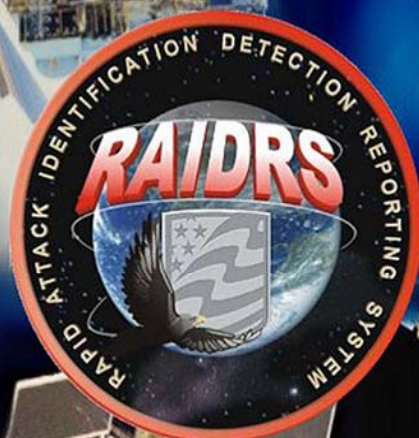




- Final -



Environmental Assessment for Rapid Attack Identification, Detection, and Reporting System Block 10

Prepared for
Space Superiority Systems Wing
Space and Missile Systems Center
Los Angeles Air Force Base, California

By
Acquisition Civil/Environmental Engineering
Space and Missile Systems Center
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14. ABSTRACT This Environmental Assessment documents the environmental analysis of implementing the Rapid Attack Identification, Detection, and Reporting System (RAIDRS) Block 10 (RB-10), which would establish a system to identify possible direct radio frequency interference (RFI) of space systems. It would provide near real-time detection, characterization, geolocation, and reporting of RFI events affecting US-protected communication satellites. The RB-10 would establish a network of command centers, and fixed and transportable ground sensor systems at US Air Force bases and at other Department of Defense installations.					
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FINDING OF NO SIGNIFICANT IMPACT (FONSI)
ENVIRONMENTAL ASSESSMENT FOR
RAPID ATTACK IDENTIFICATION, DETECTION, AND REPORTING SYSTEM
BLOCK 10

Agency: United States Air Force (USAF)

Background: Pursuant to the provisions of the National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and 32 CFR Part 989, the USAF conducted an assessment of the potential environmental consequences of implementing the proposed Rapid Attack Identification, Detection, and Reporting System (RAIDRS) Block 10 (RB-10). The assessment focused on those activities that have the potential to affect the human and natural environments.

Since the 1991 Gulf War, US military forces have become increasingly reliant on space resources for communications, intelligence, weather forecasting, missile warning and targeting, navigation, and timing of operations. Recognizing that US space assets have become an integral part of today's warfare, the Department of Defense (DOD) has begun to emphasize the importance of protecting these resources. Although US military space systems have been relatively unchallenged, military leaders anticipate increasing threats to these systems because they provide a significant military advantage.

The RAIDRS Program would provide a capability to identify when an external force is adversely affecting US satellites and other space systems. The RAIDRS system architecture would consist of ground-based satellite downlinks and a communications network. As a subset of the overall RAIDRS Program, the proposed RB-10 would implement a system to identify possible direct radio frequency interference (RFI) of space systems from both friendly and unfriendly military and commercial sources. It would provide near real-time detection, characterization, geolocation, and reporting of RFI events affecting US-protected communication satellites.

Strategy for Environmental Impact Analysis: Implementing the RB-10 will require establishing a worldwide network of command centers, and fixed and transportable ground sensor systems. However, in accordance with NEPA and its implementing regulations, this Environmental Assessment (EA) only analyzes those proposed RB-10 actions that will occur within the United States, at any US territories and possessions, and potentially at the US Army Kwajalein Atoll (USAKA) in the Republic of the Marshall Islands. The EA considers all potential environmental impacts of the proposed activities associated with the RB-10. This Finding of No Significant Impact (FONSI) summarizes the results of the evaluations that are documented in the EA.

In analyzing the potential environmental impacts of the Proposed Action, the EA addresses site-specific impacts for those locations that are known. But because of the phased approach of the RB-10 program's execution, the RAIDRS Squadron has not yet been able to identify the installations and site-specific plans for several of the system elements. Decisions regarding such plans will occur later as the program matures. Thus, for those sites not yet identified, the EA describes the environmental impacts that would likely occur and at multiple locations. Once the site-specific plans become available, the USAF would complete supplemental environmental reviews, when necessary, prior to implementation of the Proposed Action at each installation and facility site selected. In the case of actions at USAF installations, the RAIDRS Squadron and the affected base would complete a USAF Form 813, *Request for Environmental Impact Analysis*. For RB-10 actions occurring on other military Service installations, the RAIDRS

Squadron would work with the affected installation in applying a similar supplemental environmental review process. Supported by the information contained in this EA, each installation would determine the appropriate level of supplemental analysis that is needed.

Although not analyzed in the EA, the remaining RB-10 actions that would occur overseas are likely to have environmental effects similar to those identified for the United States in this EA. Prior to their implementation in other foreign countries, these actions may require separate environmental reviews in accordance with Executive Order (EO) 12114 (*Environmental Effects Abroad of Major Federal Actions*), and the implementing policy and procedures contained in 32 CFR Part 989 and in 32 CFR Part 187 (*Environmental Effects Abroad of Major Department of Defense Actions*).

As the RAIDRS Program is implemented, later phases beyond the initial RB-10 system will consider additional event detection and decision support elements. But before the implementation of later phases can occur, the USAF will have to evaluate them through supplemental environmental impact analyses.

Proposed Action and No Action Alternative: The RB-10 would establish a network of command centers, and fixed and transportable ground sensor systems, at USAF and other DOD installations. Most locations would use existing facilities for personnel, operations, and equipment storage, although facility modifications may be necessary. The program would necessitate minor construction at most sites for new radio dish antennas, support equipment, and/or power and communication links.

Listed below are possible RB-10 system elements and locations analyzed in this EA. All system elements would be land-based; however, the USAF will determine the final mix of fixed and transportable element types and numbers at a future time.

- Primary Central Operating Location (COL) at Peterson Air Force Base (AFB), Colorado Springs, Colorado (CO)
- Backup COL at another AFB within the continental United States
- Up to six Hosted (fixed) Interference Detection System (IDS)/SATCOM Geolocation System (SGS) Sites at any of the USAF or other DOD installations in the United States that have existing satellite communication earth terminals
- Up to six Deployable (transportable) IDS/SGS Sensor Systems and one non-deployable IDS/SGS Trainer System home-based (garrisoned) individually or in pairs at AFBs somewhere in the United States. The first unit would be home-based at either Peterson AFB or Patrick AFB near Cocoa Beach, Florida (FL). If needed, the program would establish the non-deployable Trainer System at Peterson AFB.
- Up to six Remote (fixed) IDS Sensors located at USAF or other DOD installations somewhere within the United States, US territories and possessions, and the USAKA.

In terms of schedule, the USAF would execute the RB-10 program in increments or production phases spread over several years, starting in 2007 and leading to Full Operating Capability in 2011.

Per the CEQ and USAF Regulations, the EA also analyzes the No Action Alternative, which serves as the baseline against which the Proposed Action and alternatives are evaluated. Under the No Action Alternative, the USAF would not implement the RB-10. USAF and other DOD installations would continue ongoing activities.

Environmental Effects: For possible RB-10 system locations, the EA assessed the potential environmental effects for the following environmental resources: air quality, noise, biological resources, cultural resources, public and occupational safety and health, and hazardous materials and waste management. The EA did not analyze other resource areas—including hydrology and groundwater, soil resources, utilities, land use, transportation, and socioeconomic—because the USAF does not anticipate any adverse effects to these resources as a result of implementing the Proposed Action.

Because the RAIDRS Squadron has not yet been able to identify proposed locations for several of the RB-10 elements, the EA first describes general impacts that the Proposed Action could have on USAF and other DOD installations across the United States, at US territorial islands and island possessions, and the USAKA. It then identifies additional site-specific impacts for activities proposed at Peterson AFB and Patrick AFB. The following paragraphs summarize the results of this analysis for each resource area.

- **Air Quality.** Implementation of the RB-10 would not require major construction at any locations because the largest area of excavation would not measure much more than 0.02 acres (0.008 hectares). During these activities, ground disturbance and related operations would generate small amounts of fugitive dust. Trucks and other equipment would generate exhaust emissions intermittently during renovation and construction activities. Although no significant particulate matter emissions are anticipated, the program would implement standard dust reduction measures, including watering excavated and graded areas, applying synthetic or natural coverings to disturbed areas as needed, and establishing a vegetative or other permanent groundcover. Emissions of other criteria pollutants during construction, including ozone precursors, would be temporary and not significant.

