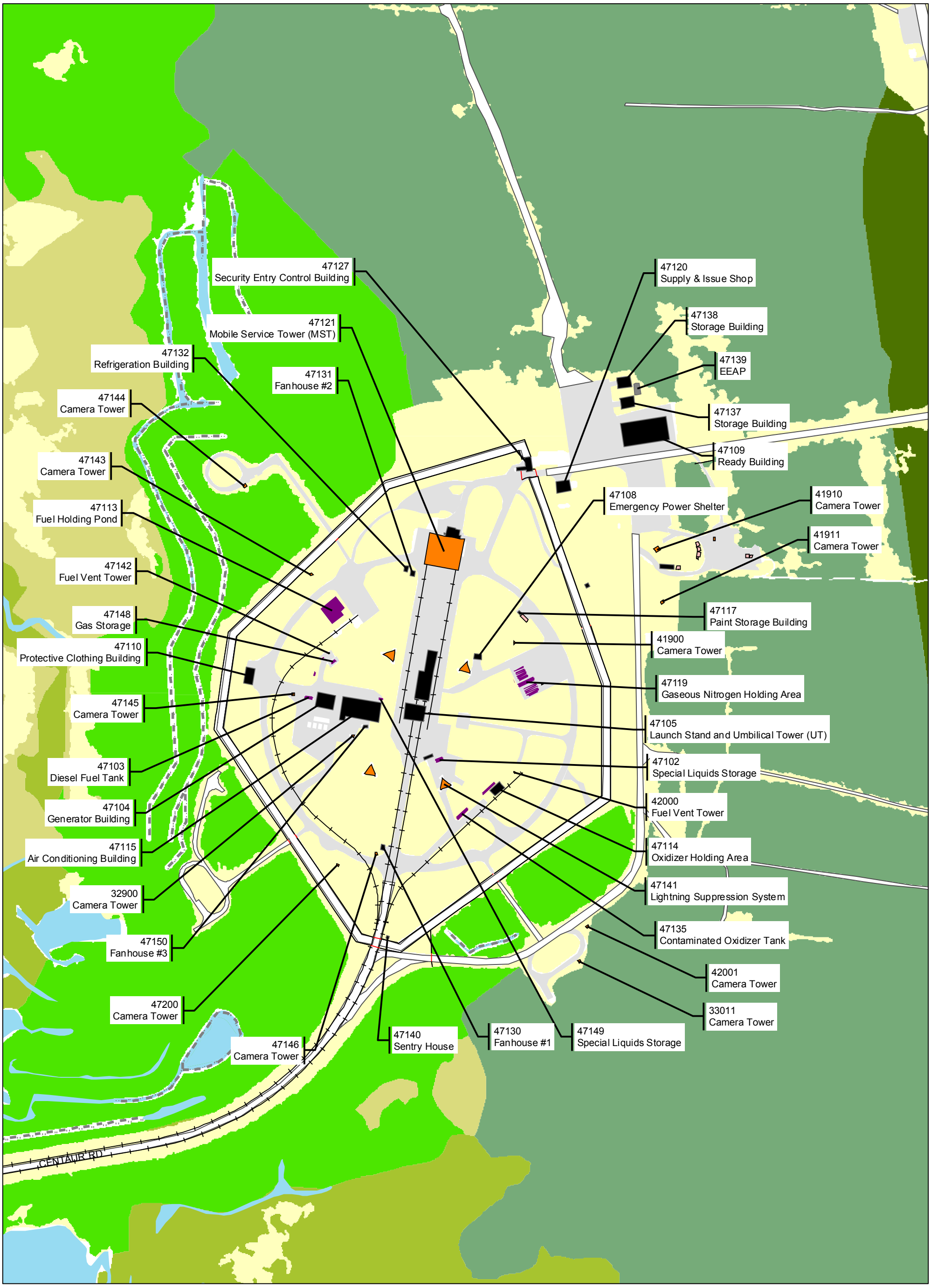


Figure 3-1: SLC 40 Vegetation Habitat

SMARF Area Vegetation Habitat

Legend

Gate	Railroad	Graminoid marsh
Fence	Road	Mangrove
Tower Site	Parking	Woody Exotics (Brazillian Pepper)
Shed	Driveways	Mowed / Maintained Grounds
Pavilion	OPEN_DRAINAGE	
Structures	PAVED_DITCH	
	UNPAVED_DITCH	
	Water	

0 230 460 920 1,380 1,840 Feet

N W E S

Figure 3-2: SMARF Area Vegetation Habitat

VIB Area Vegetation Habitat

Legend

Gate	Structures	OPEN_DRAINAGE
Fence	Railroad	PAVED_DITCH
Road Names	Road	UNPAVED_DITCH
Air Field	Parking	Water
Tower Site	Driveways	Mangrove
Shed	Fuel Systems (Tanks)	Woody Exotics (Brazillian Pepper)
Pavilion		Mowed / Maintained Grounds

0 320 640 1,280 1,920 2,560 Feet

Figure 3-3: VIB Area Vegetation Habitat

N W E S

3.2.3 Wetlands and Floodplains

Wetlands are the transition zones between dry upland ecosystems and aquatic habitats. Each wetland area is unique according to its surrounding geologic, hydrologic, and climatic condition. Wetlands are key to maintaining the health of open water habitats; they provide flood control, aquifer recharge, coastal protection, and act to help filter pollutants from the ecosystem. Wetlands often support a wide range of rare and endangered aquatic plants and wildlife, and humans have relied on wetlands as a source of food and recreation for centuries. Freshwater wetlands located in the Proposed Action area consist of drainage canals on SLC 40. Palustrine wetlands are located in the south and eastern areas of the VIB area with estuarine wetlands interspersed along the outside perimeter of the VIB area, and palustrine and estuarine wetlands located outside the fenceline in the SMARF area. (Figures 3-4 through 3-6.)

A floodplain is the lowland adjacent to a river, lake, or ocean. Floodplains are designated by the frequency of the flood that is large enough to cover them. Flood frequencies, such as the 100-year flood, are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. The SMARF and VIB areas are located within the 100-year floodplain (Figures 3-5 and 3-6).

Salt Marshes

Some remnants of a salt marsh exist west of SLC-40. This area has been isolated from the waters of the Banana River and is experiencing a successional change to a freshwater marsh community. Salt marsh wetlands are dominated by non-woody vegetation such as black needle rush *(Juncus roemerianus),* cordgrass (*Spartina spp.),* glassworts (*Salicornia* spp.*)*, salt grass *(Distichlis spicata)*, and sea blites (*Suaeda* spp.). Sea oxeye daisy *(Borricha spp.)* and swamp willow (*Salix caroliniana)* are common woody species.

Avian species using this habitat include the wading birds, various migratory waterfowl (usually wintering ducks) and the white pelican. Common animals include the alligator, armadillo, feral hog, Florida east coast terrapin, white-tailed deer, marsh rabbit, opossum, raccoon, rice rat, and salt marsh snake.

Brackish Water Impoundments

A brackish water impoundment exists between SLC-40 and the SLC-41 transporter roadways. This area appears to have originally existed as a salt marsh dominated by non-woody vegetation. Observations show cattails (*Typha spp.)* and some woody species are invading this habitat since the Banana River no longer influences it. Wading birds have been observed in this area, but the extent of utilization has not been determined.

47127
Security Entry Control Building

47121
Mobile Service Tower (MST)

47132
Refrigeration Building

47131
Fanhouse #2

47144
Camera Tower

47143
Camera Tower

47113
Fuel Holding Pond

47142
Fuel Vent Tower

47148
Gas Storage

47110
Protective Clothing Building

47145
Camera Tower

47103
Diesel Fuel Tank

47104
Generator Building

47115
Air Conditioning Building

32900
Camera Tower

47150
Fanhouse #3

47200
Camera Tower

47146
Camera Tower

47140
Sentry House

47130
Fanhouse #1

47149
Special Liquids Storage

47120
Supply & Issue Shop

47138
Storage Building

47139
EEAP

47137
Storage Building

47109
Ready Building

47108
Emergency Power Shelter

41910
Camera Tower

41911
Camera Tower

47117
Paint Storage Building

41900
Camera Tower

47119
Gaseous Nitrogen Holding Area

47105
Launch Stand and Umbilical Tower (UT)

47102
Special Liquids Storage

42000
Fuel Vent Tower

47114
Oxidizer Holding Area

47141
Lightning Suppression System

47135
Contaminated Oxidizer Tank

42001
Camera Tower

33011
Camera Tower

CENTAUR RD

SLC 40 NWI Wetlands and Flood Plains

Legend

- Gate
- Fence
- Road Names
- Air Field
- Tower Site
- Shed
- Pavilion
- Structures
- Railroad
- Road
- Parking
- Driveways
- Water
- OPEN_DRAINAGE
- PAVED_DITCH
- UNPAVED_DITCH

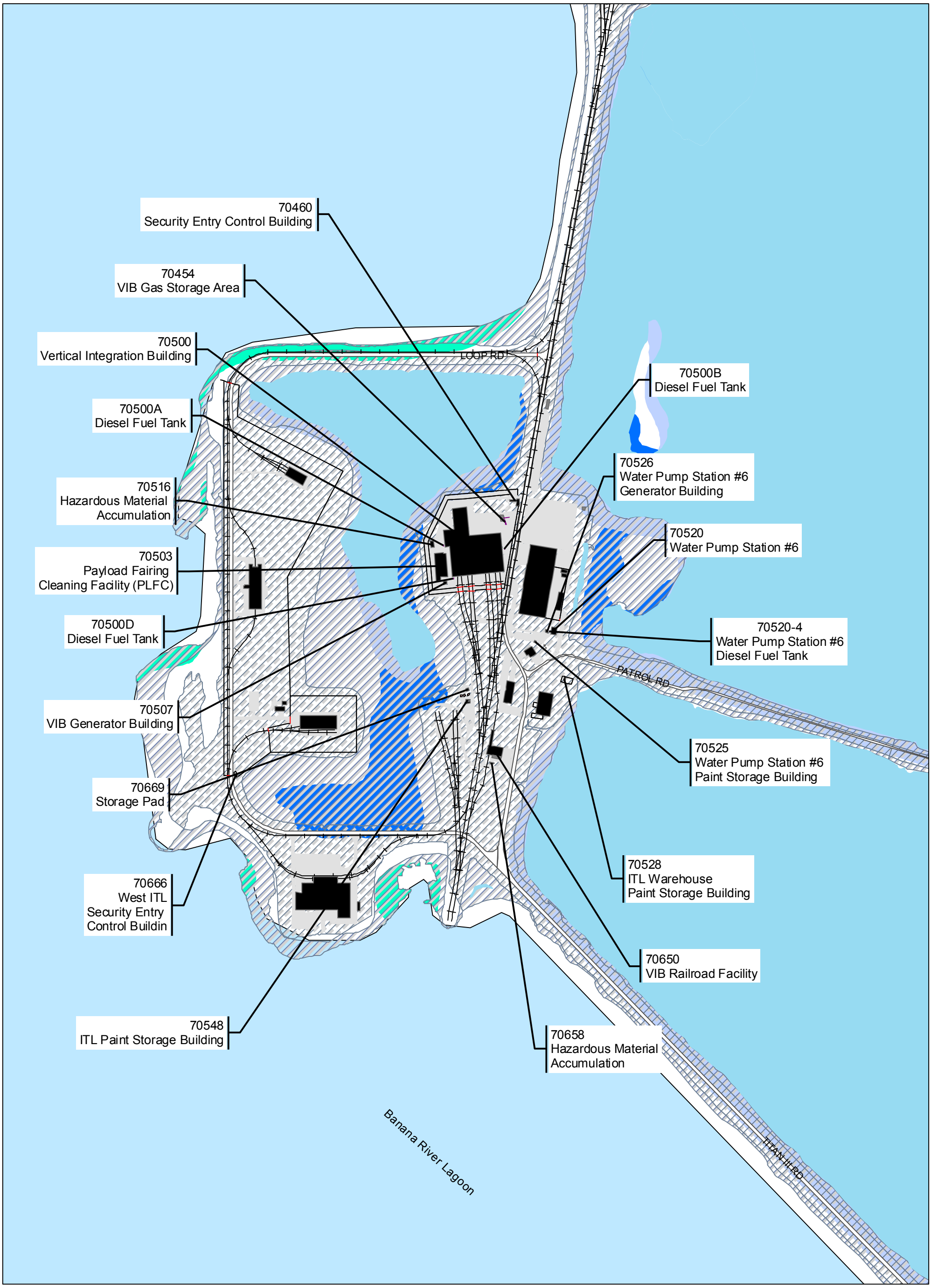
Flood Plains
SubType identifier

- 100_YEAR
- 500_YEAR
- Lacustrine
- Palustrine
- Fuel Sytems (Tanks)

0 170 340 680 1,020 1,360 Feet

N
W E
S

Figure 3-4: SLC 40 NWI Wetlands and Flood Plains



VIB Area NWI and Flood Plain

Legend

- Gate
- Fence
- Road Names
- Air Field
- Tower Site
- Shed
- Pavilion
- Structures
- Railroad
- Road
- Parking
- Driveways
- Fuel Systems (Tanks)
- Water

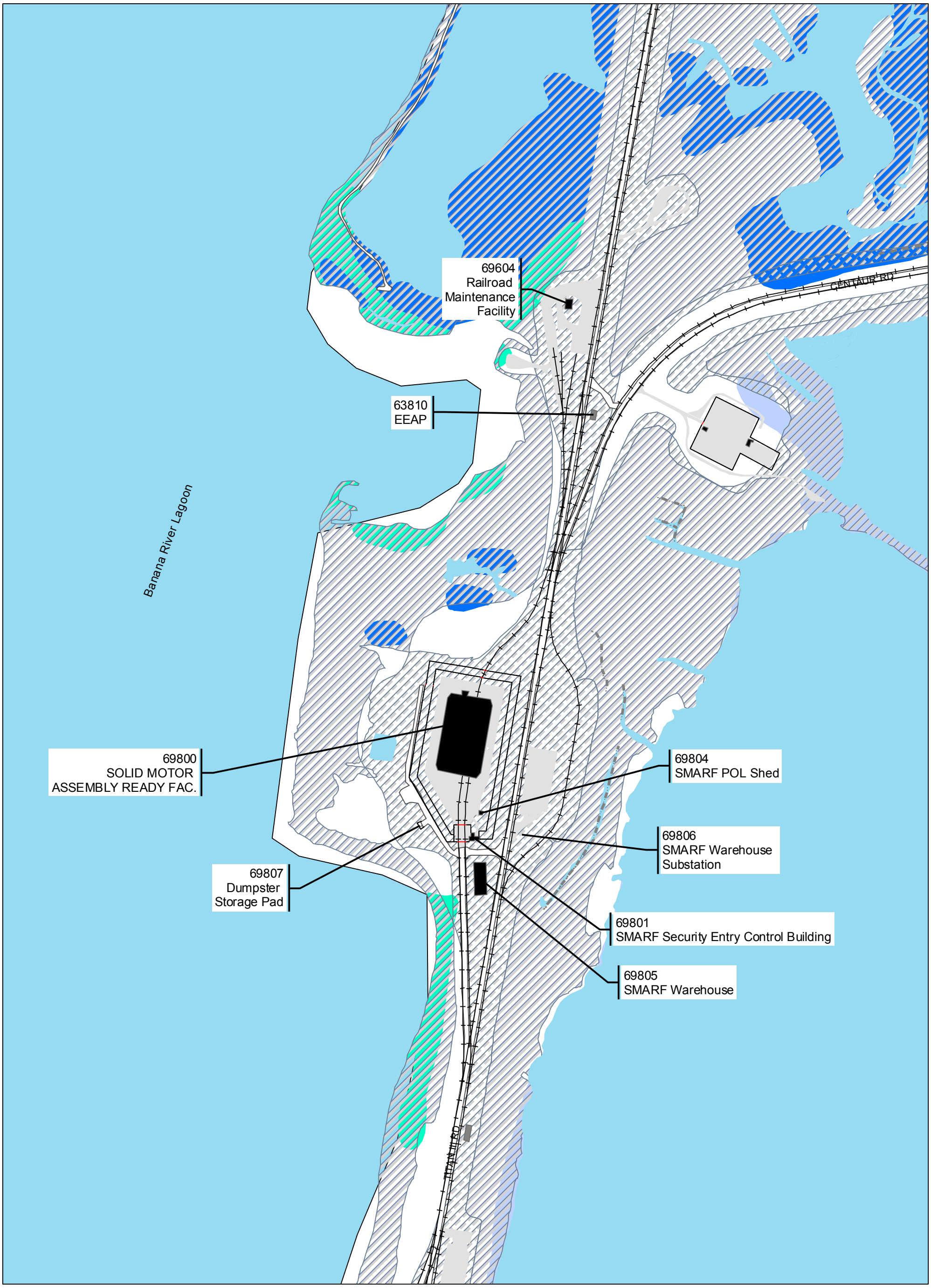
Flood Plains
SubType identifier

- 100_YEAR
- 500_YEAR
- Estuarine
- Lacustrine
- Palustrine

0 320 640 1,280 1,920 2,560 Feet

N W E S

Figure 3-5: VIB Area NWI Wetlands and Flood Plains



SMARF NWI wetlands ans Flood Plains

Legend

Gate	Railroad	**Flood Plains**
Fence	Road	**SubType identifier**
Tower Site	Parking	100_YEAR
Shed	Driveways	500_YEAR
Pavilion	OPEN_DRAINAGE	Estuarine
Structures	PAVED_DITCH	Lacustrine
	UNPAVED_DITCH	Palustrine
	Water	Brevard

0 230 460 920 1,380 1,840 Feet

N W E S

Figure 3-6: SMARF Area NWI Wetlands and Flood Plains

Freshwater Wetlands

Freshwater wetlands are periodically utilized by resident and migratory wildlife species but will not be cited specifically here due to their seasonal variability. Freshwater wetland plants observed on CCAFS include: beardgrass (*Andropogon spp*.), bladderwort (*Utricularia spp*.), common arrowhead (*Sagittaria lancifolia),* common cattail (*Typha latifolia)*, common duckweed (*Lemna minor*), Curtis' Reedgrass, (*Calamovilfa curtissi),* elodea (*Egeria densa)*, hydrilla (*Hydrilla verticillata)*, maidencane (*Panicum hemitomon)*, sawgrass (*Cladium jamaicense)*, spatterdock/yellow cow lily (*Nuphar luteum)*, torpedo grass *(Panicum repens),* and water pennywort (*Hydrocotyle umbellata)*.

Raccoons and red-winged blackbirds use the freshwater wetlands on CCAFS extensively. Raccoons appear to be primarily attracted by the large populations of leopard frogs inhabiting these environments. Red-winged blackbirds nest in the marsh vegetation and feed on hatching insects emerging from marsh waters. Other species observed utilizing freshwater wetlands are white-tailed deer, marsh rabbit, rice rat, river otter, American coot, belted kingfisher, common moorhen, double-crested cormorant, great blue heron, great egret, little blue heron, marsh hawk, snowy egret, tricolored heron, wood stork, alligator, Florida cooter, Florida water snake, red-eared slider, soft-shelled turtle, southern leopard frog, and water moccasin.