Over the long-term, air emissions from RB-10 operations, maintenance, and deployment activities would not exceed the National Ambient Air Quality Standards (NAAQS)—such as the primary standard for carbon monoxide (35 parts per million [ppm] averaged over 1 hour and 9 ppm averaged over 8 hours)—and they are not expected to exceed similar state ambient air quality standards. Based on detailed analysis of the Deployable IDS/SGS Sensor System—the RB-10 system element with the highest potential for air emissions—implementation of the RB-10 would not exceed ambient air quality *de minimis* thresholds at any installation, even within the most stringent nonattainment area. Also, when analysts compared RB-10 emissions to annual emission inventories for NAAQS nonattainment areas, they determined that program-related emissions would not exceed 10 percent of individual county emission inventories. As a result, the RB-10 operations would not be regionally significant.

Where necessary, the USAF would obtain operating permits and complete toxicological risk screening for diesel-powered generator sets, in compliance with applicable state, county, and regional air quality regulations. When necessary to comply with permit or other operating restrictions, operators of the diesel-powered generator sets would limit the total daily or annual hours of operation, and/or the diesel engines would meet or exceed best available control technologies, such as particulate filtering systems and use of ultra-low-sulfur fuel.

- **Noise.** For all affected locations, noise exposures from proposed renovation and construction activities would be minimal and short-term, and would occur only during daytime hours. The use of construction equipment (e.g., backhoe/loader, crane, and trucks) would generate peak noise levels of approximately 70 to 90 A-weighted decibels (dBA) at 50 feet (ft) (15 meters [m]). Because steady-state noise levels may exceed 85 dBA, construction contractors would be required to wear appropriate hearing protection in accordance with Occupational Safety and Health Administration (OSHA) requirements. Renovation and construction activities are most

likely to occur within cantonment and/or other industrial areas at each installation; therefore, construction-related noise likely would not be an issue for residential areas or other sensitive receptors located on or off the installations.

For most RB-10 locations, long-term noise levels from operations and maintenance would be virtually unchanged from current background noise levels. For some locations, periodic use of emergency and transportable generators would produce peak noise levels of approximately 70 dBA at 23 ft (7 m), well below the 85-dBA steady-state noise level for requiring hearing protection. Because the RB-10 system elements are expected to operate within cantonment and/or other industrial areas at each installation, generator or other equipment noise would not be an issue for residential areas or other sensitive receptors located on or off the installation. In addition, aircraft support operations for system deployments are not expected to result in changes in aircraft types or cause significant changes in the number of flights at any DOD airfields or municipal airports. Thus, aircraft noise levels at supporting airfields and airports would not change significantly.

- **Biological Resources.** Because all RB-10 system elements would likely be sited within cantonment and/or other industrial areas at each installation, very few areas of natural terrestrial, wetland, or other important habitats would occur in the immediate vicinity. Excavation and other construction-related activities would be short-term and intermittent, and they would most likely occur in pre-disturbed areas where the vegetative cover is managed on a regular basis. Also, as previously described, noise levels generated by construction activities, generators, and other equipment would not be substantial.

During long-term operations of each Deployable Sensor System, occasional use of the portable Flyaway Triband Satellite Terminal (FTSAT) could present a potential radio frequency radiation (RFR) risk for birds, bats, and other flying wildlife that might enter the transmission beam during operations. However, the RFR from the FTSAT would not adversely affect wildlife because: (1) the FTSAT would only be used occasionally, (2) the irradiation effects would only extend out approximately 436 ft (133 m) along a narrow beam (up to several meters in diameter) in front of the dish antenna, and (3) birds or other wildlife flying through the beam would be exposed for no more than a few seconds at a time. Thus, no significant impacts are predicted.

To prevent Deployable Sensor System lighting at Patrick AFB from potentially affecting the behavior and movement of Federally listed sea turtles at night, the RAIDRS Squadron would ensure that system lighting complies with management policies and procedures implemented by the base. The Squadron would coordinate with the Patrick AFB Environmental Office in development of a Light Management Plan that incorporates the latest and best available sea turtle lighting technology. The Environmental Office would then consult with the USFWS for plan approval.

As a result, the USAF does not expect site preparations and operations to adversely affect threatened or endangered species, or critical and other sensitive habitats, at any RB-10 locations.

- **Cultural Resources.** Ground disturbance requirements at all affected RB-10 sites would be minimal. Working with installation personnel, the RAIDRS Squadron plans that all system elements would be sited within cantonment and/or other industrial areas where most land areas have been previously disturbed. As a result, excavations for concrete pads and underground power/fiber optic connections are not likely to impact archaeological sites. However, prior to selecting suitable sites for construction activities, the RAIDRS Squadron would coordinate with the affected installation Environmental Office to ensure that no known archaeological or other

cultural resource sites would be adversely affected by proposed RB-10 activities. The Squadron would also commit to precautionary measures (e.g., on-site monitoring) should ground disturbance activities occur near known or potential resource sites.

As part of the selection of buildings and sites for RB-10 long-term operations, program management and installation environmental staff would avoid choosing sites where activities could impact historic buildings and structures by altering their use, affecting their physical features, introducing visual or audible elements that would diminish the integrity of the property's historic significance, or resulting in structural damage to the property.

As a result, the USAF does not expect RB-10 activities to impact any archaeological or historical properties at affected sites.

- **Public and Occupational Safety and Health.** RB-10 operations and maintenance activities, in general, would present minimal health and safety risks to system operators (including both military personnel and contractors). System operators would be required to comply with applicable safety and health requirements at each installation. Operators would also undergo periodic training on the safety and handling aspects of the equipment, including maintenance operations and use of any hazardous materials. Because all RB-10 elements would be located on USAF and other DOD installations, system operations would not present any health risk to the general public.

Of particular importance are the RFR risks and other hazards associated with operation of the FTSAT, a component of each Deployable Sensor System. As part of site selection for this system, each affected installation would conduct a radio frequency survey of potential sites to ensure electromagnetic compatibility with existing communications, airport operations, and other electrical and electronic systems. This would include compatibility with areas where ordnance and fuels are stored. The RFR health risk associated with the FTSAT requires a maximum hazard clear zone of 436 ft (133 m) from the front of the dish (depending on antenna elevation) and within a half-degree of the directional antenna's boresight. The long hazard area is based on an "uncontrolled environmental permissible exposure limit" of 9.3 mW/cm² over 6.4 minutes for the worst-case radio frequency emissions field generated by the FTSAT, as determined using Air Force Occupational Safety and Health standards. The FTSAT, however, would only be used occasionally for training purposes and when other existing communications infrastructure is unavailable. The FTSAT would be operated in accordance with DOD, USAF, and other applicable Service standards for RFR permissible exposure limits. Because certain components of the FTSAT contain beryllium oxide and cadmium-plated steel, equipment operators and handlers must use extra precautions when handling the FTSAT. At each home base, the program would include a gated chain-link fence around the Deployable Sensor System for both security and safety purposes. RB-10 personnel also would place "Keep Out" notices around radiation hazard areas before the FTSAT is used. When fielded at host installations, personnel would place either temporary fencing and/or "Keep Out" notices around the site, depending on installation requirements.

For RB-10 operations and maintenance activities, personnel would follow all applicable Federal, state, and local health and safety requirements, such as OSHA regulations, as well as all appropriate DOD, USAF, and other Service regulations. By adhering to the established safety standards and procedures at each installation, military personnel, contractors, and the general public would be subjected to minimal levels of risk. Consequently, the USAF anticipates no significant impacts to health and safety.

- **Hazardous Materials and Waste Management.** Each affected location would require use of fuels and lubricants for equipment operation during excavation and other construction work. Other hazardous materials (such as paints, thinners, and sealants) may be used during the construction and renovation activities. If asbestos, lead-based paint, or other hazardous construction materials are present and they cannot be safely managed in place, workers would remove such materials from buildings and facilities and dispose of them in accordance with Federal, state, and local regulations.

Long-term RB-10 operations and maintenance at installations involving generators, antenna dishes, mobile equipment, and electronic equipment would require use of diesel fuel, engine coolants, lubricants, sealants, cleaning solvents, paints, and other surface coatings. With the exception of fuel, engine oil, and coolants for the generators, normal maintenance of equipment at each affected location should not require more than a few pounds of any one material per year. Whenever possible, environmentally preferred and/or recyclable materials would be used.

Hazardous wastes generated over the long term would consist mostly of waste engine oil and ethylene glycol-based coolant from diesel generators; and waste batteries (lead-acid, lithium, etc.) from generators, uninterrupted power supplies, computers, and other portable equipment. Based on normal maintenance schedules and expected generator operations, each generator would create 9.0 gallons (gal) (33.9 liters [L]) of waste oil per year and approximately 5 gal (19 L) of waste coolant every 2 years. As for battery waste, about every 5 years personnel would replace six lead-acid batteries at each COL facility and two lead-acid batteries in each RB-10 generator set. Personnel would treat battery waste generated by RB-10 systems, including lithium and alkaline batteries, as solid or hazardous waste, depending on the type of battery and electrolyte material used. Each affected installation would generate no more than a few pounds of this battery waste per year, and all hazardous and non-hazardous wastes would be properly disposed of in accordance with applicable Federal, state, local, DOD, and Service regulations.

Overall, the hazardous material usage and hazardous waste generation expected from implementation of the RB-10 would result in minimal increases to current hazardous material/waste management programs at each affected installation. As a result, the USAF does not expect any adverse impacts from the management of hazardous materials and waste.

Environmental Monitoring and Management Actions: The EA describes various management controls and engineering systems for all locations affected. As required by Federal, state, DOD, and Service-specific environmental and safety regulations, each installation implements these measures through normal operating procedures.

Though the USAF does not expect any significant or other major impacts to result from implementation of the Proposed Action, the USAF has identified some specific environmental monitoring and management activities to further minimize the level of insignificant impacts that might occur at some locations or in some environmental settings. These activities include avoidance of known and potential archaeological sites and the implementation of safety precautions for RFR hazards.

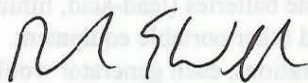
Public Review and Comment: At Peterson AFB, CO and Patrick AFB, FL, the USAF published an availability notice for public review in local newspapers on or before December 22, 2006, initiating a 30-day review period that ended on January 22, 2007. The USAF made copies of the Draft EA and Draft FONSI available in local libraries or offices in Colorado and Florida. The EA and FONSI also appeared on the Space and Missile Systems Center (SMC), Los Angeles AFB web site at <http://ax.losangeles.af.mil/axf>, listed under "announcements." In preparation of the Final EA, the USAF considered all comments received

during public review and incorporated recommended changes into the Final EA, as appropriate, along with individual responses to each comment.

Point of Contact: The point of contact for questions, issues, and information relevant to the EA for the RB-10 is Mr. Thomas Huynh, SMC/EAFV, Los Angeles AFB, California. Mr. Huynh can be reached by calling (310) 653-1223, by facsimile at (310) 653-1226, or by e-mail at Thomas.Huynh@losangeles.af.mil.

Conclusion: Based upon review of the facts and analyses contained in the EA, the SMC and the Air Force Space Command conclude that implementation of the Proposed Action will not have a significant environmental impact on the human and natural environment, either by itself or cumulatively with other projects. Accordingly, the USAF has determined that this EA satisfies the requirements of NEPA, the CEQ Regulations, and 32 CFR Part 989; therefore, an Environmental Impact Statement is not required.

Approved:



10 May 07

RICHARD E. WEBBER
Major General, USAF
Director of Installations and Mission Support

Date

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFOSH	Air Force Occupational Safety and Health
AFSPC	Air Force Space Command
ANSI/IEEE	American National Standards Institute/Institute of Electrical and Electronics Engineers
APCD	Air Pollution Control District
AQCR	Air Quality Control Region
BACT	Best Available Control Technologies
BTU	British Thermal Unit
CAA	Clean Air Act
CDR	Critical Design Review
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO	Colorado
COL	Central Operating Location
CONUS	Continental United States
dB	Decibel
dBA	A-weighted Decibel
DCS	Defensive Counter Space
DOD	Department of Defense
DOT	Department of Transportation
EA	Environmental Assessment
ECU	Environmental Control Unit
EIS	Environmental Impact Statement
ESA	Endangered Species Act
ESOH	Environmental, Safety, and Occupational Health
FAA	Federal Aviation Administration
FDEP	Florida Department of Environmental Protection
FL	Florida
FONSI	Finding of No Significant Impact
ft	Foot
FTSAT	Flyaway Triband Satellite Terminal
FY	Fiscal Year
gal	Gallon
GHz	Gigahertz
GIG	Global Information Grid
GPS	Global Positioning System
HC	Hydrocarbon
hp	Horse Power
HVAC	Heating, Ventilation, and Air Conditioning
ICRMP	Integrated Cultural Resources Management Plan
IDS	Interference Detection System
INRMP	Integrated Natural Resources Management Plan
IRP	Installation Restoration Program
JSpOC	Joint Space Operations Center
kg	Kilogram

kW	Kilowatt
L	Liter
lb	Pound
LBP	Lead-Based Paint
m	Meter
mg/m ³	Milligram per Cubic Meter
mW/cm ²	Milliwatts per Centimeter Squared
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO ₂	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrogen Oxide
NRHP	National Register of Historic Places
OAHP	Office of Archaeology and Historic Preservation
OSHA	Occupational Safety and Health Administration
OTR	Ozone Transport Region
Pb	Lead
PEL	Permissible Exposure Limit
PM _{2.5}	Particulate Matter Less Than or Equal to 2.5 Micrometers
PM ₁₀	Particulate Matter Less Than or Equal to 10 Micrometers
ppm	Parts per Million
RAIDRS	Rapid Attack Identification, Detection, and Reporting System
RB-10	RAIDRS Block 10
RCRA	Resource Conservation and Recovery Act
RE	Reference Emitter
RFI	Radio Frequency Interference
RFR	Radio Frequency Radiation
ROI	Region of Influence
SATCOM	Satellite Communications
SGS	SATCOM Geolocation System
SHF	Super High Frequency
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMC	Space and Missile Systems Center
SO _x	Sulfur Oxide
SOH	Safety and Occupational Health
SW	Space Wing
SY	Space Superiority Systems Wing
UHF	Ultra High Frequency
UPS	Uninterrupted Power Supply
USAF	United States Air Force
USAKA	US Army Kwajalein Atoll
USC	United States Code
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USSTRATCOM	US Strategic Command
VOC	Volatile Organic Compound
W	Watt
WWII	World War II
µg/m ³	Micrograms per Cubic Meter

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 INTRODUCTION

The US Air Force (USAF) Space and Missile Systems Center (SMC), Space Superiority Systems Wing (SY), proposes to implement the initial phase (Block 10) of the Rapid Attack Identification, Detection, and Reporting System (RAIDRS) Program. The RAIDRS Program is a system hardware/software solution that would provide a capability to identify when an external force is adversely affecting US satellites and other space systems. The RAIDRS system architecture would consist of ground-based satellite downlinks and a communications network.

As part of the overall RAIDRS Program, the proposed RAIDRS–Block 10 (RB-10) would implement a system to identify possible direct radio frequency interference (RFI) of space systems. It would provide near real-time detection, characterization, geolocation,¹ and reporting of RFI events affecting US-protected communication satellites. This Environmental Assessment (EA) documents the results of a study of the potential environmental impacts resulting from implementation of the proposed RB-10.

In support of the SMC/SY, the SMC Environmental Management Branch of Acquisition Civil/Environmental Engineering, and the Air Force Space Command (AFSPC) Environmental Division, determined that an EA was required to assess the potential environmental impacts from the construction and fielding activities, and long-term operations, associated with the RB-10. The USAF prepared this EA in accordance with the National Environmental Policy Act (NEPA, 1969), the President’s Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508) (CEQ, 2002), and 32 CFR Part 989 (*Environmental Impact Analysis Process*) (USAF, 2001a).

1.2 BACKGROUND

The space environment is critically important to US national security. The capabilities derived from US satellites and other space systems have contributed invaluable to decisive outcomes in the Cold War,

The Purpose of an Environmental Assessment

An Environmental Assessment (EA) is prepared by a Federal agency to determine if an action it is proposing would significantly affect any portion of the environment.