3.2.4 Threatened and Endangered Species and Species of Special Concern

Several Federal- and State-listed T&E species and SSC may utilize habitat on and around SLC-40, the SMARF, and the VIB, as described in Section 3.2.2. Such species are identified in Tables 3-1 and 3-2, along with the status of each. There are no known Federal-listed plants on CCAFS. Figures 3-7 through 3-9 depict suitable habitat in the vicinity of these facilities for the gopher tortoise and Florida scrub jay.

3.2.5 Migratory Birds

This AF Station is home to numerous birds listed on the United States Fish and Wildlife Service (USFWS) migratory bird list, all of which are protected at the Federal level by the Migratory Bird Treaty Act (MBTA). All but a few bird species (e.g., pigeons, European starlings, etc.) found on CCAFS are on this list. Great-horned owls, as well as other migratory birds, have been known to nest on the MST/UT. Additionally, ospreys nest in high densities in the ITL area.

Table 3-1: Status of Threatened and Endangered Animals, and Species of Special Concern Potentially Located in the Proposed Action Areas

Common Name	Scientific Name	Status	
		USFWS[1]	FFWCC[2]
American Alligator	*Alligator mississippiensis*	T (S/A)	SSC
Gopher Tortoise	*Gopherus polyphemus*		SSC
Eastern Indigo Snake	*Drymarchon corais couperi*	T	T
Loggerhead Seaturtle	*Caretta caretta*	T	T
Atlantic Green Sea Turtle	*Chelonia mydas*	E	E
Leatherback Turtle	*Dermochelys coriacea*	E	E
Florida Pine Snake	*Pituophis melanoleucus mugitus*		SSC
Roseate Spoonbill	*Ajaia ajaja*		SSC
Florida Scrub jay	*Aphelocoma coerelescens*	T	T
Piping Plover	*Charadrius melodus*	T	T
Little Blue Heron	*Egretta caerulea*		SSC
Reddish Egret	*Egretta rufescens*		SSC
Snowy Egret	*Egretta thula*		SSC
Tricolored Heron	*Egretta tricolor*		SSC
White Ibis	*Eudocimus albus*		SSC
Peregrine Falcon	*Falco peregrinus*		E
Southeastern American Kestrel	*Falco sparverius paulus*		T
American Oystercatcher	*Haematopus palliatus*		SSC
Wood Stork	*Mycteria americana*	E	E
Brown Pelican	*Pelecanus occidentalis*		SSC
Black Skimmer	*Rynchops niger*		SSC
Least Tern	*Sterna antillarum*		T

1) USFWS

E = Endangered: species in danger of extinction throughout all or a significant portion of its range.
T = Threatened: species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
T(S/A) = Threatened due to similarity of appearance to a species which is Federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.

2) Florida Fish and Wildlife Conservation Commission (FFWCC)

SSC = Species of Special Concern

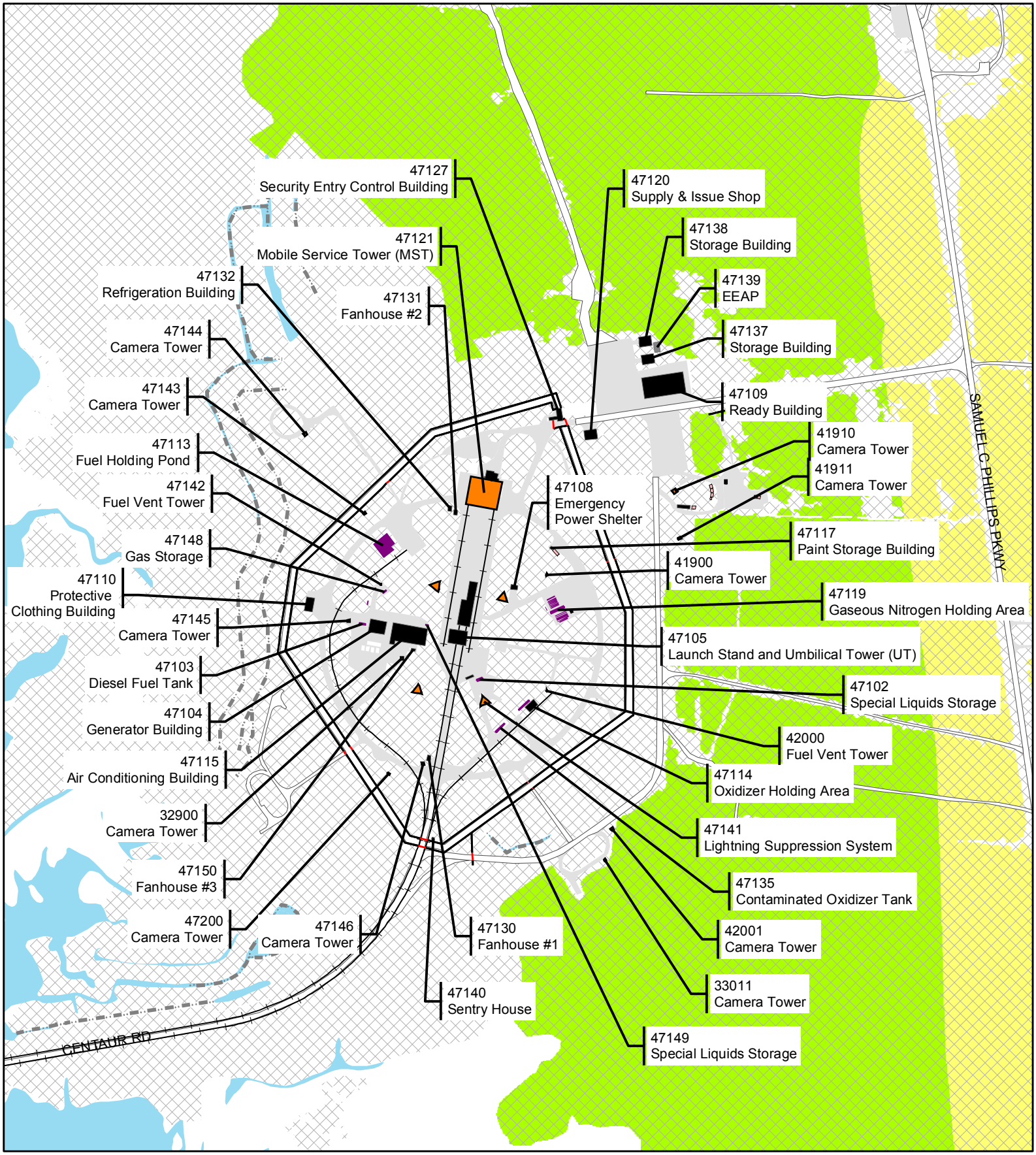
Table 3-2: Status of State-Listed Threatened and Endangered Plants Potentially Located in the Proposed Action Areas

Scientific Name	Common Name	Status
		FDA[1]
Asclepias curtissii	Curtiss' milkweed	E
Chamaesyce cumulicola	Sand dune spurge	E
Lechea cernua	Nodding pinweed	T

1) Florida Department of Agriculture-Chapter 5B-40 F.A.C., 2003

E= Endangered

T= Threatened



SLC 40 and Surrounding Area Sensitive Habitat

Legend

- Scrub Jay Habitat
- Beach Mouse Habitat
- Gopher Tortoise Habitat
- Fuel Sytems (Tanks)
- Water
- Structures
- Tower Site
- Fence
- Gate

0 170 340 680 1,020 1,360 Feet

N W E S

Figure 3-7: SLC 40 Sensitive Habitat

11/2004

SpecPro Environmental Services

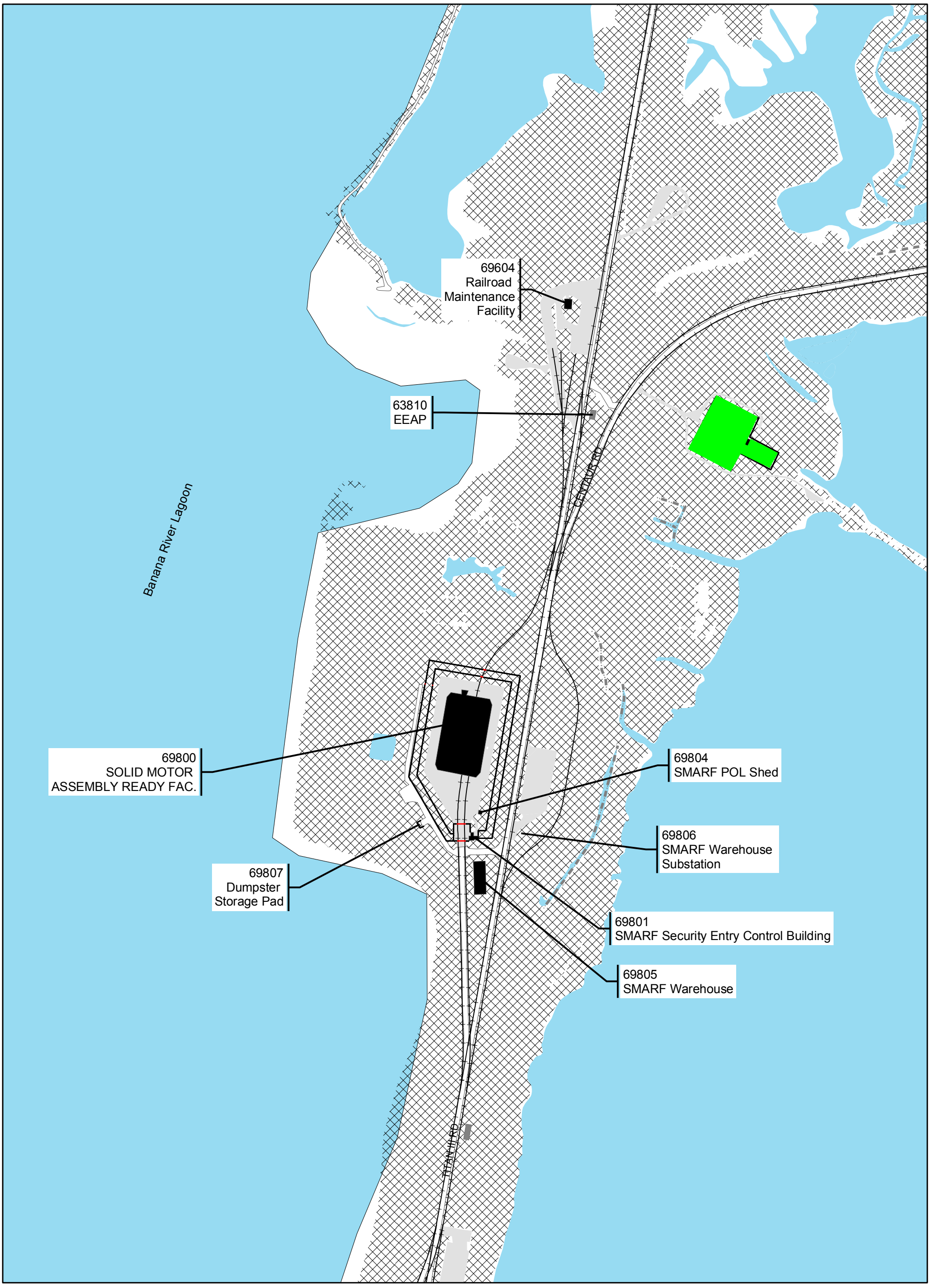


Figure 3-8: SMARF Area Sensitive Habitat

70460
Security Entry Control Building

70454
VIB Gas Storage Area

70500
Vertical Integration Building

70500A
Diesel Fuel Tank

70516
Hazardous Material
Accumulation

70503
Payload Fairing
Cleaning Facility (PLFC)

70500D
Diesel Fuel Tank

70507
VIB Generator Building

70669
Storage Pad

70666
West ITL
Security Entry
Control Buildin

70548
ITL Paint Storage Building

LOOP RD

70500B
Diesel Fuel Tank

70526
Water Pump Station #6
Generator Building

70520
Water Pump Station #6

70520-4
Water Pump Station #6 Diesel Fuel Tan

PATROL RD

70525
Water Pump Station #6
Paint Storage Building

70528
ITL Warehouse
Paint Storage Building

70650
VIB Railroad Facility

70658
Hazardous Material
Accumulation

Banana River Lagoon

TITAN III RD

VIB Area Sensitive Habitat

Legend

- Gate
- Fence
- Road Names
- Air Field
- Tower Site
- Shed
- Pavilion
- Structures
- Railroad
- Road
- Parking
- Driveways
- OPEN_DRAINAGE
- PAVED_DITCH
- UNPAVED_DITCH
- Water
- Fuel Systems (Tanks)
- Scrub Jay Habitat
- Beach Mouse
- Gopher Tortoise Habitat

0 380 760 1,520 2,280 3,040 Feet

N W E S

Figure 3-9: VIB Area Sensitive Habitat

3.3 Cultural Resources

Cultural resources can be generally divided into two broad categories: archaeological sites (either historic or prehistoric), and historic buildings or structures. Space Launch Complex 40 is not considered eligible for listing in the National Register of Historic Places (NRHP). There are no known archeological sites near the SLC-40 facilities proposed for removal.

3.4 Geology, Soil, and Water Resources

3.4.1 Geology

The topography of CCAFS consists of a series of relic dune ridges formed by wind and wave action, indicating that gradual beach deposits occurred over time. Higher naturally occurring elevations occur along the eastern portions of these areas, with a gentle slope to lower elevations toward the marshlands along the Banana River. Land surfaces are level to gently sloping with elevations ranging from sea level to 15 feet above mean sea level (msl).

The surficial geology of SLC-40 consists of recent, unconsolidated deposits that become finer grained with increasing depth from the surface. The geology consists of fine to coarse sand with some shell fragments from 0-15 ft below sea level (bsl). The surficial materials are consistent with descriptions of Holocene sediments and the Pleistocene Pamlico Formation. The lithology grades into very fine to medium sand with some silt, some shell fragments, and interspersed clay lenses from about 15-59 ft bsl. The shell fragments are generally much larger than the accompanying sands, and may be present as distinct layers or intermixed throughout the sand units. Split-spoon samples indicate that sands generally show a decrease in grain size from the land surface. Silt and clay occur as distinct lenses within this interval and range from less than an inch in thickness to layers of six inches or greater. These lenses or layers occur sporadically within this interval and are difficult to correlate from one location to another.

Below this interval, the sand grades into a notable clay layer at approximately 59 ft bsl. The clay unit is dark greenish gray (5GY 4/1) in color, very dense, and contains little sand or shell fragments.

3.4.2 Soils

The soils of the Titan launch facilities are primarily of the Canaveral and Palm Beach classification. Other soil classifications found at SLC-40 are Urban Land and Coastal beaches. The majority of the Complex is considered a developed area and blends with Canaveral, Palm Beach and Coastal beaches in the surrounding areas and coastline.

Palm Beach soils are similar to Canaveral soils, but are excessively drained. They occur on higher ridges, have a lower water table, and are commonly in areas between Cape Canaveral and Melbourne Beach. Welaka soils are well-drained sandy soils and have a light-colored subsurface layer and yellowish subsoil. The subsoil extends to a depth of 40-60 inches. Below this is a mixture of quartz sand and shell fragments. The major soils in this association are droughty, even though in some areas the water table is near the surface during rainy periods.

Soils at SLC-40 have been impacted by volatile organic compounds (VOCs), metals (inorganics), and polychlorinated biphenyls (PCBs) from past activities. Soils inside the fenceline contain levels of PCBs that not only exceed industrial cleanup criteria, but also exceed the 50 parts per million (ppm) hazard level established under the Toxic Substances and Control Act (TSCA). The PCB contamination is predominantly confined to the upper one foot of soil. Regulatory agencies have only allowed these contaminated surface soils to remain in place due to safety concerns that might be associated with a removal on an active Complex, the high level of security at the site, and the education program that is in place to ensure that current employees are aware of the contamination. Soils that exceeded the industrial criteria for PCBs were excavated from the area outside the fenceline at SLC-40.

3.4.3 Water Resources

The surficial aquifer at SLC-40 consists of clastic sediments that contain groundwater primarily under unconfined conditions. In the lower section of the Caloosahatchee Marl Formation between depths of about 50 to 110 ft, low permeability beds of silt and clay may cause a local semi-confined or leaky-confined condition. The presence of the clay layer at approximately 59 ft bls (below land surface) at this site serves as a semi-confining layer.

Groundwater occurs at depths ranging from about 3.2 to 18.0 ft bls. Shallow groundwater movement across the site is west and south under a hydraulic gradient that ranges from 0.001 to 0.003 ft/ft.

Groundwater at the site has been impacted by VOCs, semivolatile organic compounds (SVOCs), and metals (inorganics). The low concentration of vinyl chloride is likely attributed to past solvent usage at SLC-40; however the vinyl chloride concentration does not indicate widespread distribution of solvents in the groundwater. The metals found in the groundwater all have low solubilities and are expected to be relatively immobile in groundwater. Significant transport of these compounds in the groundwater is not expected. In addition, the groundwater does not discharge into any surface water body within the fenced area of SLC-40.

The Complex is completely surrounded by low-lying marshlands and sloughs. Wetlands that are associated with the Banana River are located within 1,000 ft to the west and the Atlantic Ocean is within 1,300 ft to the east. On site, surface water drains by overland flow to the four man-made low-lying percolation areas and drainage swales. The on-site swales consist primarily of mowed and maintained grass. Surface water recharges the groundwater system through infiltration when water collects in the low-lying areas of the site. There are no permanent surface water bodies within the fenced area of the site.

The Banana River, an estuary system that is a federally designated “Manatee Sanctuary” and a State-designated “Florida Outstanding Water”, borders CCAFS to the west. Two drainage ditches approximately 100 ft west of SLC-40 extend to the north and south and ultimately discharge into the Banana River. Swales on SLC-40 also drain to the Banana River, but the PCB contamination at the site has never been observed to leach into groundwater or surface water.

A percolation pond was located within the north portion of the site, which historically retained stormwater for brief periods after rainfall events. The pond has been removed and leveled, and the area consists of mowed and maintained grass.

3.5 Hazardous Materials and Hazardous Waste

3.5.1 Hazardous Materials

The term "hazardous materials" as defined by the Department of Transportation (DOT) refers to materials "capable of posing an unreasonable risk to health, safety, and property when being transported." However, the term is commonly used to refer to materials that are regulated by the EPA or OSHA because they either pose a threat to health or the environment or can generate a hazardous waste. Some of the hazardous materials and wastes associated with the Titan program include fuel in storage tanks, asbestos, and PCBs.

Solid and liquid fuels were used in the Titan rockets at SLC-40. The solid fuels were an epoxy mixture containing aluminum and perchlorates. The liquid fuel is an oxidizer/fuel mixture consisting of Aerozine-50 and nitrogen tetroxide, which are stored on site. Aerozine-50 and nitrogen tetroxide were delivered to the site by rail and tanker truck. Small amounts of hydraulic oil were also historically discharged at SLC-40.