The intent of an EA is to provide project planners and Federal decision-makers with relevant information on the impacts that a proposed action might have on the human and natural environments.

If the study finds no significant impacts, then the agency can record the results of that study in an EA document, and publish a Finding of No Significant Impact (FONSI). The agency can then proceed with the action. However, if the results of the EA indicate that there would be potentially significant impacts associated with the action, then the agency must proceed as follows:

- The executing agency must modify the action to reduce the environmental impact(s) to less-than-significant levels; or
- If the action cannot be feasibly mitigated to a level of no significant impact, the executing agency must then prepare and publish a detailed Environmental Impact Statement (EIS) to analyze the impacts in greater depth for the decision-makers’ consideration.

¹ *Geolocation*, as used here, is the process of determining the geographic location of a point on the Earth in terms of its latitudinal and longitudinal coordinates.

Operation Desert Storm, Operation Enduring Freedom, Operation Iraqi Freedom, and the global war on terror (Stevens, 2006). However, as our nation becomes more operationally dependent on the use of space-based assets, future adversaries will try to deny the United States the advantage that space provides. For example, during Operation Iraqi Freedom in 2003, the Iraqi forces attempted to jam signals from US NAVSTAR Global Positioning System (GPS) satellites (Fernandez, 2004; Teets, 2004; USAF, 2004a). The United States must look now to overcome future threats on space systems that may not be as blatant as that example.

In response to such threats to satellite systems, the USAF's Defensive Counter Space (DCS) Program provides for defensive activities to protect US and friendly space-system assets, resources, and operations from enemy attempts to negate or interfere. The program also includes prevention activities that limit or eliminate an adversary's ability to use US space systems and services for purposes hostile to US national security interests. The range of potential threats being addressed by the DCS Program includes radio transmissions that interfere with or jam command links with satellites, computer hackers taking over control of a satellite, and direct attacks using high-energy electromagnetic radiation or lasers to disable satellite systems.

As part of the overall DCS Program, the RAIDRS represents a hybrid architecture made up of sensors, communication links, and data processing systems intended to analyze the data from satellites and determine if they are being adversely affected by some external force. Over the next 10 or more years, the plan to accomplish the RAIDRS mission includes using a block (phased) acquisition approach. As a subset of the RAIDRS block development program, the RB-10 would support the DCS area of RFI on satellite communications (SATCOM). The RB-10 system would utilize ground-based sensors and a communications network with worldwide coverage to monitor US-protected communications satellites. The information generated by the RB-10 system would allow satellite operators to identify possible RFI events. RFI event detection, characterization, and geolocation would allow advanced warning for the protection of other space systems, as well as the targeting of enemy sources of deliberate RFI, thereby maintaining uninterrupted national security support.

As the RAIDRS Program is implemented, later phases beyond the initial RB-10 system will consider additional event detection and decision support elements. But before the implementation of later phases can occur, the USAF will have to evaluate them through supplemental environmental impact analyses.

1.3 PURPOSE OF THE PROPOSED ACTION

The purpose of the RB-10 is to provide near real-time detection, characterization, geolocation, and reporting of deliberate and inadvertent RFI events affecting US-protected communications satellites. Reporting RFI event alerts to the Joint Warfighter, via the Joint Space Operations Center (JSpOC) and US Strategic Command (USSTRATCOM), would provide satellite operators and US military forces with the information needed to counter potential threats.

1.4 NEED FOR THE PROPOSED ACTION

Since the 1991 Gulf War, US military forces have become increasingly reliant on space resources for communications, intelligence, weather forecasting, missile warning and targeting, navigation, and timing of operations. Recognizing that US space assets have become an integral part of today's warfare, the DOD has begun to emphasize the importance of protecting these resources. Although US military space systems have been relatively unchallenged, military leaders anticipate increasing threats to these systems, because they provide a significant military advantage. DCS operations, such as RB-10, would serve to safeguard the ability to exploit space by protecting space capabilities from both friendly and unfriendly military and commercial RFI.

1.5 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

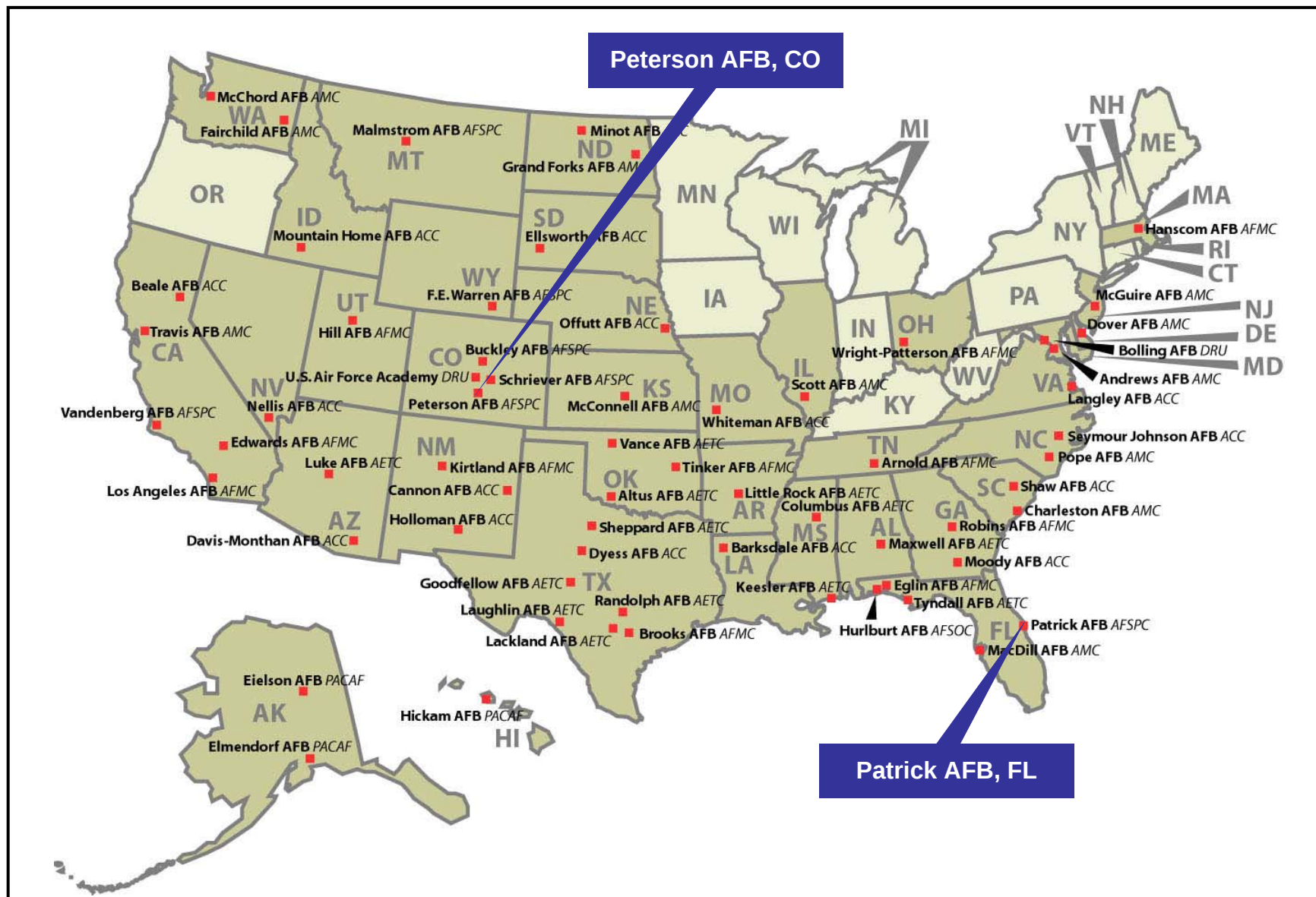
The proposed RB-10 system would provide capabilities to detect, characterize, geolocate, and report SATCOM RFI occurrences on US communication satellites. Implementing the RB-10 would require establishing a worldwide network of command centers, and fixed and transportable ground sensor systems. However, in accordance with NEPA and its implementing regulations, this EA only analyzes those RB-10 actions that would occur within the United States, at any US territories and possessions,² and potentially at the US Army Kwajalein Atoll (USAKA) in the Marshall Islands.³ For discussions on those RB-10 actions to occur in other foreign countries that are not analyzed in this EA, refer to Section 1.6.

Under the Proposed Action, the list of possible RB-10 system elements and locations analyzed in this EA is provided below. All system elements would be land-based; however, the USAF will determine the final mix of fixed and transportable element types and numbers at a future time. It is likely that the resulting RB-10 system architecture to be fielded will have fewer than the maximum number of elements proposed.

- **Primary COL.** The Primary Central Operating Location (COL), which may include an electronic simulation Test Bed, would be located at Peterson Air Force Base (AFB), Colorado Springs, Colorado (CO) (see Figure 1-1).
- **Backup COL.** The Backup COL would be located at another AFB within the continental United States (CONUS) (Figure 1-1).
- **Hosted IDS/SGS Sites.** Up to six Hosted (fixed) Interference Detection System (IDS)/SATCOM Geolocation System (SGS) Sites would be located at any of the USAF or other DOD installations in the United States that have existing SATCOM earth terminals.
- **Deployable IDS/SGS Sensor Systems and Non-Deployable Trainer System.** Up to six Deployable (transportable) IDS/SGS Sensor Systems and one non-deployable IDS/SGS Trainer System would be home-based (garrisoned) individually or in pairs at AFBs somewhere in the United States. The first unit would be home-based either at Peterson AFB or at Patrick AFB near Cocoa Beach, Florida (FL) (see Figure 1-1). If needed, the non-deployable Trainer System would also be established at Peterson AFB. In addition to their normal operations and training at home bases, the Deployable IDS/SGS Sensor Systems also would be deployed periodically, or as necessary, to other DOD installations within or outside the United States as part of training exercises, to monitor and geolocate RFI events in regions where there are gaps in satellite monitoring coverage, or to fill-in for fixed IDS/SGS sites that are down for repair.
- **Remote IDS Sensors.** Up to six Remote (fixed) IDS Sensors would be located at USAF or other DOD installations somewhere within the United States, US territories and possessions, and the USAKA. It is possible that some or all of the Remote IDS Sensors could be established at the same installations where the Deployable IDS/SGS Sensor Systems would be home-based.

² The territories and possessions of the United States include Puerto Rico, the Virgin Islands, American Samoa, Wake Island, Midway Island, Guam, Palmyra Island, Johnston Atoll, Navassa Island, and Kingman Reef.

³ Through an agreement with the Republic of the Marshall Islands Government, US actions at USAKA are subject to NEPA compliance in accordance with CEQ regulations.



Source: Modified from USAF, 2006b

Figure 1-1. Major Active-Duty Air Force Installations in the United States

Although the RB-10 system architecture would interface with existing Department of Defense (DOD) owned and used communication satellites in orbit around the Earth, the orbiting satellites do not require modifications, nor does the RB-10 require new satellites for system operations.

In terms of schedule for the RB-10 program, the first Preliminary Design Review occurred in December 2005. The first Critical Design Review (CDR) for Initial Operational Capability was held in November 2006 and a second CDR for Full Operating Capability is scheduled for early 2008. The USAF would execute the RB-10 program in increments (production phases) spread over several years that start in 2007 and lead to Full Operating Capability in 2011. For Increment 1 in the 2007 to 2008 timeframe, the Primary COL, the Backup COL, and the initial Deployable IDS/SGS systems would be established. Later increments in the 2008 to 2010 period would establish the remaining RB-10 elements (listed above), as necessary. All of these actions are further described in Section 2.1 (Proposed Action) of this EA.

In analyzing the potential environmental impacts of the Proposed Action, the EA addresses site-specific impacts for those locations that are known. But because of the phased approach of the RB-10 program's execution, the installations and site-specific plans for several of the system elements have not yet been identified. Decisions regarding such plans will occur later as the program matures. Thus, for those sites not yet identified, the EA describes the environmental impacts that would likely occur, and occur at multiple locations. Once the site-specific plans become available, the USAF would complete supplemental environmental reviews, when necessary, prior to implementation of the Proposed Action at each installation and facility site selected. In the case of actions at USAF installations, the RAIDRS Squadron and the affected base would complete a USAF Form 813, *Request for Environmental Impact Analysis* (USAF, 2001a). For RB-10 actions occurring on other military Service installations, the RAIDRS Squadron would work with the affected installation in applying a similar supplemental environmental review process. Supported by the information contained in this EA, each installation would determine the appropriate level of supplemental analysis that is needed.

Per the CEQ and USAF regulations for implementing NEPA (40 CFR 1502.14[d] and 32 CFR 989.8[d], respectively), this EA also analyzes the No Action Alternative, which serves as the baseline against which the Proposed Action and alternatives are evaluated. Under the No Action Alternative described in Section 2.2.2, the RB-10 would not be implemented.

1.6 OVERSEAS ACTIONS OUTSIDE THE SCOPE OF THE ENVIRONMENTAL ASSESSMENT—TO BE ANALYZED SEPARATELY UNDER EXECUTIVE ORDER 12114

As part of the proposed RB-10 worldwide network, the USAF would establish additional system elements at fixed locations in other foreign countries, as necessary, during later increments in the 2009 to 2010 period. These additional elements are listed below.

- **Hosted IDS/SGS Sites.** Up to six Hosted IDS/SGS Sites located at any DOD installations overseas that have existing SATCOM earth terminals.
- **Remote IDS Sensors.** Up to 20 Remote IDS Sensors located at existing DOD or other US-controlled facilities in other foreign countries.

In addition, some of the Deployable IDS/SGS Systems to be home-based in the United States (per Section 1.5) would on occasion deploy overseas to participate in training and military exercises, and for national security purposes.

Although not analyzed in this EA, these overseas actions are likely to have environmental effects that are similar to those of the Proposed Action, which is further described in Section 2.1. Prior to their implementation in other foreign countries, these actions will likely require separate environmental reviews in accordance with Executive Order 12114, Environmental Effects Abroad of Major Federal Actions (Office of the President, 1979), and the implementing policy and procedures contained in 32 CFR Part 989 and in 32 CFR Part 187 (*Environmental Effects Abroad of Major Department of Defense Actions*) (DOD, 1991). Per 32 CFR 187.4, the DOD (including the USAF) must act with care within the jurisdiction of a foreign nation. Treaty obligations and the sovereignty of other nations must be respected, and restraint must be exercised in applying US laws within foreign nations unless Congress has expressly provided otherwise. Only if RB-10 system activities in foreign nations were to become *joint* in nature (i.e., with host nation participation) would Executive Order 12114 requirements not apply.

1.7 DECISIONS TO BE MADE

Supported by the information and environmental impact analysis presented in this EA, the USAF will decide whether to implement the RB-10 Proposed Action, or to select the No Action Alternative. If the USAF allows the fielding of the RB-10 system to proceed, the decision on how to implement the program—in terms of which locations to use, and the extent of facility modifications and construction—will depend on future global threat concerns, facility availability, operational requirements, and other logistical considerations and constraints.

1.8 INTERAGENCY COORDINATION AND CONSULTATIONS

Ongoing interagency coordination is integral to the preparation of this EA. During public review of the Draft EA, regulatory agencies were given the opportunity to comment on the document. A list of those agencies, organizations, and officials that were sent a copy of the Draft EA/FONSI is provided in Chapter 8.0 of this Final EA. Copies of the written comments received, and the responses to those comments, are provided in Appendix B.

To implement the RB-10 at some locations, future agency consultations might become necessary. This would depend on the specific locations and facilities to be used, and other mission requirements occurring over the life of the program. At Peterson AFB, for example, the Colorado State Historic Preservation Officer (SHPO) will be consulted in cases where construction activities and facility modifications might affect historical resources. In the case of Patrick AFB, the US Fish and Wildlife Service (USFWS) would be consulted on development of a Light Management Plan, so that RB-10 night operations do not affect the behavior and movement of threatened and endangered sea turtles occurring along the beaches. Additional coordination and consultations with Federal, state, and local agencies would be conducted for each affected location, as necessary.

1.9 PUBLIC NOTIFICATION AND REVIEW

As per the CEQ (2002) and USAF (2001a) regulations for implementing NEPA, the USAF solicited comments on the Draft EA from interested and affected parties. A Notice of Availability for the Draft EA, and the enclosed Draft FONSI, was published in the local newspapers listed below, announcing the 30-day review and comment period that ended on January 22, 2007.