Asbestos

Asbestos is a HAP under the NESHAP of the CAA, is a known human carcinogen and a cause of asbestosis. The EPA issues regulations to ensure compliance with the CAA. OSHA also provides for worker protection for employees who work around or remediate ACM. Pre-existing friable ACM, or ACM rendered friable by a demolition activity, refers to any material containing more than one percent asbestos that can be crumbled, pulverized, or reduced to powder when dry, by using hand pressure or similar mechanical pressure. ACM has been identified in several facilities at SLC-40.

3.5.2 Hazardous Waste

Hazardous wastes are materials whose disposal is regulated under RCRA. They are either listed in 40 CFR 261 "Identification and Listing of Hazardous Waste," applicable State and local waste management regulations, or possess at least one of the following four characteristics:

- Ignitability - Common examples are: parts cleaning solvents, kerosene, and paint thinner.
- Corrosivity - Common examples are: battery acid, aluminum brighteners/cleaners, many floor cleaners, and caustic paint strippers.
- Reactivity - A common example is potassium cyanide.
- Toxicity - Common examples are: materials contaminated with other hydrocarbon products; water and sludge that have accumulated in the bottom of fuel storage tanks, used oil tanks or other vessels; spent solvents; debris contaminated with used petroleum, oil, or lubricants such as used oil filters, shop rags and absorbents; spent antifreeze; and paint wastes.

Two types of hazardous waste storage areas are located on SLC-40: Satellite Accumulation Points (SAP) and Ninety-Day Accumulation Sites. Table 3-3 identifies the locations of these storage areas.

Satellite Accumulation Points

A SAP has an indefinite accumulation time, however, only a maximum of 55 gallons per waste stream of hazardous waste, or one quart of acutely hazardous waste (P listed, *i.e.*, P078) can be accumulated. The container must be dated and moved to a 90-day site, the on-base permitted treatment, storage, or disposal facility (TSDF), or an off-site permitted TSDF within 72 hours of the generation of any quantity greater than 55 gallons or 1 quart of acutely hazardous waste. Each organization is responsible for minimizing the generation of hazardous wastes, and must properly identify, package, and label each waste. The generator must also complete an internal manifest. This responsibility is in force until disposition of the wastes. Since only hazardous wastes defined in the applicable permit are allowed in the permitted facilities, it is imperative that new wastes be identified and forecasted as early as possible to ensure that the AF can provide adequate storage and disposal of the wastes.

Ninety-Day Accumulation Sites

A Ninety-Day Accumulation Site can store any amount of hazardous wastes up to 90 days at a time without a permit. Hazardous waste must be moved from the 90-day accumulation site to the on-base permitted storage facility or shipped off-site to a permitted TSDF within 90 days from the accumulation start date.

Table 3-3: Hazardous Waste Storage Locations

Type	Facility Number	Facility Name
Satellite Site	70500	Analytical Lab #117
Satellite Site	70500	Battery Lab # 107
Satellite Site	70500	Clean Room Lab #107
Satellite Site	47112	Fuel Holding Area CX-40
Satellite Site	47114	Oxidizer Holding Area CX-40
Satellite Site	70500	PLF – Inside
Satellite Site	70500	PLF – Outside
Satellite Site	70500	Prop Shop V-123
Satellite Site	47100	SLC-40 Tool Crib
Satellite Site	69800	SMARF High Bay
Satellite Site	69800	SMARF Solder Lab
Satellite Site	69800	SMARF Tool Crib
90-Day Site	70500	VIB 90 Day Site
Satellite Site	70500	VIB Tool Crib

Storage Tanks

Table 3-4 identifies all of the above ground and underground storage tanks associated with the Titan program.

Table 3-4: USTs and ASTs Supporting the Titan Program

Tank Number	Contents of Tank	Status	Location	Size (Gallons)	Supports	Construction
70012-1	DF-2	Unregulated	SMAB East Boiler	2,000	Boiler	Double Wall
70000-3	DF-2	Empty/out of service	SPIF	5,000	Boiler	Steel Underground
70000-4	DF-2	Regulated	SMAB	8,000	Emer. Gen./Boiler	Double Wall
70000-5	DF-2	Empty/out of service	SMAB	1,250	Emer. Gen.	Steel Single Wall
69800	DF-2	Unregulated	SMARF Room 115	400	Emer. Gen.	Steel Single Wall
47115-3	DF-2	Regulated	SLC-40	10,000	Emer. Gen.	Double Wall
47127-3	DF-2	Unregulated	SLC-40 Guard House	300	Emer. Gen.	Double Wall
47127-4	DF-2	Unregulated	SLC-40 Guard House	40	Day Tank	Steel Single Wall
70528-1	Used Oil	Unregulated	ITL POL	550	Storage	Double Wall
70500-5	DF-2	Unregulated	VIB East Boiler	1,000	Boiler	Double Wall
70507	DF-2	Unregulated	VIB	150	Day Tank	Steel Single Wall
70500D-2	DF-2	Regulated	VIB	2,000	Emer. Gen.	Double Wall
70500-4	DF-2	Unregulated	VIB West Boiler	1,000	Boiler	Double Wall
70460-1	DF-2	Unregulated	VIB Guard House	300	Emer. Gen.	Double Wall
70011-2	DF-2	Unregulated	SMAB Guard House	30	Day Tank	Steel Single Wall
70011-1	DF-2	Unregulated	SMAB Guard House	550	Emer. Gen.	Double Wall
70520-4	DF-2	Regulated	Pump Station #6	1,000	H2O Pumps	Double Wall
70520-6	DF-2	Unregulated	Pump Station #6	275	Day Tank	Steel Single Wall
70520-5	DF-2	Unregulated	Pump Station #6	100	Day Tank	Steel Single Wall

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCB) are suspected human carcinogens. Improper handling of PCB items or releases of PCBs could have adverse effects on human health and the environment.

It is suspected that the launch stand and other site support structures were painted in the past with coatings that contained PCBs. It was believed that the PCBs helped the paint withstand the extreme temperatures generated at launch time. Discharge of contaminated deluge water and dispersion of the paint chips that resulted from sandblasting operations are considered the primary causes of PCB contamination in the area.

Space Launch Complex 40 has been designated Solid Waste Management Unit 46 (SWMU 46). The Titan rockets utilized fuels including hydrazine, nitrogen tetroxide, RP-1, and liquid oxygen. Solvents were used to flush rocket engine components. These and other hazardous materials were stored and used at various locations around SLC-40. During launch operations, thousands of gallons of water were used to suppress vibrations and for cooling purposes. These "deluge" waters were collected in a concrete flumeway and basin before being released to the environment.

3.5.3 Installation Restoration Program

A Resource Conservation and Recovery Act (RCRA) Facility Investigation RFI was performed at SLC-40 during 1998-1999 to detail the sampling and analysis of site soil, groundwater, surface water, and sediment. These results were used to determine human health and ecological risks. The Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA) indicated that potential risks from exposure to the site's groundwater, surface water, and soils are minimal. This conclusion was reached based on the lack of on-site ecological receptors, the severe habitat limitations presented at the facility, the absence of reasonable soil and sediment migration pathways into adjacent habitat, and the absence of sustained hydrological input that would result in significant migration of surface water off-site.

Following the RFI, a soil removal was completed in order to address PCB contamination outside the fenceline at SLC-40. These soils were remediated to 2.2 mg/kg, a level that would be protective of ecological receptors. The goal of this soil removal was to eliminate unacceptable soil risk and hazard to current and future site workers and to reduce unacceptable risk to potential future residents. When site-specific conditions were factored into the risk assessment at SLC-40, it was determined that removal of Aroclor 1260 concentrations greater than 18 ppm inside the fenceline (where access and exposure can be restricted) would mitigate unacceptable soil risk as long as the facility remains a secure, limited-access, active launch facility. Contaminants inside the fenceline still need to be addressed.

Groundwater exceeded the one in one million cancer risk threshold for four potential receptors (future industrial worker, future construction worker, hypothetical future adult and child residents). Arsenic was the primary contributor to risk, although bis (2-ethylhexyl) phthalate also contributed significantly to risk for the future adult resident. However, when risk management factors were taken into consideration (arsenic concentrations were less than the Maximum Contaminant Level (MCL) and bis (2-ethylhexyl) phthalate was also detected in blanks), groundwater was determined not to pose a significant human health risk

or hazard. However, two metals (iron and manganese) exceeded Secondary Maximum Contaminant Levels (SMCLs). Although these metals did not appear to significantly contribute to human health risk, the exceedance of an SMCL necessitates a long term monitoring program.

The ERA was conducted to evaluate the possibility that land and aquatic organisms (eco-receptors) may be at risk from site-related contaminants. The ERA was based on laboratory analyses of soil, surface water, and sediment samples. Groundwater was not evaluated in the ERA, as there is no identified exposure pathway. The ERA concluded that potential risk from the exposure to and/or ingestion of soil, surface water, or sediment by eco-receptors was marginal. Several factors mitigate the potential concern. These could include routine facility operation and maintenance activities, less than optimal habitat found within facility boundaries, the extent of the eco-receptor's normal foraging area, and the seasonal variability associated with the amount of surface water present at any given time.

The Remedial Action Objectives (RAOs) are to:

1) Protect humans from exposure to shallow groundwater and prevent consumption of groundwater from the shallow aquifer (where contaminant concentrations are higher than regulatory standards); and

2) Remediate site soils that exceed the site-specific cleanup level of 18 ppm and prevent unacceptable human contact with remaining site soils.

Land Use Controls (LUCs) for SLC-40 state that soils will not be disturbed or moved during property development, maintenance or construction without AF review, coordination, and approval. Unless disturbed, the remaining soil contaminants currently do not pose a risk to site workers. Once removal of soil has been completed, no worker exposure concerns will remain. The consumptive use of water from the site's surficial aquifer is prohibited.

3.5.4 Pollution Prevention

The Pollution Prevention Act of 1990, 42 U.S.C. 13101(b), established a National policy to prevent or reduce pollution at the source. Pollution prevention approaches should be applied to all potential pollution-generating activities.

3.6 Health and Safety

The discussion of human health and safety includes both workers and the general public. Safety issues include injuries or deaths, which are usually the result of one-time accidents. Injuries include impacts on a human resulting from an exposure to toxic concentrations, radiant heat, or overpressures from accidental releases or explosions (such as flying debris), or accidents resulting from working in confined spaces, and that require medical treatment or hospitalization. Health issues result from activities where people may be impacted over a long period of time rather than immediately.

A HHRA was performed to evaluate the potential threat to current and future receptors from contamination at SLC-40 and the VIB. Groundwater receptors included potential future industrial workers, construction workers, and residents. Potential exposure pathways included ingestion, dermal contact, and vapor inhalation. Soil receptors include current industrial workers, maintenance workers, and trespassers; potential future industrial

workers, construction workers, maintenance workers, and residents. Potential exposure pathways included ingestion, dermal contact, and particle inhalation.

The following human health contaminants of concern (COCs) have been identified at SLC-40:

- Groundwater—Arsenic and bis (2-ethylexyl)phthalate (BEHP) were initially identified as COCs. Since arsenic concentrations were less than the EPA MCL and BEHP was detected in quality assurance blanks, it was determined that neither contaminant presents a significant human health risk at SLC-40.

- Soil—PCBs were the only soil COC identified by the HHRA. However, a comparison to screening levels indicated that lead and chromium exceeded the Florida Residential Soil Cleanup Target Levels (SCTLs), although they did not contribute significantly to risk in the HHRA. Based on FDEP requirements, SCTLs are cleanup standards and exceedances require a remedial action.

The soil outside the fenceline at SLC-40 has been remediated to industrial levels, however soils inside the fenceline cannot be remediated until deactivation of the launch complex. Polychlorinated biphenyls are suspected human carcinogens. Improper handling of PCB items or releases of PCBs could have adverse effects on human health and the environment. Educating the employees about the presence of soil contamination would help minimize exposure to the contaminants.

Some of the structures and facilities are known or suspected of containing LBP, and/or ACM.

3.7 Infrastructure and Transportation

The AF landfill, located on CCAFS just north of the Skid Strip, is permitted as both a Construction and Demolition (C&D) debris landfill and as an asbestos monofill. The 45SW defines C&D debris as materials generally considered not water soluble and non-hazardous in nature. The debris includes, but is not limited to, steel, glass, brick, concrete, asphalt roofing material, pipe, gypsum wallboard, and lumber from construction or destruction of a structure, part of a construction or demolition project, or from the renovation of a structure. Tree remains, trees, and other vegetative matter are prohibited from disposal in the C&D landfill at CCAFS.

3.8 Land Use and Zoning

SLC-40 is a designated Solid Waste Management Unit. Land Use Controls were implemented as a result of the RFI conducted at SLC-40. The property will be prohibited from residential or other non-industrial development without prior written notification to FDEP and EPA concerning the SWMU land use change. This Land Use Control Implementation Plan (LUCIP) will remain in effect until changes to applicable Federal and State risk-based clean-up standards occur, which indicate site contaminants no longer pose potential residential risk, or a reduction in site contaminant concentrations to below Federal and State residential risk-based clean-up standards occurs. In the event of property realignment, transfer, or re-use for non-industrial or non-commercial purposes, assessment and remediation may be necessary to ensure that impacts to ecological receptors are not increased or to mitigate potential ecological impacts where residual contamination exists.

3.9 Noise

The decibel (dB) is the accepted standard unit for measuring the level of noise and is generally adjusted to the "A-weighted" logarithmic scale (dBA) to better correspond to the normal human response to different frequencies. Several metrics have been developed for multiple-noise event analysis. The one most commonly used is the LDN (Day - Night Average Sound Level) metric. This is the dBA level averaged over a 24-hour period, with an additional ten-dBA penalty added for noise events occurring between 10 p.m. and 7 a.m. (because noise at night is judged to be more annoying than noise during the day). The threshold noise level for compatible land uses is an LDN of 65 dBA. Areas outside (less than) the 65-dBA LDN contour are compatible with residential and other noise-sensitive land uses.

3.10 Socioeconomics

The Spaceport is Brevard County's major employer with a combined CCAFS/KSC work force of more than 27,000 employees (military, civil service and other government and contract employees) as of 2002. Statewide, the space industry employs 43,000 workers. The presence of these employers causes a chain of economic reactions throughout the local region and nearby counties. It is estimated that each job created within the space industry generates two additional jobs within the region. Post World War II missile testing at CCAFS; the NASA manned space program; and various military, government, and commercial space launch activities (in combination with nearby PAFB) stimulated economic growth in this region. This dominant economic force generates well over $4 billion in the Florida economy annually (Enterprise Florida).

Employees at Cape Canaveral contribute to the local economy through salaries, payroll taxes, and spending. According to the Cape Commander's website, approximately 10,000 people are badged to work on CCAFS with an annual average salary of $43,000, for a total economic result of $430 million. It is estimated that for every dollar spent in a local community, it is re-spent between four to eight times before it eventually drops out of the system due to taxes, savings, or being spent out of the local area. Based on this estimate, workers at CCAFS contribute close to $1.7 billion directly and indirectly to the local economy. With a combined budget of $326.8 million, the 45SW (which includes CCAFS, PAFB, the Jonathan Dickinson Missile Tracking Annex, Malabar Annex, Antigua Air Station, and Ascension Island) directs government spending on these facilities that translates into the local economy. While an estimate of economic impact based only on the salary of CCAFS workers is a small portion of total spending and does not include things like purchase of construction materials, it does show the importance of CCAFS within the Brevard County, FL, economy.

4.0 ENVIRONMENTAL CONSEQUENCES

This Chapter describes the potential environmental impacts associated with the activities under the Proposed Action and the No Action Alternative. The affected environmental components were described in Chapter 3 to provide a context for understanding potential impacts.

Federal, State, and local environmental laws and regulations were reviewed to assist in determining established thresholds for assessing environmental impacts (if any) in fulfillment of NEPA requirements. Proposed activities were evaluated to determine their potential to result in significant environmental consequences using an approach based on the interpretation of significance outlined in the CEQ regulations for implementing the procedural provisions of the NEPA (40 CFR 1500-1508) and 32 CFR 989, *The Environmental Impact Analysis Process*. The assessment of potential impacts and the determination of their significance are based on the requirements in 40 CFR 1508.27. Three levels of impact can be identified:

- No Impact - No impact is predicted
- Not Significant Impact - An impact is predicted, but the impact does not meet the intensity/context significance criteria for the specific resource
- Significant Impact - An impact is predicted that meets the intensity/context significance criteria for the specific resource

Thresholds for determining impact significance are based on the applicable compliance standard. When feasible, these criteria correspond to Federal- or State-recognized criteria, and are determined using the associated standardized methods. In the absence of compliance standards, the thresholds are based upon Federal- or State-recommended guidance or follow professional standards/best professional judgment.

Guidelines established by the CEQ (40 CFR 1508.27) specify that significance should be determined in relationship to both context and intensity (severity). Context refers to the potential region of influence, which for this project is CCAFS and Brevard County. Factors contributing to the intensity or severity of the impact include the following:

- The degree to which the action affects public health or safety;
- Unique characteristics of the geographic area such as proximity to cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas;
- The degree to which effects of the action on the quality of the human environment are likely to be highly uncertain or controversial;
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration;
- Whether the action is related to other actions with individually insignificant, but cumulatively significant, impacts;
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing on the NRHP, or may cause loss or destruction of significant scientific or cultural resources;

- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the ESA; and
- Whether the action threatens to violate a Federal, State, or local law or requirement(s) imposed for environmental protection.

Ten broad environmental components were considered: air quality; biological resources; cultural resources; geology, soils, and water resources; hazardous materials and waste; health and safety; infrastructure and transportation; land use and zoning; noise; and socioeconomics.

4.1 Air Quality

Air Force Instruction 32-7040, *Air Quality*, identifies AF requirements for an air quality compliance program. The AF must achieve and maintain compliance with all applicable Federal, State, and local standards for air quality compliance. The Proposed Action areas are located in Brevard County, which is currently in attainment with NAAQS and FAAQS.

Air Quality Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
AFI 32-7086, Chapter 4	Minimize loss and conduct recovery, recycling, and reuse of ozone depleting substances (ODS) to the maximum extent practicable.	Manage to minimize ODS releases into the environment.	AF
Clean Air Act, Section 112(r)	Risk Management Plan	Follow and update RMP when changes to the quantity and types of regulated substances occur.	USEPA
AFI 32-7040	Estimate air emissions	Track vehicle/equipment use and estimate air emissions for inclusion in the Air Emissions Inventory (AEI).	AF
FAC Chapter 62-257, Asbestos Program and 40 Part 61, Subpart M, NESHAP for Asbestos	Remove asbestos prior to demolition activities and notify FDEP 10 working days prior to the start of demolition of all load-bearing structures. Coordinate asbestos removal with the Asbestos Recovery Team and comply with Asbestos Management Plan.	Prevent the release of significant amounts of asbestos fibers to the outside air during demolition activities, which present a risk to human health.	45SW, FDEP and USEPA

4.1.1 Proposed Action

Risk Management Plan

The RMP would need to be reviewed to determine if the Plan should be revised, as hydrazine and Aerozine-50 would no longer be stored at SLC-40.