- *Colorado Springs Gazette*, Colorado Springs, CO
- *Florida Today*, Melbourne, FL

As part of this effort, copies of the Draft EA and Draft FONSI were placed in the local libraries and offices listed below, in addition to making the documents available over the Internet.

- East Library, Colorado Springs, CO
- Penrose Library, Colorado Springs, CO
- Satellite Beach Public Library, Satellite Beach, FL
- Public Affairs Office, Patrick Air Force Base, FL

Following the public review period, comments received were considered in the preparation of the Final EA and the recommended changes were incorporated, as appropriate. Appendix B of this Final EA contains a reproduction of all the written comments received, along with individual responses to each comment. A copy of the Final EA and FONSI has been sent to those agencies, organizations, and individuals who provided comments on the Draft EA/FONSI, or who specifically requested a copy of the final document.

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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This EA assesses two actions—the Proposed Action and the No Action Alternative. Within this chapter, Section 2.1 provides a description of the Proposed Action for implementing RB-10, which includes establishment and operation of the Primary and Backup COLs, and various fixed and transportable IDS and SGS sensors. Section 2.2 provides information on alternatives to the Proposed Action, including a description of the No Action Alternative and identification of those alternatives eliminated from further consideration. Section 2.3 contains a summary comparison of the environmental impacts associated with the Proposed Action and the No Action Alternative. Lastly, Section 2.4 identifies the Preferred Action.

2.1 PROPOSED ACTION

The proposed RB-10 system would integrate existing SATCOM facilities and sensors with new command centers and equipment. New system elements would be based primarily on commercially available components, including antennas, computers, software, and generators.

Active duty military and/or contractor personnel would operate the RB-10 system elements, located at USAF bases and other DOD installations. At most locations, existing facilities would be adequate for personnel, operations, and equipment storage, though facility modifications may be necessary. A few sites may require minor construction for new radio dish antennas, support equipment, and/or power and communication links. In identifying sites for establishing RB-10 system elements, the USAF is applying various evaluation criteria, which are listed below:

- Sufficient geographic coverage to support global detection of potential RFI and interfering emitters affecting US communication satellites
- Requirement for fielding at USAF and other DOD installations
- Accessibility to existing SATCOM earth terminals and related communication links
- Minimal construction requirements
- Power and communication lines nearby
- Minimal environmental constraints
- Compatibility with the existing electromagnetic environment
- Minimal additional manpower support
- Ease of operations, and quality and capability of supporting infrastructure
- Minimal cost and schedule constraints or risks.

Once established, the RB-10 system would be capable of detecting an unknown or suspected SATCOM RFI anomaly or occurrence, whether it is natural/environmental, man-made unintentional, or a deliberate attack on US SATCOM links. The initial RB-10 system would monitor communication satellites operating in the super high frequency (SHF) bands; the USAF may upgrade the system at a later date to include other radio frequencies. Communications between RB-10 ground-based elements would occur via existing US communication satellites, SATCOM earth terminals, and the Global Information Grid (GIG).⁴

⁴ The GIG consists of DOD owned and leased communications and computing systems and services, software, system data, security services, and other associated services necessary to achieve information superiority for the US military.

Figure 2-1 shows a step-by-step operational overview of the RB-10 system. Once a fixed or transportable IDS sensor has identified an interfering radio signal affecting SATCOM operations, the COL would task fixed or transportable SGS sensor units in the same region to geolocate the source of the SATCOM RFI through characterization of signals received from other adjacent satellites. The SGS units would then report the results of the geolocation to the COL, which reports to the JSpOC, SATCOM operators, and other applicable users. The resulting RB-10 reports would provide information required for timely mitigation and response to RFI events. Actions taken would vary by situation and may involve a number of DOD and other Federal Government agencies. The USSTRATCOM would coordinate other elements of power in response to specific events in order to restore lost combat capabilities.

The following sections provide discussions on site preparations, operations, and maintenance for each RB-10 system element.

2.1.1 CENTRAL OPERATING LOCATIONS

The COL would serve as the command and communications node for the entire RB-10 system. It would execute command and control over fixed and transportable IDS and SGS units located worldwide. The COL would support SATCOM monitoring tasks received from the JSpOC, and provide related RFI Alerts/Event Reports and Geolocation Event Reports to the JSpOC. The USAF is proposing a Primary and Backup COL, both of which are described below.

2.1.1.1 Primary

The Primary COL would be responsible for the mission management, mission planning, and direct tasking of IDS and SGS units (both fixed and transportable), and be capable of remote tasking and configuration of fixed and transportable units. If incorporated with the Primary COL, an electronic simulation Test Bed would help demonstrate, evaluate, and exercise RB-10 system equipment and operations.

The Primary COL would be located within existing facilities at Peterson AFB in Colorado Springs, CO. The USAF 21st Space Wing (SW), whose mission is to provide missile warning and space control to the North American Aerospace Defense Command and the USSTRATCOM, would operate the Primary COL.

Site Preparations

At Peterson AFB, Building 504, which is located east of the aircraft parking apron and the Colorado Springs Airport (see Figure 2-2), would house the Primary COL. Built in 1969, Building 504 is a single-story office building with approximately 5,000 square feet (ft) (465 square meters [m]) of total office space. The proposed COL would occupy approximately 2,000 square ft (186 square m) of the building. Proposed modifications to the interior and exterior of Building 504 are listed below:

- Change out glass access doors
- Repair and paint interior walls
- Install new wiring and fiber optic connections within the building
- Add new lightning rods on roof of building and electrical grounding lines
- Modify the existing heating, ventilation, and air conditioning (HVAC) system and air ducts
- Install several computer and electronic equipment racks inside the building