Vehicle and Equipment Emissions

Project machinery would emit exhaust (CO, NO_x, and SO_2) and suspend dust particles (*i.e.*, PM) during project activities. Typical rates of dust emissions from land-leveling and contouring activities, such as grading and bulldozing, varies greatly, but is generally estimated at approximately 110 pounds per day per acre (USEPA, 1985). Best management practices (BMPs) such as periodic watering of the construction sites and restricting vehicle travel speed on gravel roads would reduce PM emissions.

The current CCAFS Title V Air Operating Permit would not need to be amended, as the impacts associated with the Proposed Action would be temporary, minor, and are covered by the existing permits. Vehicle emissions and land disturbance activities would be entered into CCAFS's Air Emissions Inventory (AEI), in accordance with AFI 32-7040.

Explosive Demolition

Explosives used at a site would cause a short-term increase in the amount of air pollutants in the immediate area. Pollutants that may be generated in the explosion (assuming the explosives are ANFO [ammonium nitrate with fuel oil], TOVEX [ammonium nitrate slurry with monomethylamine thickener], and TNT [trinitrotoluene]) could include ammonia, CO, and NO_x. These common air pollutants would be readily dispersed and would not be a concern.

Explosive charges can generate heat and pressure that can break down or change compounds into other compounds or elements. For example, explosions may vaporize PCBs, releasing dioxins. The explosive charges would be placed within the concrete portion of the headworks, and the charges directed inward. Consequently, little or no airborne release of PCBs or a byproduct of PCB combustion would be anticipated. Conversely, environmental impacts resulting from removing the PCB coatings could be considerable, as the removal activities would increase the likelihood of PCB exposure to the workers, the general public, and the environment.

The primary air emission during the explosion would be PM. While PM, including PM_{10}, would be generated in a very short burst, the quantities would not be anticipated to be of concern. Within 1 hour, most of the dust from the explosive demolition event would have settled. Therefore, no significant impacts are anticipated.

Minor increases in these pollutants would not be sufficient to cause any change in the NAAQS attainment status.

CCAFS quantifies air emissions from all activities, and enter the data annually into the respective Air Emissions Inventories (AEIs), in accordance with AFI 32-7040. Minor emissions from demolition activities would be estimated and included in subsequent AEIs. No significant impacts are anticipated to air quality from implementation of the Proposed Action.

Asbestos Removal

The selected asbestos removal/abatement contractor would develop an air-monitoring plan to ensure that engineering controls employed during asbestos abatement activities are effective. Asbestos abatement requirements and procedures including, but not limited to, setting up containment, negative air, wet removal, air monitoring, etc. must be followed when necessary. All asbestos abatement activities as well as other activities that may disturb ACM must be coordinated through the CCAFS Asbestos Recovery Team (ART) and performed in compliance with applicable State (FDEP) and Federal (EPA and OSHA) asbestos rules including the following:

- FDEP must be notified 10 days in advance of start of project by submitting FDEP Form 62-257.900(1), *Notice of Asbestos Renovation and Demolition*, if the quantity of ACMs to be removed is determined to be up to160 sq. ft. or 260 linear ft;

- FDEP must also be notified 10 days in advance of start of project if it involves demolition (removal of load bearing member) regardless of whether facilities contain ACM;

- This notification form shall satisfy the notification requirements of the EPA National Emissions Standards for Asbestos, 40 CFR 61.145(b);

- The asbestos removal fee shall be calculated in accordance with the fee schedule outlined in 62-257.400, F.A.C.;

- A revised notification must be submitted if after the start of the project it is determined at least 20 percent more regulated ACM than originally reported must be removed; and

- Only those personnel trained and certified in handling ACMs must perform project.

Ozone Depleting Chemicals

In accordance with Public Law 102-484, any new chemical, solvent, material, or system making use of materials classified as a Class I Ozone Depleting Chemical (ODC), will not be introduced during the Proposed Action. Venting of ODCs into the atmosphere is prohibited. ODCs would be recovered and recycled. ODC recovery operations would be performed by trained technicians using EPA approved recovery equipment. ODCs would be recovered and recycled prior to excessing ODC-containing equipment. Excessed ODC-containing equipment would be properly disposed.

No significant impacts are anticipated to air quality from implementation of the Proposed Action.

4.1.2 No Action Alternative

Under the No Action Alternative, no significant impacts to air quality would be anticipated, as air pollutant-generating activities would not occur during the safe and securing process.

4.2 Biological Resources

The USAF is committed to the long-term management of all natural areas on its installations, as directed by AFI 32-7064, *Integrated Natural Resources Management*.

Biological Resources Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
AFI 32-7064	Protection of wetlands	Manage AF lands with the goal of no net loss of wetlands.	Army Corps of Engineers
Endangered Species Act	Consultation with USFWS and Florida Fish and Wildlife Conservation Commission (FFWCC) and if necessary, obtain and comply with biological opinions/incidental take permits	Conserve ecosystems that support T&E species. Section 7 requires Federal agencies to insure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. Comply with existing T&E permits.	USFWS and FFWCC
Executive Orders (EOs) 11988 and 11990, Floodplain Management and Protection of Wetlands	Finding of No Practicable Alternative if wetlands or floodplains would be impacted	Minimize the destruction, loss or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands. Reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains. Consider alternatives to avoid adverse effects in floodplains. If the only practicable alternative requires siting in a floodplain, design or modify action to minimize potential harm to or within the floodplain	DoD

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Executive Order 13186, Responsibility of Federal Agencies to Protect Migratory Birds	Ensure that environmental analyses of Federal actions required by the NEPA evaluate the effects of actions on migratory birds, with emphasis on species of concern.	Support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources.	DoD
Executive Order 13112, Invasive Species	Various	Prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause.	DoD
Florida Administrative Code 68A	Osprey Nest Removal Policies and Permit	Permits the take of inactive and active osprey nests.	FFWCC; USFWS
Florida Endangered Species Protection Act (ESPA)	Consider impacts to T&E species when planning and implementing projects	Prohibits the intentional wounding or killing of any fish or wildlife species designated as "endangered", "threatened" or of "special concern" and intentional destruction of their nests.	FFWCC
Florida Endangered and Threatened Species Act (FETSA)	Consider impacts to T&E species when planning and implementing projects	Establishes the conservation and wise management of T&E species as State policy.	FFWCC
MBTA	Consultation with USFWS as necessary and compliance with applicable permits	Prohibits destruction of the eggs or nest of migratory birds without a permit.	USFWS
Preservation of Native Flora of Florida Act (PNFFA)	Avoid impacts to T&E and "commercially exploited" plants	Prohibits willfully destroying or harvesting T&E and "commercially exploited" plants	Florida Department of Agriculture and Consumer Services

4.2.1 Proposed Action

4.2.1.1 Vegetation

All vegetation not directly adjacent to facilities being demolished that is to be retained would be tagged and identified to remain and avoided during removal activities. Stumps and root systems of trees and shrubs within the demolition area planned for removal would be removed from the Proposed Action site.

Upon removal of site facilities and utilities, areas will be filled with two feet of clean fill/topsoil and seeded to start new vegetation growth and provide for erosion control. Eventually, habitat will overgrow the area and provide additional habitat for surrounding animals. Habitat surrounding the buildings to be demolished will be protected per 40 CFR. Beneficial impacts are anticipated to vegetation and wildlife from the revegetation of SLC-40 due to the increase in habitat.

Invasive Species

In order to prevent the inadvertent spread of invasive species, contractors should clean equipment and vehicles with high pressure air or water prior to use in the project area and before leaving unavoidable infestation zones in the surrounding areas. Cleaning should concentrate on the undercarriage, axles, frames, cross members, on and under steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs should be swept and refuse disposed of in waste receptacles. Care should be taken that wash water be retained on site to prevent weed material transport.

The following precautions should be taken to prevent invasive species from becoming established in the area:

- Use certified invasive weed-free imported materials (e.g., straw bales, erosion control seed) when and where needed during construction, reclamation, maintenance, and operations.
- Conduct follow-up invasive weed surveys and weed control treatments during the growing season following completion of construction and revegetation activities in all construction and reclamation areas. The surveys may be conducted concurrently with reclamation monitoring activities.
- Reseed disturbed sites with competitive and native species. In areas where applicable grasses are recommended, use species that will be tolerant of broadleaf herbicides, which can later be used to spot treat any broadleaf weeds.
- After an area is seeded, establish a maintenance schedule to continue to water and fertilize seeded areas to promote establishment. The maintenance activities should continue through a minimum of one growing season; however, it is preferable to complete the monitoring through two growing seasons.
- When tilling, till only in the weed patch so roots and seeds do not spread. Always clean equipment and machinery on site after working in a weed patch to prevent spread.
- In areas that are routinely mowed, set mowing schedules in such a manner as to mow the weeds before they go to seed, and schedule subsequent mowings often enough to prevent seed production.

No significant impacts are anticipated from invasive plants.

4.2.1.2 Wildlife

Noise rather than the sight of machines appears to cause disturbance to wildlife. The combination of increased noise levels and human activity would likely cause temporary displacement of some animals that forage, feed, nest, or have dens within a 15-meter radius (or greater for more sensitive species) of noise sources. Direct mortality of slow-moving or nesting animals could occur because of project actions (*e.g.*, excavation of burrows or removal of nests during clearing and grubbing, etc.). Driving speeds would be limited to allow wildlife to vacate the area to ensure their safety, as well as that of personnel.

In order to avoid attracting wildlife to the work site, the contractor would keep the construction area, including storage areas, free from accumulation of waste materials or rubbish at all times. All waste materials, except indicated salvaged items with ACM, generated by the construction would be hauled off at the end of each workday and disposed. Upon completion of the demolition, the contractor would leave the work site in a clean and neat condition, satisfactory to the Contracting Officer.

No significant impacts are anticipated to occur to wildlife.

4.2.1.3 Floodplains and Wetlands

State-jurisdictional wetlands as defined in F.A.C. 62-340 and Waters of the U.S. as defined in 33 CFR 328.1 would not be filled or otherwise disturbed by project activities. In accordance with AFI 32-7064, if work activities occur adjacent to wetlands, delineation would be performed prior to project activities to determine the boundaries of jurisdictional waters/wetlands as they can differ from those identified on the NWI map.

The SMARF and VIB areas are located with 100-year floodplains. However, no new construction would be occurring in these locations. Erosion control BMPs would be used to minimize impacts from demolition activities in these areas, and revegetation would occur upon completion of all demolition activities. The revegetation would promote the return of the area to its natural state. No significant impacts are anticipated to occur to floodplains and wetlands.

4.2.1.4 Threatened and Endangered Species and Species of Special Concern

The following T&E species and SSC have the potential to occur within or adjacent to the Proposed Action areas: sea turtles, gopher tortoise, Eastern indigo snake, Florida scrub jay, Curtiss' milkweed, sand dune spurge, nodding pinweed and several migratory birds (see Chapter 3). The AF has consulted with the USFWS for potential impacts to migratory birds, scrub jays, beach mice and indigo snakes from Proposed Action activities, and no formal consultation is required (Appendix D). No significant impacts are anticipated to occur to T&E species and SSC.

Sea Turtles

SLC 40 has been a contributing light source for sea turtle disorientation on beaches adjacent to the Complex. Nesting and hatchling sea turtles would benefit from the Proposed Action, since deactivation and demolition would result in less exterior lighting, which would reduce disorientation.

Gopher Tortoise and Eastern Indigo Snake

Gopher tortoise habitat is mapped in all upland areas of the Complex. Indigo snakes are associated with gopher tortoises because they often use their burrows as refuges, possibly from temperature, desiccation, and predators.

When activities are scheduled near tortoise habitat, but individual burrows would not be disturbed, natural resource personnel will stake off the area that must be avoided and provide tortoise informational posters.

When activities are likely to disturb gopher tortoise burrows, CCAFS biologists will relocate tortoises to other suitable areas on CCAFS. Biologists would move tortoises no more than one to two days prior to clearing so that tortoises can be moved back close to their original area. All tortoise relocation will be completed in accordance with the Gopher Tortoise Relocation Permit (WR01103), issued to the AF. This permit, which was renewed 5 May 2004, allows natural resource managers to relocate up to 150 tortoises during a three-year period. Trapping is conducted by experienced personnel and in accordance with required State permits for these types of activities. Although rare, tortoises have been injured or killed during backhoe operations. If a tortoise is injured during relocation activities, it will be transported immediately to a licensed local wildlife rehabilitator or veterinarian experienced in treating injured tortoises. If injured or killed, the Florida Fish and Wildlife Conservation Commission (FFWCC) will be notified immediately. Tortoises held overnight will be kept isolated from one another to prevent the spread of Upper Respiratory Tract Disease. Blood sampling will be conducted by experienced biologists and in accordance with FFWCC guidelines. Animals will be handled briefly and gently to reduce harm or stress to the animal. The USAF is required to submit a report for each relocation project.

Most indigo snakes leave construction areas once activities begin and any encountered are to be left alone and permitted to leave the area. The only time indigo snakes may be relocated is during relocation of gopher tortoises. In accordance with the USAF Gopher Tortoise Relocation Permit, no more than one indigo snake encountered may be relocated. Should additional specimens of this species be encountered, the capture operation is suspended and the FFWCC Office in Tallahassee contacted for instructions.

Florida Scrub Jay

Scrub jay habitat is mapped adjacent to SLC-40. The USFWS considers CCAFS a core scrub jay area and highly valuable to the recovery of the species, regardless of the scrub condition. Although not anticipated, permanent removal of scrub jay habitat would require compensation at a rate of 4:1 (four acres restored for every acre destroyed). If permitted to re-grow, compensation would not be required.

Migratory Birds

Migratory bird species have been known to nest on the MST and UT in the past. If demolition activities were to occur during their nesting season, the AF would perform a survey to ensure no migratory birds are nesting on the structures. Any eggs/young would be removed and transported to the Maitland Bird of Prey Center. Additionally, ospreys nest in high densities in the ITL area and it is possible impacts could be considerable if enough structures are removed. Alternative nesting platforms may be required for any nests that

require removal. Because it would be impossible to schedule project activities outside the nesting seasons of all species, some direct mortality may occur.

Natural resource managers performing migratory bird nest/egg removal are permitted under Federal Fish and Wildlife Depredation Permit MB841530-0. Transportation of live birds or eggs will be conducted in a manner that reduces harm or stress to the animal or egg involved. Due to the number of migratory birds that are known to nest in and adjacent to the area, consultation with the USFWS has occurred. No formal consultation was required by the USFWS.

Sensitive Plants

Several State-listed T&E plants (sensitive plants) could be present in the open areas of the Proposed Action sites where mowed and maintained areas transition into native vegetation communities. The AF is not planning to perform surveys for State-listed plant species that may occur in the Proposed Action area. However, these species will be protected when practicable, per AFI 32-7064, Section 7.1.2. (Pers. Comm., A. Chambers, 2004)

4.2.2 No Action Alternative

Under the No Action Alternative, impacts would not occur to biological resources during the safe and secure phase. Routine mowing and vegetation control measures would continue as is currently performed.

4.3 Cultural Resources

Federal and AF regulations require that the 45SW take into consideration the impact of its activities on cultural resources that have been determined to be or are considered eligible for listing on the NRHP.

Cultural Resources Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
NHPA	Consultation with Florida SHPO regarding potential effects to listed or eligible historic properties on the NRHP.	Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the SHPO a reasonable opportunity to comment.	SHPO

4.3.1 Proposed Action

SLC-40 is not considered an historic complex and there are no historic properties located in the immediate vicinity. All Titan pads associated with Cold War activities are associated with SLC-19, a National Historic Landmark. Because SLC-40 was significantly modified for the Titan IV, it is not considered historic. Florida SHPO has concurred with this determination.

There are no known archaeological sites located either within the Complex boundary or near SLC-40. However, all contractors and government personnel should work together to preserve historic artifact and document aspects of Titan that provide historical insight of the Titan programs. The type of documents that might contain such relevant information include briefings, reports, correspondence, directives, training documents, reviews and status papers, news releases, and photographs.

No archaeological survey, despite an intense effort and excellent research sampling strategy, precludes the possibility that an archaeological site may be discovered during project activities. Federal cultural resource preservation statutes mandate that if artifacts become apparent during Proposed Action activities, such artifacts should be identified and evaluated by an archaeologist. Should human remains be encountered, Federal statutes specify that work shall cease immediately and the proper authorities be notified (Federal Register, Rules and Regulations, Dec. 4, 1995, Vol. 60, No. 232:62161, Section 10.5). No impacts are anticipated to cultural resources from the Proposed Action.

4.3.2 No Action Alternative

No impact to cultural resources is anticipated as a result of the No Action Alternative.

4.4 Geology, Soils, and Water Resources

Air Force Instruction 32-7041, *Water Quality Compliance*, identifies essential AF actions to achieve and maintain compliance with the Clean Water Act, and other applicable Federal, State, and local water quality standards. It requires adherence to applicable State and local water quality standards when they are more stringent than Federal standards.

Geology, Soils, and Water Resources Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
AFI 32-7064	Assess action to minimize impacts to wetlands	Manage Air Force (AF) lands with the goal of no net loss of wetlands.	Army Corps of Engineers
CWA, Section 402*	Section 402 national pollutant discharge elimination system (NPDES) industrial permit*	Closeout existing permits when changes in operation occur.	EPA; FDEP, SJRWMD

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Executive Orders (EOs) 11988 and 11990, Floodplain Management and Protection of Wetlands	Finding of No Practicable Alternative if wetlands or floodplains would be impacted	Minimize the destruction, loss or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands. Reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains. Consider alternatives to avoid adverse effects in floodplains. If the only practicable alternative requires siting in a floodplain, design or modify action to minimize potential harm to or within the floodplain	DoD
Petroleum Contamination Site Cleanup Criteria Rule and Contaminant Cleanup Criteria (Chapter 62-770 and 62-777, FAC)	Follow risk-based corrective action process.	Identify, handle, cleanup and remove petroleum contaminated soils.	FDEP, EPA
Joint-Base Operations Support Contract (J-BOSC) Excavation/ Dig Permit Procedure"	Utility Locate/Excavation Permit	Any excavation activity	Space Gateway Support (SGS) Mission Support, Excavation Administrator

4.4.1 Proposed Action

4.4.1.1 Geology

Project activities would not change the physiography of the region, nor would it impact any unique geologic features or geologic features of unusual scientific value. No impacts to geology are anticipated.

4.4.1.2 Soils

Because many of the areas of soil within SLC-40 are contaminated with PCB, the 45SW will be responsible for removing contaminated soil. Soil suspected of contamination will be tested and removed if contaminants are found. New soil will then be delivered to the site prior to area restoration. Following the completion of the soil removal, site soils will be safe

for an industrial environment; however PCBs will still be present at concentrations between residential and industrial levels. Continued maintenance of the LUCs will be required due to the remaining contaminant levels.

It is estimated that 7,241 tons of soil will be excavated and disposed of at an industrial landfill as part of the remediation effort. An additional 5,564 tons of PCB-contaminated soils will exceed the 50-ppm TSCA threshold and require disposal at a TSCA-approved facility.

Any excavated materials would be stockpiled at least two feet from the edge of the excavation to a depth not exceeding 8 feet, and would be protected from erosion. The stockpiled topsoil would be marked or barricaded to identify the potential hazard.

Prior to any digging, an Excavation Permit would be required. The foundation walls, footings, pile foundations, etc., would be removed to a minimum of six feet below finished grade from demolished buildings. Concrete slabs would be removed to grade. At a minimum, topsoil would be replaced in excavated areas and the area reseeded. Suitable topsoil would be a friable clay loam surface soil suitable for use in grass planting. Common seed mixtures that may be used include common Argentine Bahia Grass, Annual Rye Grass, and common Bermuda. Mulching material may include oat or wheat straw, hay, or chopped cornstalks. The reseeded area would be maintained and watered for a minimum of 60 days.

No significant impacts are anticipated to soil resources.

4.4.1.3 Water Resources

Surface Waters

The potential for soil erosion and transport of sediment into surface waters exists when soils are disturbed. Prior to and during project activities, erosion and sediment control measures, such as the installation of silt fencing around disturbed areas, would be implemented to retain sediment on-site and prevent violations of State and Federal water quality standards. No direct surface water discharges would be permitted during project activities.

It is anticipated that an Environmental Resource Permit will be required from the SJRWMD for the Proposed Action. A permit must be obtained for any stormwater management system, dam, impoundment, reservoir, appurtenant work(s), which exceed the thresholds listed in Section 3.3. of the Applicant's Handbook. Such permit to be obtained as: (b) Authorization to alter prior to alteration of an existing system; (e) Authorization to abandon prior to the abandonment of an existing system; (f) Authorization to remove prior to removal of an existing system. During the permit application review process, the AF would be required to demonstrate direct and secondary impacts to wetlands and wildlife have been avoided or minimized. Unavoidable impacts would require mitigation in accordance with the Unified Mitigation Assessment Method found in Chapter 62-435, F.A.C. Compliance with the environmental review criteria in Chapter 12 of the Applicant's Handbook would also be required.

The following BMPs that are identified in the CCAFS Stormwater Pollution Prevention Plan (SWP3) would continue to be followed through the end of the demolition process to safeguard water resources.

- *Good Housekeeping* - Good housekeeping would continue to be implemented. The facilities are to be kept clean and free from trash and debris.

- *Preventive Maintenance* – Existing hazardous materials and waste would be removed as part of the "safe and secure process" to eliminate the potential for accidents to occur during the demolition process.

- *Spill Prevention and Response* - Cape Canaveral has two plans that address spill prevention and response procedures: the Spill Prevention Control and Countermeasures Plan, and the 45SW Hazardous Material Response Plan (OPLAN 32-3). Project personnel would be familiar with spill prevention and response procedures in order to be prepared for accident response.

- *Erosion and Sedimentation Control* – Where possible, vegetative cover sufficient to control erosion would continue to be maintained. Splash pads would continue to be provided at down spouts. Use of flumes would further reduce erosion.

- *Management of Runoff* - Most impervious areas drain to vegetated swales prior to off-site discharge. Stormwater runoff is generally directed away from material storage areas. Valves at major stormwater outfalls would continue to provide additional protection against off-site release of spills or leaks.

- *Recordkeeping and Reporting* - As part of the implementation of the overall SWP3, recordkeeping and reporting would continue to be performed. Comprehensive records for spills, stormwater monitoring, site inspections, and stormwater outfall inspections would be maintained for work activities.

Measures contained in the existing industrial National Pollutant Discharge Elimination System (NPDES) permit (05-FLA010302) would be followed. This permit expires on May 30, 2005 and would need to be extended if project activities are not completed by this date. After completion of project activities, these permits would need to be properly closed out. A stormwater NPDES permit would be required if land disturbances are at least one acre.

No significant impacts to surface waters are anticipated from Proposed Action activities.

Groundwater

Demolition activities can affect groundwater quality by leaching contaminants from surface or subsurface features. The use of the explosive ammonium nitrate and fuel oil would result in some residual nitrogen that could enter groundwater. The nitrates in the explosive are typical of those found in fertilizers but in lower concentrations than those typically used in agriculture. During the explosion, the ammonium nitrate powder in the explosive would be converted to NO_x, the majority of which would be vented into the air, eventually becoming nitrogen gas (N_2). A full, complete detonation vaporizes the explosive almost entirely to gas with ammonia, NO_x, CO, and dust as pollutants. The expansion of this volume of gas provides the energy to perform the work of the explosion. Full detonation combusts all but a minuscule amount of trace residues of the original explosive. Some of the residual free nitrogen can penetrate the pore space of adjacent rocks or soil, eventually being converted to nitrates; however, no significant impact to groundwater resources is anticipated from the Proposed Action.

4.4.2 No Action Alternative

Under the No Action Alternative, no significant impacts would be anticipated since Best Management Practices (BMPs) would continue to be used to mitigate potential impacts to water resources. Applicable permits would be maintained as long as outfall points exist.

4.5 Hazardous Materials and Hazardous Waste

Air Force Instruction 32-7042, *Solid and Hazardous Waste Compliance*, identifies compliance requirements for all solid and hazardous wastes, except radioactive waste.

Hazardous Materials & Hazardous Waste Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
FAC Chapter 62-257, Asbestos Program and 40 CFR Part 61, Subpart M, NESHAP for Asbestos	Remove asbestos prior to demolition activities and notify FDEP 10 working days prior to the start of demolition of all load-bearing structures. Coordinate asbestos removal with the Asbestos Recovery Team and comply with Asbestos Management Plan.	Prevent the release of significant amounts of asbestos fibers to the outside air during demolition activities, which present a risk to human health.	45SW, FDEP and USEPA
Petroleum Contamination Site Cleanup Criteria Rule and Contaminant Cleanup Criteria (Chapter 62-770 and 62-777, FAC)	Follow risk-based corrective action process.	Identify, handle, cleanup and remove petroleum contaminated soils.	FDEP, EPA
Underground Storage Tanks (USTs) (Chapter 62-761, FAC) and Aboveground Storage Tanks (ASTs) (Chapter 62-762, FAC)	Prior to the removal of regulated fuel storage systems, FDEP must be notified. Tank registration form must be completed and sent to FDEP after removal.	Properly manage the removal of USTs and ASTs.	FDEP

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Waste Petroleum Products and Hazardous Waste Management (OPLAN 19-14)	Consult with OPLAN 19-14 for disposal/recycling procedures for florescent, high intensity discharge, and low-pressure sodium lamps, and lithium, mercury, ni-cad and low-acid storage batteries. Also consult Plan for lead based paint removal and disposal requirements.	Properly dispose of hazardous/universal wastes.	Environmental Flight, 45SW
PCB Items Control Plan (OPLAN 19-16)	Light ballasts not labeled "No PCBs" and equipment containing dielectric fluid with ≥ 50 parts per million must be handled and disposed of in accordance with 40 CFR 761 and OPLAN 19-16.	Identify, handle, and properly dispose of PCB-containing items.	Environmental Flight, 45SW

4.5.1 Proposed Action

4.5.1.1 Hazardous Materials

All AF, Federal, State, and local statutes, rules, regulations and policies pertaining to the handling, treatment, and disposal of any hazardous wastes and/or materials used or discovered during Proposed Action activities would be followed. Personnel implementing the Proposed Action activities would be trained in accordance with 29 CFR, including the Hazardous Communication Program, and in accordance with 40 CFR, requiring all personnel responsible for managing hazardous waste to have Hazardous Waste Management training.

Hazardous materials/wastes such as asbestos, PCBs, radiological contamination, mercury, and freon would be removed prior to performing general demolition. The selected demolition contractor would be required to develop a Hazardous Material Management Plan to address the management and storage of hazardous materials. The plan will include a list of all hazardous materials to be used or encountered on the project such as asbestos, surfactants, solvents, coatings, and encapsulants. Hazardous materials and petroleum product containers used during the Proposed Action would be stored on an impervious surface with containment. Incompatible materials would be segregated and have separate containment systems. (AFCEE, 2004)

No significant impacts to hazardous materials are anticipated.

Asbestos

When identified ACM may be disturbed during demolition activities, AF policy (AFI 32-1052, *Facility Asbestos Management*) is to remove the material. Before a site can be considered environmentally safe for a real estate transaction (STET), prior to demolition, all identified

ACM must be removed, the site must be approved, and the asbestos waste disposed of in an approved landfill. Only licensed asbestos contractors may remove ACM.

A qualified and licensed asbestos inspector will perform a written asbestos survey prior to demolition. The selected demolition contractor will be required to submit an asbestos abatement plan. This plan will describe each ACM, NESHAP classification (friable, Category I non-friable, Category II non-friable), and the quantity to be removed. OSHA abatement classification (I, II, III or IV) will be used to determine the level of engineering controls and work practices required. A disposal plan for ACM will be developed that identifies waste containerization methods and load out procedures, site storage, and disposal site offloading methods. All ACM waste would be sealed in leaktight disposal containers with appropriate labels per 40 CFR 171 and 49 CFR 172.

4.5.1.2 Hazardous Wastes

Hazardous wastes would be managed in accordance with 40 CFR 262, F.A.C. 62-730, and OPLANs 19-14 and 19-16. Hazardous wastes would be accumulated in an enclosed, lockable storage container. Hazardous materials would not be stored in the same location as hazardous waste. Any spill or fires causing release of any chemical into the environment, including air emissions, would be immediately reported by dialing 911.

Personnel implementing Proposed Action activities would be trained in accordance with OSHA's "Hazardous Waste Operations and Emergency Response (HAZWOPER)" standard (29 CFR 1910.120), in order to safely handle hazardous wastes. No significant impacts to hazardous wastes are anticipated.

Universal Wastes

Fluorescent lamps and silent wall switches containing mercury shall be managed and disposed of as universal wastes in accordance with Federal and State laws, AF regulations, and policies. The selected demolition contractor would ensure fluorescent lamps are carefully handled to minimize breakage and packaged for recycling. Disposal of fluorescent lamps, high intensity discharge (HID) lamps, and low-pressure sodium lamps must be in accordance with OPLAN 19-14. These lamps would be delivered to the universal waste site at Facility 1708. Mercury switches would also be delivered to Facility 1708. Each switch is required to be double bagged and sealed.

Ballasts containing PCBs would be collected by the contractor in a container meeting DOT's performance oriented packaging requirements (UN1A2). The container must be properly marked with a PCB label. The ballasts would be delivered to and off-loaded at facility 44200 on CCAFS.

The disposal of all lead-acid storage batteries should be in accordance with all Federal, State, and local laws and OPLAN 19-14. The Defense Reutilization and Marketing Office (DRMO) will accept these batteries and should be contacted for specific turn-in instructions. The disposal of lithium, mercury, and NiCad batteries should be in accordance with all Federal, State, and local laws and OPLAN 19-14.

Lead-Based Paint

Building demolition wastes often include such items as wood trim, siding and other architectural components that may have been painted with LBP. Demolition debris, including metal, wood, and concrete painted with LBP, would be stored in covered containers prior to disposal in a Class I or Class III landfill or a C&D disposal facility. Approval must be received from the landfill prior to disposal. Materials generated during the demolition project that can be vacuumed, swept up, or otherwise easily collected, such as paint chips or dust, should be analyzed utilizing the Toxic Characteristics Leaching Procedure (TCLP) test prior to disposal. If the materials are determined to be hazardous, they must be handled and disposed of as a hazardous waste in accordance with applicable Federal, State, and local regulations. If the materials are deemed non-hazardous, the waste should be disposed of in a Class I landfill. In the event that deconstructed building materials and/or components coated with LBP are subject to resale, recycle or reuse, the presence of LBP shall be communicated to the receiving party(s) of said materials and/or components.

Polychlorinated Biphenyls

As a BMP, the demolition contractor would be informed of the potential for PCBs in various coatings, and provided with available PCB sampling results. On any exposed surface with a coating, no cutting tools (including torches) would be used to dismantle the materials if they contain PCBs above action levels. If any PCB-contaminated items are identified during the demolition process, proper safety precautions would be required for workers.

For disposal of the property, a disclosure statement would be issued noting the potential for PCBs in coatings on buried USTs, piping, and concrete. The disclosure statement would be included as part of the property deed, and would also be retained by the AF to ensure proper future management.

Dielectric fluid samples will be collected on all electrical equipment to determine the PCB concentration in accordance with 40 CFR 761 and OPLAN 19-16. Analyses indicating less than 50 ppm are considered non-PCB-containing equipment. Analyses indicating greater than, or equal to, 50 ppm but less than 500 ppm are considered PCB-contaminated equipment. Equipment whose analyses indicate equal to or greater than 500 ppm is considered to be PCB-containing equipment. Any unmarked electrical item, including lighting fixture ballasts or oil containing equipment, is assumed to be PCB-contaminated if not labeled as non-PCB-containing equipment.

All leaks in PCB-contaminated equipment are to be repaired immediately after they are discovered. If a leak is severe and the item is small enough, the item must be overpacked into a container meeting the DOT's performance oriented packaging requirements (UN1A2). If this is not a viable alternative, all dielectric fluid must be drained from the item. All liquids must be placed in proper DOT containers (UN1A1). Secondary containment must be provided for the equipment when the oil is removed. All containers must be marked with a "Contains PCBs" label and the serial number of the equipment the oil was removed from should be noted on the top of the container(s).

The DRMO will accept non-PCB oil-filled equipment only if it is free of leaks. If the equipment has any leaks, they must be repaired prior to requesting turn-in to DRMO. All leaks would be repaired immediately after they are discovered. If a leak is severe and the item is small enough, the electrical equipment would be overpacked into a container

meeting the DOT's performance oriented packaging requirements (UN1A2). If this is not a viable alternative, the dielectric fluid will be drained from the item. All liquids will be placed in proper DOT containers (UN1A1). Secondary containment should be provided for the equipment when the oil is removed. All containers must be marked with a "Non-PCB" label and the serial number of the equipment the oil was removed from should be noted on the top of the container(s).

Storage Tanks

All storage tanks at the various facilities would be drained of their contents unless specifically needed to sustain operations in a building. Removed materials would be reused or properly disposed of through 45SW. Several of the tanks are regulated systems and proper notification must be made to FDEP prior to being placed out-of-service. As a BMP, it is recommended that all of the petroleum storage tanks be removed. All notifications must be coordinated with the Environmental Support Contract (ESC) Office or with CEV. All inspection records for fuel storage tanks should be turned-over to the AF.

The following tanks would require "out of service" FDEP paperwork: 47115-3, 70000-4, 70520-4, and 70500D-2. Since these tanks are vaulted and have built in containment, no soil/water sampling is required unless there is a spill to grade from the overhead piping or from a breach in the vault/tank. These tanks would not be reused at the current location and must be removed within 90 days of not being used. All double-walled ASTs would be retained by the AF and either relocated to a new location or stored by the AF for future use. The other tanks do not require FDEP notification or paperwork since they are less than 550 gallons capacity and are unregulated fuel storage systems. They do not require soil/water sampling unless a spill has occurred.

4.5.1.3 Installation Restoration Program

The PCB contaminated soil at SLC-40 will be addressed prior to commencement of demolition activities, and would adhere to Federal regulations and Florida Administrative Code 62-770. Coordination with IRP personnel would occur prior to any activities in order to minimize impacts to remediation activities. Measures should be taken to ensure worker safety during remediation if demolition activities are occurring simultaneously with clean-up activities. Compliance with all applicable Federal, State, local, and Air Force regulations regarding the use, storage, handling, and disposal of hazardous substances would reduce the potential for impacts.

4.5.1.4 Pollution Prevention

The deactivation of the Titan program would eliminate the need for approximately 39,000 lbs of hazardous materials that are used in the launch of the Titan IVB, and approximately 36,000 lbs of hazardous waste generated per launch of the Titan IVB. (EELV FEIS) This reduction in hazardous materials and waste would contribute toward the AF pollution prevention goals requiring CCAFS to reduce hazardous waste disposal by 50 percent from their 1992 baseline.

It is anticipated that a large quantity of the debris generated from the Proposed Action would be recycled or salvageable. Recycling or salvaging of this material would further contribute to pollution prevention goals.

A pollution prevention environmental analysis should be performed early in the design phase of the demolition project to develop a design that results in the lowest feasible level of environmental impact and liability. The analysis should focus on potential pollution that may result from the Proposed Action, and must make recommendations that promote pollution prevention measures whenever feasible. Where pollution cannot be prevented, recycling, energy recovery, treatment, and environmentally safe waste disposal practices should be implemented.

4.5.2 No Action Alternative

As part of the safe and securing process, hazardous materials and waste would be removed in accordance with applicable regulations. No significant impacts would occur to the environment from this action.

4.6 Health and Safety

AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program,* provides guidance for maintaining health and safety during Proposed Action activities.

Health and Safety Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Safety and Health Regulations for Construction, including Subpart T "Demolition", 29 CFR 1926	Various	Protect health and safety of workers	OSHA

4.6.1 Proposed Action

In accordance with the Air Force Occupational Safety and Health (AFOSH) Standards, contractors must submit a safety plan and are responsible for all aspects of the safety and health of their employees. Safety plans must conform to 29 CFR Parts 1910 (Occupational Safety and Health Standards) and 1926 (Safety and Health Regulations for Construction). Details on working in confined spaces must be included in the safety plan. Explosive or mechanical demolition of facilities can present a danger to the health and safety of workers. Contractors doing such work would be required to provide a background of their past experience, and must be licensed and bonded. Blasting plans, worker protection plans, and contingency plans must be developed and followed.

Prior to any demolition activities, the 45SW would ensure that all propellant systems on SLC-40 were properly decontaminated in order to prevent inadvertent exposure of personnel to hypergolic propellant vapors.

All demolition work would be performed in accordance with the National Association of Demolition Subcontractors Demolition Safety Manual except where regulatory or 45SW-specific requirements are more stringent. The selected demolition contractor will develop a Health and Safety Program identifying a project specific Health and Safety Plan and Activity

Hazard Analyses (AHA) related to the Proposed Action. The AHA will define the work activities to be executed during the demolition phase of the project, identify the associated hazards that could adversely affect health, safety, or environment; and define specific actions to eliminate or minimize the risks involved. The AHA will address permit requirements, training requirements, engineering and administrative controls, and Personal Protective Equipment (PPE) requirements. The AHA will be revised when work activities, work practices, or site conditions change to the extent that different or additional hazards may be present. Personnel could be exposed to LBP, ACM, PCBs and other hazardous materials and waste. Life saving equipment and PPE would be provided to personnel in accordance with 29 CFR 1926—Subpart E.