1

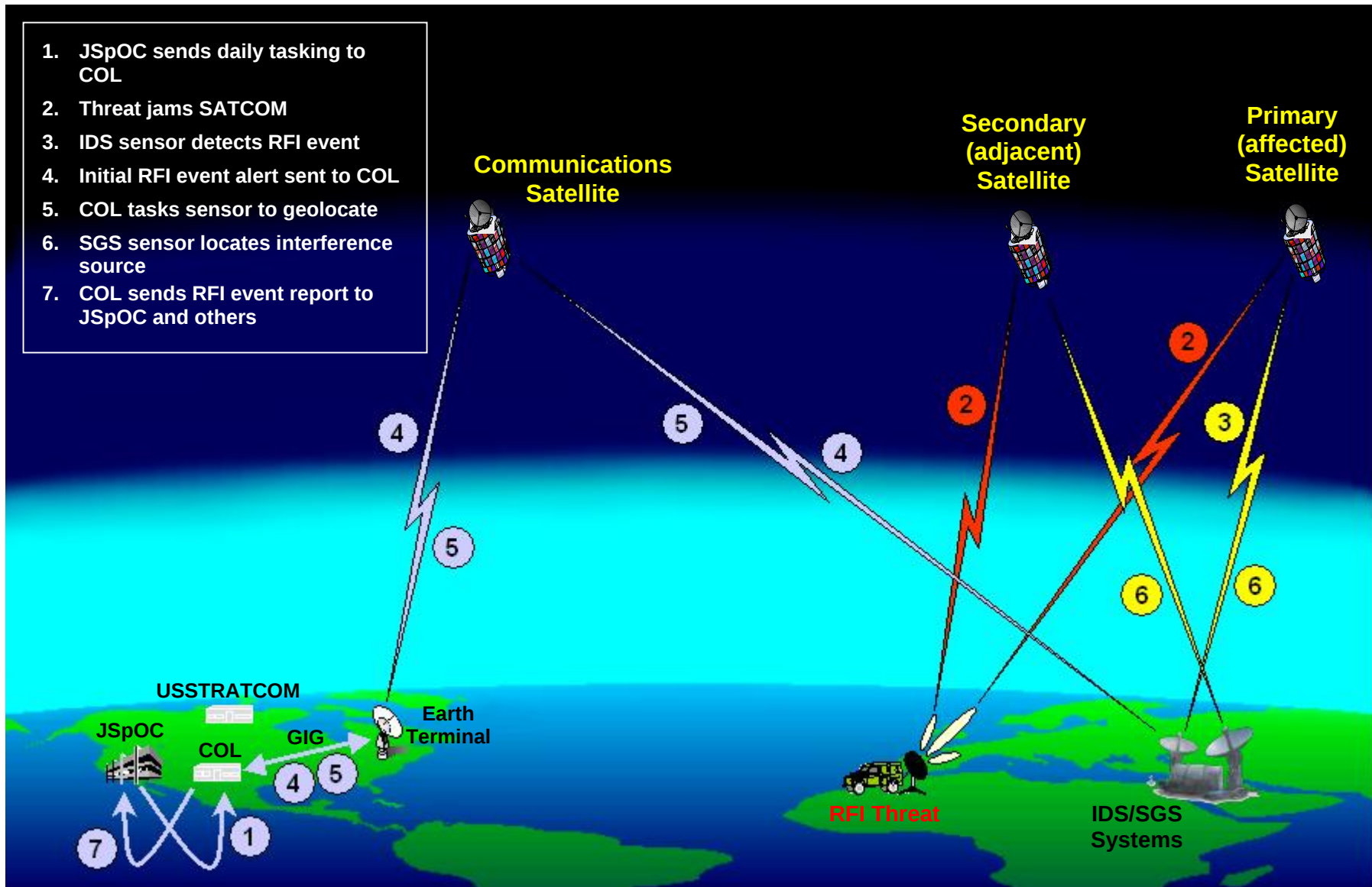


Figure 2-1. RB-10 Operational Overview

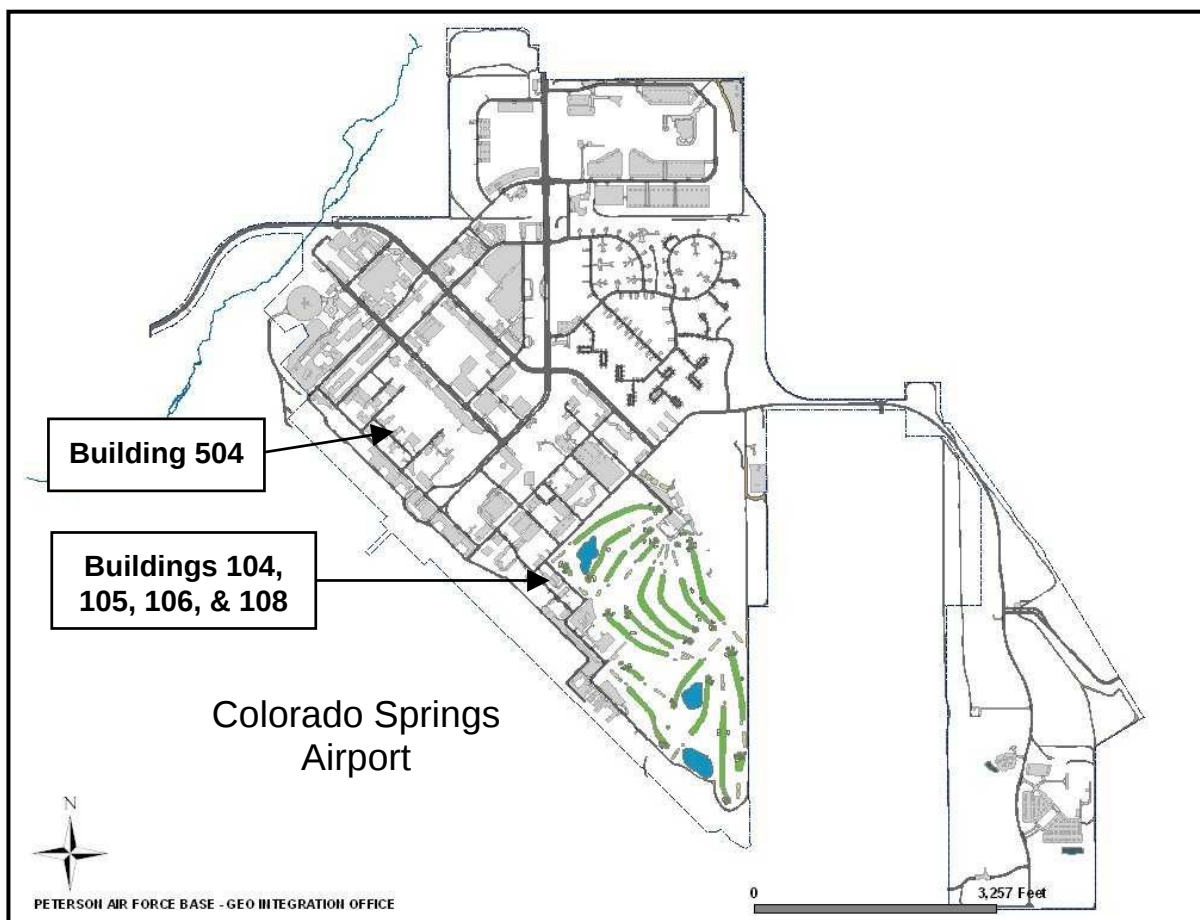


Figure 2-2. Peterson Air Force Base, Colorado

- Install an uninterruptible power supply (UPS) in the new equipment racks, consisting of six commercial, maintenance-free, sealed lead-acid batteries weighing 42 pounds (lb) (19 kilograms [kg]) each
- Install a new 60-kilowatt (kW) backup (emergency) generator set powered by a 134 horsepower (hp) (maximum) diesel engine, along with an aboveground, day fuel tank with an approximate 240-gallon (gal) (905-liter [L]) capacity. The generator set and day tank would be installed in an existing paved area or on a new 900 square-ft (84 square-m) concrete pad adjacent to Building 504. For potential fuel and other fluid spills, appropriate secondary containment systems/structures would also be installed around the new generator set and fuel tank.

Most likely, the only equipment to be used during construction for the generator—for installing the pad (if required), hardware, and underground power line connections—is a backhoe/loader, crane, and truck transport. Implementing the other building modifications would require additional trucks and transport equipment. All construction and related excavations would occur within predisturbed areas immediately adjacent to Building 504. Approximately 10 construction workers would be involved in this effort. Construction activities likely would begin in early 2007 and last several weeks.

Operations and Maintenance

In early 2008, the Primary COL would begin conducting 24-hour operations to monitor and report on RFI events identified from both fixed and transportable IDS/SGS systems. COL and related RB-10 operations at Peterson AFB would involve up to 70 new and existing personnel working in multiple shifts. The base would experience net gains of approximately 30 new personnel.

Primary COL operations would draw approximately 20 kW of electrical power from the existing power grid on base, and require 75,000 British thermal units (BTUs) for heating/cooling, which should be well within current capacities for Building 504 and other base systems.⁵ The base would test run the new 60 kW diesel powered generator for about an hour on a monthly basis to ensure proper operation and reliability, but on rare occasions, it could be run longer should a power outage occur on base. It is expected that total annual operation of the generator would not exceed 25 hours.

2.1.1.2 Backup

The Backup COL would serve as a backup system that would mirror the Primary COL at Peterson AFB in case of primary system failure. The Backup COL would be located at another AFB (yet to be determined) within CONUS. By having physically separated primary and backup systems, RB-10 COL operators would be able to return to operations in minimal time.

Site Preparations

Though the RAIDRS Squadron has not yet identified a location for the Backup COL, it would most likely be within an existing building. The Backup COL likely would require construction and facility modification, and a 60 kW backup (emergency) generator set, similar to that described for the Primary COL in Section 2.1.1.1. Construction activities would occur sometime in 2008 and last several weeks.

Operations and Maintenance

As a backup system to the Primary COL, the Backup COL would not be fully manned and operated 24 hours per day; thus, it would require no more than 20 new and existing personnel when operations begin later in 2008.

During periods of full operations, the Backup COL would draw electrical power and energy close to that of the Primary COL described in Section 2.1.1.1. Testing of the backup generator would also occur on a monthly basis.

2.1.2 HOSTED SITES

Within the United States, the USAF would establish up to six RB-10 Hosted Sites to serve as remotely configurable IDS/SGS units to monitor and geolocate RFI events. The Hosted Sites would be located at USAF or other DOD installations in the United States that have existing SATCOM earth terminals. The proposed RB-10 system would utilize the existing SATCOM facilities and equipment at each location.