Some structures and facilities are known or suspected to contain LBP. If paint coatings are present, the coatings should be analyzed for hazardous material content, to include lead, cadmium, and chromium. If these materials are present, personnel must comply with the requirements established in OSHA standards 29 CFR 1926.62 for lead in construction and 29 CFR 1926.1127 for cadmium in construction. It is recommended that the same requirements established in the lead OSHA standard be followed if cadmium is present. If LBP is identified, it would be left in place to avoid exposure to workers. Post-demolition analysis for these metals would determine whether this demolition debris would be handled as hazardous or non-hazardous waste.

No significant impacts to health and safety are anticipated to occur from Proposed Action activities.

4.6.2 No Action Alternative

Under the No Action Alternative, facilities associated with the Titan program would be rendered safe and secure. No impacts are anticipated from this alternative.

4.7 Infrastructure and Transportation

Air Force Instruction 32-7042, *Solid and Hazardous Waste Compliance*, identifies compliance requirements for all solid and hazardous waste, except radioactive waste. Table 4-7 identifies other regulatory requirements for maintaining compliance with infrastructure and transportation resources.

Infrastructure and Transportation Regulatory Requirements

Law or Rule	Permit/Action(s)	Requirement	Agency or Organization
Joint-Base Operations Support Contract (J-BOSC) Excavation/Dig Permit Procedure"	Utility Locate/Excavation Permit	Any excavation activity	Space Gateway Support (SGS) Mission Support, Excavation Administrator

4.7.1 Proposed Action

Utilities

All existing utilities serving buildings and structures to be demolished will be located and sealed or capped off. Prior to demolition, these buildings will be in a "safe and secure"

state. All pipes or conduits would be cut off flush with concrete or earth surface. The remaining portion of the pipe or conduit would be capped, plugged and sealed. Any openings would be filled to the level of the surrounding surface elevation to eliminate trip hazards. Aerial utilities would be disconnected and removed to the source. All exterior mechanical/electrical equipment and associated foundations would be removed.

Utility structures and lines would be appropriately identified prior to any excavation. Should unidentified underground utilities be encountered during excavation, operations would be stopped until all utilities are properly identified. (AFCEE, 2004)

Utility outages would be expected, and anticipated outages are required to be requested a minimum of fourteen days prior to desired outage. Outages would be limited to a four hour maximum at any one time, unless otherwise approved by the AF due to unusual circumstances. Existing utility service interruptions should be scheduled when there is minimum demand on the utility. (AFCEE, 2004)

Coordination with NASA must occur for abandonment of any utilities shared with them (*i.e.* Pump Station 7).

Transportation

Any roads, streets and paved parking areas that require surface cutting would be repaired within ten days after the initial cutting. Any areas that may present a traffic hazard would be identified per 29 CFR 1910 and 29 CFR 1926. Any street closures would be coordinated with the 45SW. (AFCEE, 2004)

The method of transportation for removal of waste and recyclable material will incorporate lessons learned from the demolition of Complex 41. During the demolition of Complex 41, project debris was removed from the site via tractor-trailer over the roads of CCAFS requiring hundreds of trucks, with very full loads, leading to an erosion of roadways over the path of travel from Complex 41 to outside the south gate near the Port. Many of these roads needed to be repaired once demolition was complete. Thus alternate routes and methods (rail and barge) are being evaluated to alleviate the impacts to the roadways.

Removal by rail would provide the most direct, non-intrusive, cost-effective, and efficient way to remove the scrap material from the Proposed Action area.

Solid Waste Disposal and Recycling

The selected demolition contractor would develop a Waste Management and Transportation Plan detailing the processes, procedures, and methods that will be used to ensure compliant and safe management and transportation of waste. All wastes generated by the contractor shall be managed in accordance with all Federal, State, local, and Installation regulations and directives. Contractors involved in waste disposal would complete the Waste Questionnaire/Technical Response Package process for waste characterization and waste would be disposed of through the processes outlined in OPLAN 19-14.

All materials, equipment, and metals identified as potentially salvageable would be staged for possible recycling or reuse. The majority of the demolition debris generated under the Proposed Action would consist of concrete. When possible, the concrete would be crushed and reused for on-site structural fill or riprap. The remainder of the construction material

consisting of wood, copper, and structural steel would be recycled to the maximum extent possible. Recycling of this material would further contribute to pollution prevention goals. The remaining sheet rock, roofing materials, and other trash would be disposed of in existing sanitary landfills permitted to accept such waste. Removal by rail would provide the most direct, non-intrusive, cost-effective, and efficient method of scrap metal removal from the Proposed Action area, and therefore would be utilized wherever possible. Tree remains, trees, and other vegetative matter are prohibited from disposal in the C&D landfill at CCAFS.

With AF approval, the selected demolition contractor may use the CCAFS landfill for disposal of CCAFS construction, demolition, and asbestos waste per the conditions of the FDEP permit. Use of the CCAFS landfill is mandatory for ACM disposal. Concrete would be separated from other C&D debris, since concrete is disposed of at the landfill in separate cells. Concrete would be no larger than thirty-six (36) Inches in any direction with no more than eighteen (18) inches of protruding rebar. Road demolition debris such as asphalt millings and chunks, and lime rock would also be accepted. The selected demolition contractor would be required to complete the CCAFS Construction and Demolition Debris Landfill Disposal Verification Form if the AF has granted permission for disposal of this debris in the CCAFS landfill.

The 45SW-CES/CEVC must approve disposal of any wastes or materials into the sewage treatment system.

Funding and time constraints may limit the ability to dismantle, store, and market whole subsystems and components from SLC-40 for reuse. In effect, these subsystems will be salvaged for their scrap metal value only. The remainder of the infrastructure will be demolished, generating considerable waste streams.

No significant impacts are anticipated to occur.

4.7.2 No Action Alternative

Under the No Action Alternative, buildings would be rendered safe and secure. No changes to existing roadways would occur. As a result, a decrease in the consumption of electricity and potable water, and a decrease in the generation of the solid waste and wastewater for CCAFS would occur. However, the facilities would continue to require some maintenance and security. No significant impacts would be anticipated.

4.8 Land Use and Zoning

4.8.1 Proposed Action

The 45SW's fiscal year 2000 goals identified in the *Cape Canaveral Spaceport Master Plan* emphasized the objective of enhancing operations to better serve customers by providing reliable, expert, cost-effective, launch operations through maintaining launch operations support infrastructure. Demolition of SLC-40 would make the land available for the construction of a new launch complex, other industrial uses, or for restoration to its native condition.

Long-term land use impacts are not expected to be significant. Demolition activities would occur within the boundary of SLC-40, the SMARF Area, and the VIB area. Land Use

Controls are already in place in these areas, and the Proposed Action would not impact them. No significant impacts are anticipated to occur.

4.8.2 No Action Alternative

Under the No Action Alternative, no impacts would occur because current land use would not be affected. However, 45SW Instruction 32-1007, *Building Space Assignment—Cape Canaveral AS and Florida Annexes,* requires building space to be effectively and efficiently utilized since under-use or inefficient use of space wastes money. Vacant buildings would not be in compliance with this Instruction.

4.9 Noise

4.9.1 Proposed Action

Impacts on the environment would be related to the magnitude of noise caused primarily from the demolition activities (blast noise), and from vehicle and equipment use. Blast noise could cause a slight annoyance to nearby personnel, rattle windows and walls slightly, and momentarily startle wildlife. Because of the longer duration, mechanical demolition would be more annoying to nearby personnel and wildlife than explosive demolition.

Noise impacts from the operation of construction equipment are usually limited to a distance of 1,000 feet or less. Noise levels outside this perimeter would generally attenuate below 65 dBA, which is the level generally considered a threshold criterion for significance. Most construction noise would attenuate to less than 75 dBA at about 200 feet from the construction activity. The 65-dBA noise level approximates the division between a quiet and moderate sound level. If construction equipment with a noise level of 88 dBA were operated near sensitive receptors, the sound would generally attenuate to below 65 dBA approximately 800 feet from the construction activity. There are no sensitive receptors in the vicinity.

In accordance with 29 CFR 1910, protection against the effects of noise exposure would be provided when the sound levels exceed those shown in Table 4-2 when measured on the A scale of a standard sound level meter at slow response. When employees are subjected to sound, exceeding those listed in Table 4-2, feasible administrative or engineering controls would be utilized. If such controls fail to reduce sound levels within the levels of Table 4-1, personal protective equipment would be provided and used to reduce sound levels within the levels of the table. If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous. No significant impacts are anticipated.

Table 4-1: Permissible Noise Exposures

Duration Per Day (Hours)	Slow Response Sound Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

4.9.2 No Action Alternative

Under the No Action Alternative, rendering safe and secure would not produce appreciable amounts of noise. No impacts are anticipated.

4.10 Socioeconomics

4.10.1 Proposed Action

A slight increase in the demand for local construction labor and environmental remediation experts would result by implementing the Proposed Action. The demand for demolition and transportation equipment would also increase during demolition activities. No significant impact is anticipated.

4.10.2 No Action Alternative

Under the No Action Alternative, current Titan employees would be required to locate employment elsewhere as in the Proposed Action. However, temporary jobs would not be created because no buildings would be demolished. Also, additional revenue would not be created from the recycling of building materials. No significant impact is anticipated.

4.11 Conflicts with Federal, State, or Local Land Use Plans, Policies, and Controls

The Proposed Action does not conflict with Federal, regional, State, or local land use plans, policies, or controls. The Proposed Action complies with Chapter 2 of AFI 32-9004, *Disposal of Real Property*, which requires installation commanders to dispose of any unneeded or deteriorated buildings on excess land if such buildings meet one or more of the following conditions:

- deterioration is beyond the point of economical repair;
- interferes with a site approved for construction;
- dangerous to people, likely to damage adjoining structures, or creates a nuisance;
- requires more than normal maintenance and its disposal will not create a deficiency; and
- design is obsolete and it cannot be reasonably altered or economically used.

4.12 Energy Requirements and Conservation Potential

The level or energy required to support the Proposed Action would not be significantly greater than that utilized by the USAF and contractors to carry out current activities. Existing energy sources are considered adequate to meet the requirements of the Proposed Action.

4.13 Natural or Depletable Resource Requirements and Conservation Potential

Diesel and unleaded fuels and engine oil would be required to power project equipment. Other than the use of vehicle fuels for project activities, the Proposed Action requires no significant use of natural or depletable resources. Conversely, it is anticipated that 50% of the demolition material will be recycled or reused.

4.14 Irreversible or Irretrievable Commitment of Resources

Although the Proposed Action would result in some irreversible and irretrievable commitment of resources such as fuel and labor, this commitment of resources is not significantly different from that necessary to support current mission activities taking place on 45SW-managed lands.

4.15 Adverse Environmental Effects that Cannot be Avoided

Adverse environmental effects that cannot be avoided include temporary, intermittent emissions of fugitive dust and exhaust products; temporary displacement of wildlife during demolition due to noise and project activities; and some sediment runoff into waterbodies. However, through implementation of the mitigation measures described within this document, these effects would be reduced to a less than significant level.

4.16 Relationship Between Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

The Proposed Action would eliminate unneeded facilities and infrastructure on CCAFS and would not eliminate any options for future use of the area. The Proposed Action would be undertaken in accordance with the *CCAFS General Plan* (USAF, 2002) that provides a management tool to aid in making operational support decisions by incorporating the concept of comprehensive planning.

4.17 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. Environmental Justice analysis need be applied only to adverse environmental impacts (USAF, 1997). Based on preliminary guidance provided by the Federal Interagency Working Group on Environmental Justice, adverse may be defined as "having a deleterious effect on human health or the environment that is significant, unacceptable, or above generally accepted norms." Adverse human health effects include bodily impairment, infirmity, illness, or death. Adverse environmental effects may include ecological, cultural, human health, economic, or social impacts when interrelated to impacts on the natural or physical environment. The Proposed Action areas are not located adjacent to minority populations or low-Income population centers, and indirect impacts to such communities located in the surrounding

areas were not identified during the analysis of the Proposed Action. Therefore, the Proposed Action would not result in disproportionately high or adverse human health or environmental effects on minority or low-income populations.

5.0 CONCLUSION

All issues raised during the scope of this NEPA process have been identified within this assessment, and there were no environmental issues identified that would require the preparation of an Environmental Impact Statement. However, less than significant impacts to the environment were identified for the Proposed Action to render the facilities safe and secure and demolish unneeded facilities. Beneficial impacts would be anticipated to biological resources and land use by utilizing good management practices and planning.

Under the No Action Alternative, facilities would be rendered safe and secure but left in place. Utilization of the area would preclude new construction or development of wildlife habitat. In addition, hazardous materials known or suspected to exist in the buildings such as ACM and LBP would, over time, deteriorate increasing the risk of exposure.

A "cumulative impact" is an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time. Cumulative impacts were identified for biological resources, hazardous materials and waste, and infrastructure, specifically solid waste. Beneficial cumulative impacts to the natural environment could result by implementing the Proposed Action. After facilities are demolished and removed, SLC-40 would be revegetated with grass and possibly allowed to return to its natural state, which would result in the creation of habitat for wildlife.

Mitigation is defined by the CEQ in 40 CFR 1508 as one or more of the following actions related to the protection of the human environment:

- avoiding the impact altogether by not taking a certain action or parts of an action;
- minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or
- compensating for the impact by replacing or providing substitute resources or environments.

The Proposed Action activities are not anticipated to significantly impact any of the identified environmental resources. Therefore, specific mitigation measures are not required. However, Table 5-1 provides a summary of the potential impacts and impact minimization measures for each resource category contained in this document. These measures are generally based upon rules, regulations, and policies with which the AF is required to comply. Implementation of this guidance will contribute to the minimization of any less than significant impacts that were identified herein.

Table 5-1: Environmental Assessment Summary Matrix

Resource Category	Potential/Known Impact(s)	Minimization Measure(s) and Applicable Guidance
Air Quality	Short term impacts to air quality from particulate matter, ammonia, CO, SO_2 and NO_x Potential releases of ACM and ODS	Follow approved Blasting and Safety Plan, Asbestos Management Plan, and properly remove ODS. Periodically water construction sites and restrict vehicle speeds for dust control.
Biological Resources	Direct impacts to native plant communities (uplands and wetlands), T&E animals, and SSC	Survey and identify T&E animals and SSC and native habitats prior to activities. Stake off all areas of avoidance.
Biological Resources	Potential mortality of State-listed plants.	Avoid plants where possible.
Biological Resources	Potential mortality of gopher tortoise and eastern Indigo snake	Avoid where possible and relocate tortoises and snakes in accordance with Gopher Tortoise Relocation Permit.
Biological Resources	Potential disturbance and mortality of birds protected by the MBTA and ESA, including the Florida scrub jay	Where possible, avoid work during nesting season in areas where nests are found or scrub jays are foraging. Relocate nests/eggs in accordance with the Federal Depredation Permit. Avoid impacts to scrub habitat where possible. Replace scrub jay habitat at a rate of 4:1 (four acres restored for every acre destroyed) if permanent removal occurs.
Biological Resources	Spread of invasive species	Follow Invasive Species Management Plan.
Geology, Soils, and Water Resources	Soil erosion and siltation and pollution of surface waters	Obtain and comply with stormwater NPDES permit for activities that disturb 1 acre or more; implement BMPs.
Geology, Soils, and Water Resources	Closeout Industrial NPDES permits	Comply and closeout permits by properly notifying FDEP.
Hazardous Materials/Waste	Disturbance of areas contaminated with hazardous waste resulting in greater dispersal of contaminants	Follow OPLANs 19-14 and 19-16 when working with and disposing of hazardous wastes. Coordinate with IRP Office and use PPE.
Health and Safety	Safety issues regarding handling, transporting, and disposing of hazardous materials and wastes (PCBs, asbestos, fuel, etc.)	Remove asbestos and, if possible, PCB contaminated soils prior to demolition activities.

Infrastructure and Transportation	Potential damage to roadways and underground utilities from heavy equipment Impacts to landfills from demolition debris	Remove scrap metal via rail, reuse nonhazardous debris for fill onsite, and repair roads that are damaged. Recycle metals, concrete, and other materials whenever possible. Obtain dig permit prior to ground disturbance.
Noise	Short-term noise impacts to workers and surrounding personnel	Use administrative or engineering controls and PPE where necessary.

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B.S., Environmental Science, Washington State University, 1995

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B.S., Zoology, Auburn University, 1993

Dan Phillips
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Consulting Environmental Scientist
Ph.D., Aquatic Ecology/Limnology, Auburn University, 1990
M.S., Biology, Jacksonville State University, 1982
B.S., Biology, Jacksonville State University, 1977

7.0 DOCUMENTATION CITED

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Appendix A-Photographic Log

Facility 47112: Fuel Holding Area

Facility 47113: Fuel Holding Pond

Facility 47114: Oxidizer Holding Area

Facility 47119: Gaseous Nitrogen Holding Area Facility

47104: Generator Building

Facility 47109: Ready Building

Facility 47115: Air Conditioning Building

Facility 47120: Supply and Issue Shop

Facility 47138: Storage Building

Facility 70500: Vertical Integration Building

Facility 69800: Solid Motor Assembly and Refurbishment Facility (SMARF)

Facility 69805: SMARF Warehouse

Facility 70650: Railroad Engine Refurbishment Facility

Facility 47105: Launch Stand and Umbilical Tower

Facility 47111: Complex Support Building

Facility 47118: Aerospace Generation Equipment Building

Facility 47121: Mobile Service Tower

Facility 47141: Lightning Suppression System

Facility 40431: Get Away Special Warehouse

Appendix B-- AF Form 813

CONTINUATION SHEET TO REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS
(Contract Closeout and Turnover of Titan Launch Vehicle Capability at CCAFS FL)

4.0 Purpose and Need for Action

4.1 Purpose (Objective) of Mission

The Titan Launch Vehicle (LV) system is being phased out at Cape Canaveral Air Force Station (CCAFS), FL. The CCAFS facilities affected by this phase out are specified in the table of section 5.3.1 of this request.

4.2 Need for the Proposal

This decision to define the appropriate actions to be taken to phase out Titan LVs and other heritage launch vehicle systems is a logical continuation of the decision to implement the Evolved Expendable Launch Vehicle (EELV) at VAFB, CA and Cape Canaveral Air Force Station (CCAFS), FL. The Environmental Impact Statements (ElSs) generated in support of the EELV implementation decision are:

- EIS, EELV at Vandenberg Air Force Base and Cape Canaveral Air Force Station, Jun 1998
- Supplemental EIS, EELV at Vandenberg Air Force Base and Cape Canaveral Air Force Station, May 2000

The Titan System Program Office is in receipt of a HQ AFSPC/DOS memorandum (dated 06 Jul 2001) entitled "Closeout Requirements for Space Launch Complexes (SLCs) 3E, 4E, 4W, and 40". This memorandum states there are no additional launch requirements for Launch Complex (LC)-40 (a Titan launch facility) beyond currently manifested missions. The last Titan IV launch from CCAF.S. is scheduled for Apr 2003. As part of the closeout of the Titan launch capability, the Titan System Program Office (SPO) will be implementing the closeout of the Titan Launch Operations Contract and the turnover of facilities utilized for the preparation and launch of Titan vehicles at CCAFS. The following requirement documents provide the framework for this action:

- Titan PMD 0938(7)/PE 35144F (dated 18 September 2001) requires the deactivation of LC-40 after the last Titan IV launch from CCAFS. Specifically, Air Force Materiel Command and the Titan SPO are required to procure Titan IV vehicles to meet Department of Defense and civil launch needs. AFSPC is tasked with providing the planning, programming and budgeting activities to include launch operations, environmental compliance, conservation, pollution prevention and restoration, contract/launch site closure and clean-up requirements.
- The Titan portion of the Titan and Atlas Launch Operations Contract requires that CCAFS facilities utilized in support of preparation and launch of Titan IV LVs be closed out in accordance with applicable Federal Acquisition Regulations, and public health and safety regulations.

Applicable Titan SLV OSs and Environmental Assessments (EAs)

The following EISs/EAs provide an environmental description of the facilities being phased out:

- Final EA, *USAF Space Launch Vehicles,* Cape Canaveral Air Force Station & Vandenberg Air Force Base, Feb 1975
- *Environmental Assessment, Complementary Expendable Vehicle (CELV),* Cape Canaveral Air Force Station, FL, Jun 1986
- *Biological Assessment of Impacts to Threatened and Endangered Marine Turtles (Caretta caretta and Chelonia mydas) Resulting from Operation at Launch Complexes 40 and 41,* Cape Canaveral Air Force Station, FL, 1988
- Supplemental EA, Titan IV Program, Cape Canaveral Air Force Station, FL, May 1988
- *Light Management Plan, Launch Complex-40, Facility 47100,* Cape Canaveral Air Force Station, FL, Oct 1989
- *Biological Assessment, Titan IV Launch Complexes 40 and 41,* Cape Canaveral Air Force Station, FL, Dec 1989
- *Final EA, Titan IV/SRMU Program,* Cape Canaveral Air Force Station and Vandenberg Air Force Base, Feb 1990
- *Environmental Assessment, Centaur Processing Cryogenic Tanking Facility and Centaur Processing Facility,* Cape Canaveral Air Force Station, FL, Oct 1991
- *Survey, Historic Properties,* Cape Canaveral Air Force Station, FL, Dec 1993
- *Final EA, Long-Term Staging Of Than IV SRM Upgrades, Vandenberg And Cape Canaveral Air Force Base,* Apr 1994
- *Site Investigation Report and RI/FS WSrk Plan, Vol 15-Launch Complex 40,* Cape Canaveral Air Force Station, FL, Jan 1995

5.0 Description of the Proposed Action and Alternatives (DOPAA)

5.1 Description of the Proposed Action

Closeout the Titan portion of the Titan and Atlas Launch Operations Contract and turnover CCAFS manufacturing, processing and launch facilities used in support of Titan launch vehicles to AFSPC in an intrinsically safe condition.

5.2 Description of the decision that must be made and identification of the decision maker

The decision is to determine what activities must be accomplished during closeout of the Titan portion of the Titan and Atlas Launch Operations Contract at CCAFS to configure Titan facilities in an intrinsically safe condition for turnover to AFSPC. The decision maker for this action is the Program Manager for the Titan Launch Vehicles SPO.

5.3 Anticipated environmental issues:

The following environmental issues/actions are believed to be applicable to this action:

5.3.1 Cultural resources

Impacts to items classified as Cold War items by the State Historical Preservation Office have not been defined. As part of this action, the following facilities currently operated in support of the Titan program will be deactivated as shown in the following table and turned over to AFSPC. Therefore the table below represents the worst case regarding removal of equipment.

Titan Facilities at CCAFS

Building	Description	Facility # (*)
CX40	Complex 40	47105
CX40	CX40 AGE (Aerospace Ground Equipment) Bldg	47118
CX40	CX40 Protective Clothing Bldg	47110
CX40	CX40 Fuel Holding Area	47113
CX40	CX40 Support Building	47111
CX40	CX40 Pad (Duplicate of Complex 40)	47105
CX40	CX40 Ready Building	47109
CX40	CX 40 Gaseous Nitrogen Storage Area	47119
CX40	CX40 Oxidizer Holding Area	47114
CX40	CX40 Liquid Hydrogen Storage Area	47124
CX40	CX40 Air Conditioning Shelter	47115
CX40	CX40 Fuel Holding Area	47112
CX40	CX40 Security Entry Control Bldg	47127
	CX40 Supply & Issue Shop	47120
ITL	Integrate, Test & Launch Area (various bldgs)	No Number Assigned
ITL	Railroad Maintenance Bldg	69606
ITL	SMARF (Solid Motor Assembly & Readiness Bldg)	69800
ITL	SMARF POL Bldg (Petroleum, Oil & Lubricants)	69804
ITL	SMAB (Solid Motor Assembly Bldg)	70000
ITL	Gas Storage Area	70003
ITL	Fuel/Oxidizer Area	70010
ITL-SRS	Segment Ready Storage (SRS) Bldg	70451
ITL-VIB	VIB (Vertical Integration Bldg)	70500
ITL	Payload Fairing Clean Facility	70503
ITL	ITL Warehouse	70510
ITL-RIS	Receipt-Inspection Shop (RIS)	70580
ITL X-Ray	X-Ray Facility	70690
	CCAFS Industrial Area	No Number Assigned
Industrial Area	E&A (no meaning for E&A) Bldg	1733
Hangar J	Hangar J	1721
Little J	Hangar J-Little J	55000
Little K	Hangar K-Little K	55001

* Facility/building numbers taken from Cape Canaveral Basic Information Guide for Facilities, Utilities, Instrumentation and Communication

Building	Description	Facility #
LITH	Lithium Battery Storage Facility	60408
LOCC	Launch Operations Control Center	27220
LOCC	LOCC Office Module	27207
MACH	Machine Shop	70650
MECHWH	Mechanical Warehouse (South of Warehouse)	70653
MRL	Mission Readiness Launch-Engineering Bldg	54915
TSF	Technical Support Facility	34705
PCF	Payload Cleaning Facility	70503
PORT	Commercial Titan Whse.	730
RECORDS	Record Retention Building	54805
SSF	Spin Test Support Building	73700
Whre Sup & Equip	Titan AGE Warehouse	54938

* Facility/building numbers taken from Cape Canaveral Basic Information Guide for Facilities, Utilities, Instrumentation and Communication

5.3.2 Intrinsically safing facilities prior to turnover to AFSPC

Facilities and real property installed equipment are to be "sated and abandoned" in such a manner to ensure "that abandonment will not result in inadvertent contamination or present an unexpected future hazard to individuals who may access the abandoned facilities or real property installed equipment systems." These tasks include the following:

- Propellant Systems are currently scheduled to have commodity off loaded, to be flushed and cleaned, disassembled and disposed of. Propellant system components contaminated by contact with hypergolic propellants used for the launch of Titan vehicles must be cleared by the Plant Clearance Officer for disposal of these materials by the Titan contractor. Disposal of such materials is to be made by cutting these materials up and melting them.
- Cryogenic systems will have commodity offloaded, and be purged and left with a positive pressure of gaseous nitrogen.
- Gaseous supply systems will be vented and left with a positive pressure of gaseous nitrogen.
- Electronic systems will be disconnected and locked out from power. Universal Power Supply (UPS) batteries will be removed and disposed of through designated USAF contractors.
- Hydraulic systems will have hydraulic fluid drained and disposed of through designated USAF contractor.
- Air conditioning systems will be drained and safed. Freon to be disposed of per USAF instructions.
- Hazardous materials and waste to be disposed of by designated USAF contractor(s).

Other Considerations

- The Titan program will continue to comply with federal, state and local environmental requirements.
- Abandonment does not apply to contractor or subcontractor owned equipment. Such equipment will be removed as part of the implementing the Proposed Action.
- Actions to be taken regarding deactivation of 45 SW or NRO owned facilities and systems are not considered as part of this Proposed Action.

5.4 Applicability of a categorical exclusion (CATEX)

Upon completion of our assessment of the Proposed Action, the Titan program believes this action may qualify for categorical exclusion to further environmental review under 32 CFR 989 (Environmental Impact Analysis Process) paragraphs A2.3.15, A2.3.18 and A2.3.28. Per the Titan Program Management Plan 0938(7)/PE35144F (atch 1), CCAFS facilities are to be turned over to AFSPC, through 45'" Space Wing, who has responsibility for disposition as agreed upon and documented by HQ AFSPC.

Attachment:
1. Titan PMD 0938(7)/PE35144F

18. Remarks

The Titan program at CCAFS contains several hazardous waste sites in support of launch operations. Prior to closeout, all hazardous waste belonging to the Air Force must be properly turned over and transported to the on-site AF treatment, storage and disposal facilities (buildings 44200 and 44205). The sites should be inspected by the Air Force to verify they are clean, empty, and that no apparent releases have occurred resulting in contamination of the surrounding areas. Although not specifically required by law, it is recommended that copies of training records and job descriptions for personnel who are actively managing the hazardous waste be provided to the Air Force for record retention purposes.

There are currently three active tanks at SLC 40:

•	47115-3;	10,000 gallons; diesel; vaulted; supports and emergency generator.
•	47127-3;	250 gallons; diesel; vaulted; supports guard shack.
•	47127-4;	40 gallons; diesel; no containment; day tank; supports 250 gallon tank at guard shack.

The only-regulated tank is 47115-3. This tank will require "out of service" FDEP paperwork, which the AF Environmental Flight office (CEV) will provide. Since this tank is vaulted and has containment, no soil/water sampling is required unless there is some kind of spill to grade from the overhead piping or from a breach in the vault/tank. The other two tanks do not require any FDEP notification or paperwork since they are less than 550 gallons and are unregulated fuel storage systems. They do not require soil/water sampling unless they have a spill. The AF usually samples all ASTs that have no containment when closure of a tank is performed; however, since this single-walled day tank sits on a slab, this process will probably not take place. Confirmation from the AF to abstain from sampling of 47127-4 should be obtained.

All other fuel storage tanks at the various facilities should be drained of excess fuel unless specifically needed to sustain operations in a building. Several of the tanks are regulated systems and proper notification must be made to FDEP prior to being placed out-of-service. All notifications must be coordinated with the Environmental Support Contract (ESC) office or with CEV. All inspection records for fuel storage tanks should be turned-over to the government.

It is anticipated that there will be some unused hazardous materials left over at the conclusion of this program. In the past, tenants and contractors have simply left these items in hazardous material storage areas and walked away. Lockheed Martin should work very closely with the Air Force to find alternate users for these materials or work with the Air Force on the disposal of these items prior to closeout.

Lockheed Martin should notify ESC of any outstanding work orders for repairs to permitted or regulated systems. For example, if there has been a work order to repair a permitted stormwater retention area, this information and all other records should be turned over to the Air Force for follow-up actions.

Although demolition of Titan support facilities is not discussed in the requester's proposed action, a Titan Facilities Deactivation Matrix (see attached) completed by 45 CES/CEL recommends that several facilities with no planned future use, designated user or O&M funding, be completely demolished. If demolition is proposed/required as part of SLC 40 deactivation, many notifications and proper closures will be required. The following is a brief list of items that may be impacted:

- Numerous industrial wastewater, stormwater and NPDES stormwater permits would need proper closeout or the user needs to identify what will happen with these various systems once the facilities are abandoned and/or demolished.
- Proper closeout of lift stations would be required.
- Notification to the State will be required for demolition of any water service areas. Additionally, coordination with NASA must occur for abandonment of any utilities shared with them (i.e. Pump Station 7).
- Identify requirements for abandoning any monitoring wells for IRP or industrial wastewater systems.
- Identify planned disposal of demolition material and or solid waste.
- Identify how the area where facilities were located will be left. For example, will they be returned to a natural state or left as is?
- How will deactivation/demolition impact CCAFS Installation Restoration Program areas?

Solid waste must be managed in accordance with the instructions set forth in the specifications of the contract. If contract language permits the disposal of construction & demolition and/or asbestos containing materials in the CCAFS landfill, all requirements specified in the CCAFS Landfill Operations Plan must be met. The Air Force contract monitor must make all arrangements with the landfill operator prior to any disposal activities and must complete and sign a "Landfill Disposal Verification Form." No waste will be accepted prior to the completion of this form.

Insure all recyclable material (concrete, etc.) is recycled and quantities by weight reported to 45 CES/CEVC, Mr. Wayne Neville.

Petroleum contaminated soil encountered in this project must be handled in accordance with Federal Regulations and Florida Administrative Code 62-770. The AF contract monitor must be notified immediately when contamination is discovered. The contract monitor will make notification to ESC, who will assist in determining what additional actions need to take place.

Prior to and during construction, implement all erosion and sediment control measures (Best Management Practices) required to retain sediment on-site and to prevent violations of state water quality standards; implement additional best management practices as necessary and correct any erosion or shoaling that causes adverse impacts to the water resources. Stabilization measures shall be initiated for erosion and sediment control on disturbed areas as soon as practicable in portions of the site where-construction activities have temporarily or permanently ceased, but in no case more than seven days after the construction activity in that portion of the site that has temporarily or permanently ceased.

The disposal of fluorescent lamps, high intensity discharge (HID) lamps, and low-pressure sodium lamps must be in accordance AF OPLAN 19-14. Fluorescent and HID lamps shall be managed as a hazardous waste. Contact ESC at 476-2310 for specific instructions on the proper handling and disposal of all these lamps.

All equipment being removed that contains dielectric fluid must be sampled. All items that contain PCB levels $\geq$ 50 ppm must be handled in accordance with 40 CFR 761 and 45SW OPLAN 19-16. This equipment must be turned into the Air Force at Facility 44200. Contact ESC at 853-6988 to arrange access into this
facility. ESC will handle the disposal process based on PCB concentrations.

Any electrical equipment found/known to contain <50 ppm PCBs is considered non-PCB. DRMO will accept this electrical equipment and should be contacted for specific turn-in instructions. Please note that DRMO requires laboratory analysis less than six months old for items being turned in for disposal/reuse.

Light ballasts not labeled as "No PCBs" must be handled in accordance with PCB regulations 40 CFR 761 and 45 SW OPLAN 19-16. These ballasts must be assumed to contain PCBs and must be turned into the Air Force storage facility 44200. Contact ESC at 653-6988 to arrange access into this facility. ESC will handle the disposal process based on PCB concentrations.

Prior to 1983, PCBs were used in non-liquid applications such as caulk, sealants, paints, etc. If through documentation or prior knowledge, the planner has reason to believe that such materials are present, they should contact the Environmental Support Contractor for sampling and disposal guidance. Liquid PCBs may be present in electrical equipment such as large high and low voltage switches, capacitors, hydraulic systems, or compressors. If equipment of this nature exists, it should be sampled for PCBs prior to disposal. Contact ESC for additional guidance.

The disposal of all lead-acid storage batteries should be in accordance with all Federal, State and local laws and 45 SW OPLAN 19-14. The Patrick Air Force Base DRMO will accept these batteries and should be contacted for specific turn - in instructions.

The disposal of lithium, mercury and nicad batteries should be in accordance with all Federal, State and local laws and the 45 SW OPLAN 19-14. These batteries are considered universal waste. Contact ESC at 476-2310 for further guidance on the disposal of these items.

Activities with potential for adverse effect on air quality must be performed in accordance with applicable federal, state, and local air quality regulations and Air Force Policy.

CCAFS is located in an area that is in attainment for all criteria air pollutants; therefore, a conformity determination is not required.

Venting of ODCs into the atmosphere is prohibited. ODCs must be recovered and recycled. ODC recovery operations must be performed by trained technicians using EPA approved recovery equipment. ODCs must be recovered and recycled prior to excessing containing equipment. Excessed ODC equipment must be properly disposed of. All refrigerant leaks/releases, greater than 25 lbs must be reported to the Environmental Support Contractor.

Refrigerants must be recovered and recycled. New units must use non-Class I ODC substances such as R22, R123, R134a, or ammonia as the refrigerant. New units utilizing R-11 or R-12 are not to be purchased (Engineering Technical Letter 91-7, CFC Limitation in HVAC Systems). Purchase and use records should be kept and submitted monthly to SGS Environmental for all Class I and II ODCs (mainly chlorofluorocarbons and hydrochlorofluorocarbons). All refrigerant leaks must be reported to SGS Environmental.

Activities involving painting and/or paint removal must be performed in accordance with FDEP, EPA, OSHA, and HUD requirements for lead and particulate matter emissions and lead paint debris disposal. Paint removal and disposal of hazardous paint debris must be in accordance with 4501 Space Wing Policy Letter dated 25 May 1994 and 45 SW OPLAN 19-14. Only personnel trained in lead-based paint handling and disposal should perform these duties. Additionally, the generation of airborne lead debris should be minimized. Finally, the contractor will be responsible for sampling the generated waste to determine whether it is hazardous or non-hazardous. Results of laboratory analyses must be provided to the Contracting Officer.

Asbestos abatement and any other activities that may disturb asbestos containing materials (ACM) must be coordinated through the CCAFS Asbestos Recovery Team (ART), and performed in compliance with applicable state (FDEP) and federal (EPA and OSHA) asbestos regulations, as well as the 45 SW Asbestos Management Plan. The point of contact for ART is Bart Geyer at 867-2400.

- FDEP must be notified 10 days in advance before start of the project if the ACM quantity to be removed is determined to be at least 160 sq ft or 260 linear ft.
- ACM removal must be performed only by personnel trained and certified in handling ACMs.
- Asbestos abatement requirements and procedures for setting up containment, producing a negative air environment, wet removal, air monitoring, etc. must be followed when necessary.
- Removed ACM must be properly disposed of at the CCAFS landfill. The landfill requires ACM to be double-bagged in 6-mil poly and properly labeled. You may contact the CCAFS landfill at 853-4672 (Pat Woodard) for specific requirements for ACM acceptance. You may also contact ESC if you have any questions and/or need further assistance. ESC point of contact for asbestos is Pius Sanabani at 853-6727.

Demolition, defined as removal of any load bearing structure, requires 10 days FDEP notification regardless of whether the facility contains ACM (Asbestos Containing Materials) or not.

Prior to any digging, an Excavation permit will be required. To obtain an excavation permit, contact SGS Mission Support, Excavation Administrator, at 861-4453. Additionally, an Air Force Form 103, BCE Work Clearance Request, will be required. Contact the Cape

Superintendent for guidance on the use of AF Form 103.

It is not known at this time what environmental impacts the proposed demolition would have on biological resources. Several of the facilities listed on the deactivation matrix are located in/near habitat for state and federally protected wildlife species. Additionally, several acres of wetlands surround these facilities. Once final determination of which facilities will be demolished and what method will be used (particularly the launch tower), a biological assessment will be required to address potential impacts to flora and fauna in the area.

The proposed project has the potential to adversely impact CCAFS environmental attributes and does not qualify for a Categorical Exclusion (CATEX), as defined in 32 CFR 989, Appendix B. Therefore, an Environmental Assessment will be required.

alchambers/25-January-2002

Appendix C-Comments Received for EA

PROJECT REVIEW COMMENTS

Project Title: **Draft DOPAA for Deactivation and Turnover of Titan Space Launch Vehicle Capability**

Project Number: **DBEH 03-7297**

Off Symbol of Reviewer: 45 CES/CEV		**Name and Phone Number of Reviewer:** POC – Angy Chambers/321-853-6822	**Date:** 9/20/04
ITEM #	**PAGE, SECTION, PARAGRAPH NUMBER**	**COMMENTS**	**REVIEWERS INITIALS**
1	Page 1-8, Section 1.3	Some of the documents listed are not Eas/EISs; therefore, suggest re-wording the first sentence of the second paragraph to say "The following documents provide an environmental…"	AC
2	Page 2-1, Section 2.1	Under the proposed action, there is no description of how facilities will be demolished. Will explosives be used to bring down larger structures such as the MST and UT? Will utilities be capped and left in place or removed in whole? Where will debris be taken? Can the CCAFS landfill accept all demolition debris? Need more description on demolition.	AC
3	Page 2-1, Section 2.1	The proposed action should be re-written. The proposed action is to either demolish or re-use Titan facilities because the program is being deactivated. Need to expand on why the program is being deactivated.	MC
4	Page 2-9, Section 2.2	The no action alternative is to not deactivate the Titan program. Need to change this section to reflect this and expand on the reason why not deactivating the program is not viable.	MC
5	General	Please include the Environmental Specifications Section 01355 in any work plans or designs to demolish the	ESC

		sites.	
6	General	You have indicated asbestos and lead based paint is present at the demolition project site. Please include the following information in any work plans or designs to demolish the sites. **Asbestos:** Any asbestos abatement portion of this project and any other activities that may disturb ACM must be coordinated through the CCAFS ART and performed in-compliance with applicable State (FDEP) and Federal (EPA and OSHA) asbestos rules. ART point of contact is Meredith Caukin at **867-3544**. • FDEP must be notified 10 days in advance of start of project <u>if the quantity of ACMs to be removed is determined to be up to160 sq. ft. or 260 linear ft</u>. • FDEP must also be notified 10 days in advance of start of project if involves demolition (removal of load bearing member) regardless of whether facility contains ACM or not. • Only those personnel trained and certified in handling ACMs must perform project. • Asbestos abatement requirements and procedures including but not limited to setting up containment, negative air, wet removal, air monitoring, etc. must be followed when necessary. • Removed ACM must be properly disposed of at the CCAFS landfill. CCAFS landfill requires ACM to be double-bagged in 6-mil poly. You may contact CCAFS landfill at 853-4672 for specific requirements for ACM acceptance.	ESC

		Lead Based Paint: Any lead paint abatement and any other activities that may disturb lead-based paint must be performed in-compliance with applicable State (FDEP) and Federal (EPA and OSHA) lead-based paint rules. • Only those personnel trained in lead-based paint abatement (handling and disposal) must perform project. • Project must be performed in manner that minimizes generation of airborne lead debris. • Although water blasting of the paint is a wet method that minimizes generation of airborne lead paint debris, reasonable lead abatement requirements and procedures including but not limited to personal protection, cleaning any paint debris from the area at the end of each work-day, etc. must be followed. The water from the blasting operation and paint debris must be collected and disposed of as hazardous waste at the CCAFS landfill. • Contact the CCAFS landfill at **3-4672** for specific lead paint disposal requirements.	
7	General	Need to identify the requirement to close out/abandon the existing Industrial Wastewater (Deluge Water) Permit through FDEP.	ESC

DOCUMENT REVIEW COMMENTS

DOCUMENT REVIEWED:			
REVIEWER'S NAME:	**DATE REVIEWED:**	16 FEB 05	
OFFICE SYMBOL:	HQ AFSPC/ MSEVC	554.6406	1 OF 2

Commt No.	Section No.	Page No.	Paragraph No.	Line No.	Comment	Response
1	Preface	2	3	30	Replace with "Limited removal of LBP would occur where necessary in order to facilitate demolition."	Language replaced.
2	3.5.1	3-18	3	16 & 17	Replace first two sentences with "Asbestos is a HAP under the NESHAP of the CAA, is a known human carcinogen and a cause of asbestosis."	Language replaced.
3	3.5.1	3-18	3	19	Edit to read "Pre-existing friable ACM, or ACM rendered friable by a demolition activity, refers to…"	Text edited.
4	4.5.1.1	4-15	2	9-13	Edit paragraph to read "When identified ACM	Text edited.

					may be disturbed during demolition activities, AF policy (*AFI 32-1052 Facility Asbestos Management*) is to remove the material. Before a site can be considered environmentally safe for a real estate transaction (STET), prior to demolition, all identified ACM must be removed, the site…"	
5	4.5.1.1	4-15	3	16	Reword sentence beginning to read "A qualified and licensed asbestos inspector will perform…"	Sentence reworded.
6	4.5.1.2	4-16	3	21	Add "In the event that deconstructed building materials and/or components coated with LBP are subject to resale, recycle or reuse, the presence of LBP shall be communicated to the receiving party(s) of said materials and/or	Language added.

					components."	
7	Cultural/ Arch		General Comment		Ensure Lockheed Martin, SMC and AFSPC work together to preserve historic artifact and document aspects of the Titan. As part of the "Heritage Deactivation" effort, AFSPC/HO and SMC are working hard to preserve documents that will provide broad historical insight into Titan programs. The types of documents that might contain such information include briefings, reports, correspondence, directives, training documents, reviews and status papers, news releases, and photographs	Language added to EA in Ch. 4.

DOCUMENT REVIEWED:			
REVIEWER'S NAME:	**DATE REVIEWED:**	**16FEB05**	
OFFICE SYMBOL:	HQ AFSPC/ MSEVP	4-6406	2 OF 2

Commt No.	Section No.	Page No.	Paragraph No.	Line No.	Comment	Response
8	FONSI	1	1	17	AFI 32-7061 no longer is valid; reference only 32 CFR 989 for all AF EIAP.	Reference replaced.
9	FONSI	1	2	21 +	If you only have the proposed action and a no action alternative and you state there are no significant impacts identified and then you go into detail on the less than significant and beneficial impacts. Too much unnecessary detail for the FONSI.	FONSI edited.
10	FONSI	1	1	13	Why only the	Other alternatives identified.

					proposed action and the no-action alternative? Also need to expand on the proposed action.	
11	FONSI	1			Incorporate the EA by reference in the FONSI	EA incorporated by reference.
12	EA				No Executive Summary? And why put the list of acronyms before the TofC?	FONSI will be included in EA. It serves as a Executive Summary. To include an Executive Summary would be redundant. Acronyms moved after TOC
13	1.0	1-1	1	3	See comment #1 re: AFI 32-7061.	Reference replaced.
14	1.0	1-3	Fig 1-2		Add "Banana River" to map. It was mentioned in the text as a boundary.	Banana River added to map.
15	2.1	2-3		35	Source of clean fill?	
16	2.1	2-4		4	Ponds filled in??? Are these ponds jurisdictional wetlands? Why fill them in?	

17	3.2.2	3-2		15-16	No need to spell out *Quercus* after the first time, use *Q. species*.	*Quercus* abbreviated
18	3.2.3	3-6	1	4	"naturally watery places" replace with "aquatic habitats" or " open water habitat".	Verbiage replaced.
19	3.2.3	3-10	1	8	Are spatterdock and yellow cow lily the same plant with different common names? If so, list them as equals. Also what is the scientific name for torpedo grass? Need to add.	Verbiage edited.
20	3.2.5	3-11	Table 3-1		Misspelled scientific name for Wood stork and in footnote please spell out FFWCC.	Corrections made.
21	4.2	4-5	Table Bio Resources	1	I feel that AFI 32-7064 would be better justification for	Corrections made.

					protection of wetlands than the Water Quality Compliance AFI 32-7041. And the Agency should be Army Corps of Engineers as the regulator not AF.	
22	4.2.1.1	4-7	2	3-8	What actions are to occur to ensure no invasive plants become established before the native species are established ?	Verbiage added.
23	4.4	4-10	Table		See comment #13 for protection of wetlands.	Reference changed.
24	4.14	4-24	1		Remove bullet format. I have never seen this paragraph in an EA before. Is it relevant?	According to NEPA 102 (2)(C)(v), irreversible and irretrievable commitments of resources to be addressed
25	4.18	4-25			Why has this section been included? It	Removed paragraph.

					has been stated that an EIS is not needed.	
26	4				Chapter 4 discussion of impacts is not adequate	Please clarify.
27	4				In Chapter 4, indicate after each media whether there are significant or insignificant impacts; etc.	Significance of impact noted.
28	5.	5-2	Table 5.1		Why not collect (salvage) the state listed plants in danger of mortality from the proposed action? They can be protected and then replanted in the restored area.	Per AF CEVP and AFI 32-7064, Ch. 7.1.2, state listed species should protected when practicable. Salvaging plants and saving them to be replanted is not practicable.
29	General Comment				Determine what measures are really "mitigation" under NEPA (versus what we are already required to do), and if	Verbiage changed.

					mitigation, is it mandatory?	
30	General Comment				Initiate section 7 consultation and include information in EA	Section 7 consultation initiated when EA was sent to USFWS for comments. USFWS had no comments on the EA . No further consultation required.
31	General Comment				Need map showing where the wetlands are at this site-- narrative description indicates they are near site but won't be impacted	Map included.

Department of
Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Colleen M. Castille
Secretary

April 14, 2005

Department of the Air Force
Ms. Angy Chambers
45CES/CEV
1224 Jupiter Street, MS 9125
Patrick AFB FL 32925–3343

RE: Department of the Air Force – Final Draft Environmental Assessment (FDEA) for the Deactivation and Turnover of Titan Space Launch Vehicle Capability at Cape Canaveral Air Force Station – Cape Canaveral, Brevard County, Florida

SAI # FL200502160466C

Dear Ms. Chambers:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the above-referenced FDEA.

The St. Johns River Water Management District (SJRWMD) states that an Environmental Resource Permit will likely be required for the proposed activity in accordance with Section 3.2 of the Applicant's Handbook. Please refer to the enclosed SJRWMD comments for explanation of Section 3.2 of the Handbook. During the permit application review process the applicant will be required to demonstrate that direct and secondary impacts to wetlands and wildlife have been avoided or minimized. Unavoidable direct and secondary impacts will require mitigation in accordance with the Unified Mitigation Assessment Method found in Chapter 62-345, F.A.C. Compliance with the environmental review criteria in Chapter 12 of the Applicant's Handbook will also be required. Please contact Michelle Reiber, Supervising Regulatory Scientist, in the Palm Bay service center at (321) 676-6615 or mreiber@sjrwmd.com for additional information.

The Department of Environmental Protection (DEP) has several concerns regarding the disposal of hazardous materials and hazardous waste to be generated from the proposed project. Please see the enclosed DEP memorandum for further details.

Based on the information contained in the referenced project report and comments provided by our reviewing agencies, the state has determined that, at this stage, the proposed project is consistent with the Florida Coastal Management Program. The applicant must, however, address the concerns identified by the reviewing agencies as described herein and enclosed. The state's continued concurrence with the project will be based, in part, on the adequate resolution of any issues identified during this and subsequent permitting reviews.

Thank you for the opportunity to review this project. If you have any questions regarding this letter, please contact Ms. Suzanne Ray at (850) 245-2172.

Yours sincerely,

Sally B. Mann

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/ser

Enclosures

cc: Barbara Bess, DEP Central District
Geoffrey Sample, SJRWMD

DEPARTMENT OF THE AIR FORCE
45TH SPACE WING (AFSPC)

21 Mar 05

MEMORANDUM FOR 45 CES/CEVP

FROM: CAPT ELIZABETH PATROLIA

SUBJECT: Environmental Assessment (EA) for Deactivation and Turnover of Titan Space Launch Vehicle Capability at the Cape

1. In accordance with 40 C.F.R. 1502.14 , environmental analysis should, "Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." The attached draft EA explores a proposed action and a no action alternative. Courts are highly critical if a No Action Alternative is the only reasonable agency alternative.

2. We recommend brief discussion of any alternatives that were considered and a short explanation of why they were eliminated from further analysis.

///signed///

ELIZABETH PATROLIA, CAPT, USAF
Assistant Staff Judge Advocate

TO: **Suzanne Ray, Environmental Specialist**
DEP Office of Intergovernmental Programs

FROM: **Barbara Bess**
DEP Central District Office

DATE: **April 14, 2005**

PROJECT: **Department of the Air Force – Final Draft Environmental Assessment (FDEA) for the Deactivation and Turnover of Titan Space Launch Vehicle Capability at Cape Canaveral Air Force Station –Cape Canaveral, Brevard County, Florida**

SAI#: **FL200502160466**

The Department of Environmental Protection (DEP) has reviewed the above-referenced FDEA. The DEP offers the following comments.

Please direct any program-specific questions to Mr. John White, Hazardous Waste Section at (407)893-3323, ext. 2217.

Hazardous Waste:

Section 4.5 - Hazardous Materials and Hazardous Waste

The document states the facility will "Consult with OPLAN 1914 for disposal/recycling procedures for florescent, high intensity discharge, and low-pressure sodium lamps, and lithium, mercury, ni-cad and low-acid storage batteries. Also consult Plan for lead based paint removal and disposal requirements."

Please ensure OPLAN 1914 includes proper closure of the 90-day accumulation sites in accordance with the requirements of 40 CFR 265.111, closure performance standard, and 265.114, disposal or decontamination of equipment, structures and soils.

Section 4.6.1 Proposed Action

The language on page 4-17 states "Some structures and facilities are known or suspected of containing LBP [Lead Based Paint]. …If LBP is identified, it would be left in place to avoid exposure to workers. Post-demolition analysis for these metals would determine whether this demolition debris would be handled as hazardous or non-hazardous waste."

This statement appears to conflict with the language on page 4-14, lines 13 through 24, which indicate demolition debris coated with lead based paint will be disposed of in non-hazardous waste landfills.

> Lead-Based Paint
>
> "Building demolition wastes often include such items as wood trim, siding and other architectural components that may have been painted with LBP [Lead Based Paint]. Demolition debris, including metal, wood, and concrete painted with LBP, would be stored in covered containers prior to disposal in a Class I or Class III landfill or a C&D disposal facility. Approval must be received from the landfill prior to disposal...."

This section does include language indicating that paint chips, dust and other "easily collected" materials will be properly tested for hazardous waste characteristics and disposed of accordingly:

> Lead-Based Paint
>
> "...Materials generated during the demolition project that can be vacuumed, swept up, or otherwise easily collected, such as paint chips or dust, should be analyzed utilizing the Toxic Characteristics Leaching Procedure (TCLP) test prior to disposal. If the materials are determined to be hazardous, they must be handled and disposed of as a hazardous waste in accordance with applicable Federal, State, and local regulations. If the materials are deemed non-hazardous, the waste should be disposed of in a Class I landfill."

Please be aware, in accordance with 40 CFR 262.11, that the U.S. Air Force, and/or its demolition contractor, must make a proper waste determination on all waste generated to determine if that waste is a hazardous waste.

Groundwater:

A review of the ground water monitoring at the facility shows a minor elevation of manganese (66 ug/l) at pad 36B. The standard is 50 ug/l. Historically, this [elevation] has been seen to clean up within a few months after a launch. The ground water section has no objection to the deactivation, but groundwater monitoring will continue until all ground water compounds are in compliance. For further information please contact Ms. Marjorie Heidorn, at the Central District Office at (407)894-7555.

Project Information	
Project:	FL200502160466C
Comments Due:	March 17, 2005
Letter Due:	April 16, 2005
Description:	DEPARTMENT OF THE AIR FORCE - FINAL DRAFT ENVIRONMENTAL ASSESSMENT FOR THE DEACTIVATION AND TURNOVER OF TITAN SPACE LAUNCH VEHICLE CAPABILITY AT CAPE CANAVERAL AIR FORCE STATION - CAPE CANAVERAL, BREVARD COUNTY, FLORIDA.
Keywords:	USAF - DEACTIVATION OF TITAN SPACE LAUNCH CAPABILITY - CAPE CANAVERAL, BREVARD
CFDA #:	12.200

Agency Comments:

ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

The Department of Environmental Protection (DEP) has several concerns regarding the disposal of hazardous materials and hazardous waste to be generated from the proposed project. Please see the enclosed DEP memorandum for further details.

FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

No Final Comments Received

STATE - FLORIDA DEPARTMENT OF STATE

No Final Comments Received

TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION

No Comment

ST. JOHNS RIVER WMD - ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

An Environmental Resource Permit will likely be required from the SJRWMD for the proposed activity in accordance with Section 3.2 of the Applicant's Handbook, which states, in part, that: A permit must be obtained for any stormwater management system, dam, impoundment, reservoir, appurtenant work or works, which exceed the thresholds listed in section 3.3 of this Handbook. Such permit is to be obtained as: (b) Authorization to alter prior to alteration of an existing system. (e) Authorization to abandon prior to the abandonment of an existing system. (f) Authorization to remove prior to removal of an existing system. During the permit application review process the applicant would be required to demonstrate direct and secondary impacts to wetlands and wildlife have been avoided or minimized. Unavoidable impacts would require mitigation in accordance with the Unified Mitigation Assessment Method found in Chapter 62-345, F.A.C. Compliance with the environmental review criteria in Chapter 12 of the Applicant's Handbook would also be required. Please contact Michelle Reiber, Supervising Regulatory Scientist, in the Palm Bay service center at (321) 676-6615 or mreiber@sjrwmd.com if there are any questions.

E. CENTRAL FL RPC - EAST CENTRAL FLORIDA REGIONAL PLANNING COUNCIL

The proposed project, as presented for review and when considered in its entirety, is consistent with the adopted Goals, Policies and Objectives of the East Central Florida Regional Planning Council.

BREVARD -

No Comment

For more information please contact the Clearinghouse Office at:

3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

Appendix D-U.S. Fish and Wildlife Consultation

From: AnnMarie_Maharaj@fws.gov

Sent: Wednesday, March 02, 2005 2:32 PM

To: Chambers Angy L GS-11 45 CE/CEVP

Subject: Review of EA for deactivation and turnover of Titan SLC

Log Number: 05-777

Dear Ms. Chambers:

The Fish and Wildlife Service has no comments on the Final Draft Programmatic Environmental Assessment for the Deactivation and Turnover of Titan Space Launch Capability at CCAFS, received on February 4, 2005. We look forward to reviewing future projects for CCAFS. If you have any further questions please contact me at (904) 232-2580 ext. 111.

Sincerely,

Ann Marie Maharaj