⁵ Although the Primary COL operations would only draw 20 kW of power, a larger capacity 60 kW generator set is needed for all of Building 504 and for potential increases in future electrical loads.

Site Preparations

Because the Hosted Sites would already have multiple satellite dish antennas in place to operate as IDS sensors, the RB-10 system would require only the addition of one dedicated SGS antenna, a Reference Emitter, and related computer and electronic equipment at each of the three installations. Although specific sites for the new equipment are yet to be identified, the expected construction-related requirements for each piece of equipment are described below.

- **SGS Antenna.** The SGS antenna would have a 16- to 23-ft (5- to 7-m) diameter parabolic dish that would rotate on a fixed pedestal mounted on a new or existing 200 square-ft (19 square-m) concrete pad. A representation of the new antenna is shown in Figure 2-3. With a maximum height of 40 ft (12 m), the antenna would require a clear viewing angle to the South; however, the RAIDRS Squadron does not plan on selecting any sites that would require the removal of trees or structures. Because of dish rotation, an 8-ft (2.4-m) tall chain-link fence might need to be installed a minimum of 18 ft (5.5 m) from the center of the pedestal in order to provide a safe clear zone for dish movements. Trenching for underground power and fiber optic connections also would be required if connections are not readily available at the antenna site.
- **Reference Emitter (RE).** The RE is a low power transmitter of a calibration signal to aid in identification and geolocation of satellite uplink interference and/or jamming. It consists of a 1.6-ft (0.5-m) maximum diameter antenna mounted on a new or existing pole, or on the roof of an existing building. Depending on its location, it might require trenching for underground power and fiber optic connections if they are not readily available at the RE site.
- **Support Equipment.** An existing building would house computer and other electronic equipment used to operate and integrate the SGS antenna and RE into existing SATCOM systems. The equipment would require less than 5 square ft (0.5 square m) of floor space, and it would tie into existing power and fiber optic connections.



Figure 2-3. Representation of a Hosted Site SGS Antenna

A lightning protection/grounding system would be incorporated into all new RB-10 equipment at the Hosted Sites.

Equipment to be used during construction and site modifications—for installing the antenna pad (if required), hardware, and underground power and fiber optic connections—would likely be limited to a backhoe/loader, crane, and truck transport. It is likely that all construction and related excavations would occur within predisturbed areas. Approximately 10 construction workers would be involved in this effort. Construction activities would occur in the 2008 to 2009 timeframe and last several weeks at each location.

Operations and Maintenance

Operations at the Hosted Sites would likely begin in late 2009. To minimize manpower requirements, none of the Hosted Sites should require dedicated RB-10 personnel on-site unless a system repair is required or for preventive maintenance inspections. It is envisioned that existing contractor logistics support at each location would provide long-term maintenance for the fixed systems.

During operations, the SGS antenna would only receive satellite signals as part of geolocation activities. The antenna would not emit radio frequency radiation (RFR); thus, it would not require a controlled hazard area around it. The RE—which transmits at only 1 watt (W) of power in the ultra high frequency (UHF) and SHF radio frequency bands—would require an approximate 1-ft (0.3-m) safety clearance in front of the dish to minimize RFR risks (Lewis, 2006a).

Hosted Site operations would draw approximately 10 kW of electrical power from the existing power grid at each installation, and require about 29,500 BTUs for equipment heating/cooling, which should be well within current capacities at each site.

2.1.3 DEPLOYABLE SENSOR SYSTEMS

Up to six land-based Deployable (transportable) IDS/SGS Sensor Systems would be home-based within the United States for operations and training purposes. The first unit would be home-based at either Peterson AFB (Figure 2-2), or Patrick AFB near Cocoa Beach, FL (Figure 2-4), which is operated by the USAF 45th SW. The remaining deployable units would be home-based individually or in pairs at yet to be determined AFBs in the United States (see Figure 1-1). A non-deployable Trainer System might also be established at Peterson AFB.

To provide transportable IDS and SGS capabilities for the RB-10 system, each Deployable Sensor System would contain various pieces of equipment to ensure system operations and personnel support while the system is fielded. The equipment associated with each unit is listed below, and a representation of a fielded Deployable Sensor System is presented in Figure 2-5.

- IDS trailer mounted 18-ft (5.4-m) diameter antenna dish
- SGS trailer mounted 18-ft (5.4-m) diameter antenna dish
- Inflatable Shelter (environmental protection for personnel)
- Transportable 60 kW generator set powered by a 134 hp (maximum) diesel engine
- Environmental Control Unit (ECU) (provides HVAC for the Inflatable Shelter)
- RE with a 1.6-ft (0.5-m) maximum diameter antenna, mounted on a collapsible tripod (similar to the RE used at the Hosted Sites)

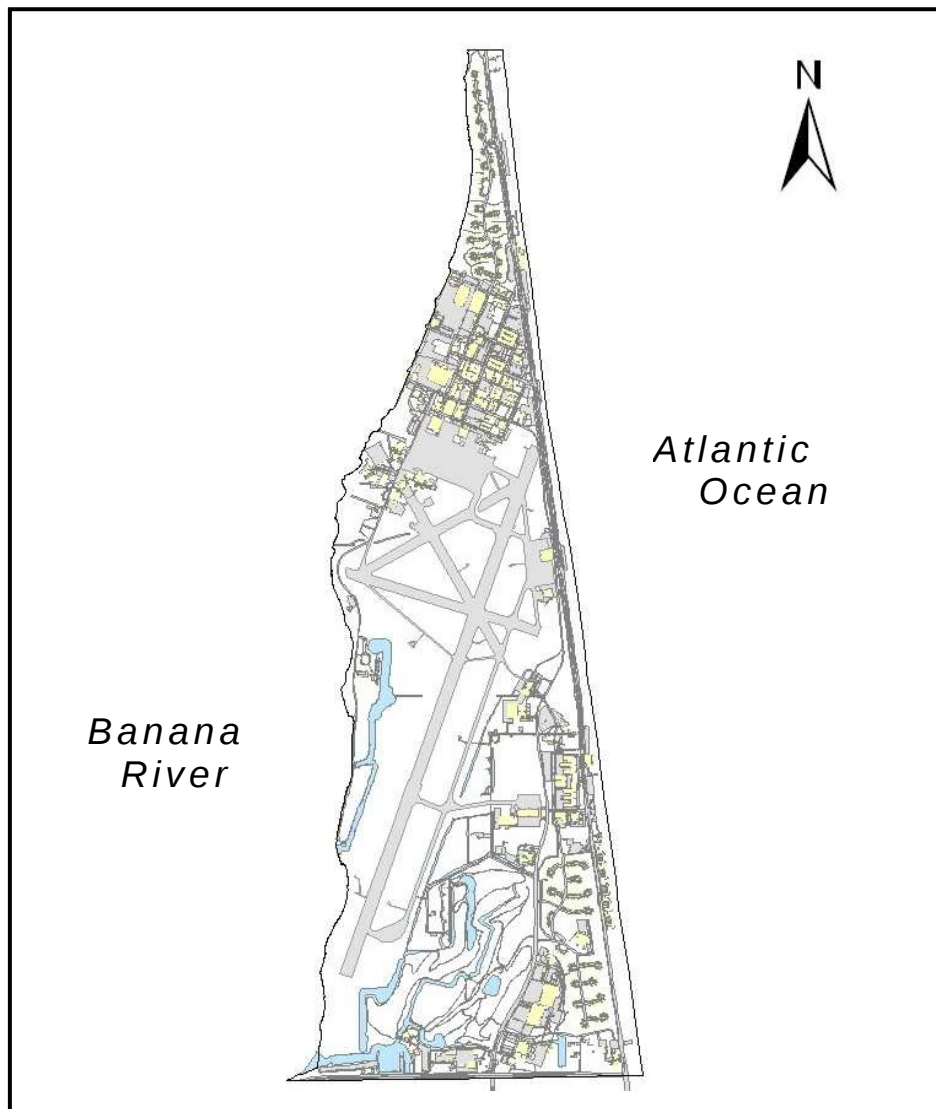


Figure 2-4. Patrick Air Force Base, Florida

- Flyaway Triband Satellite Terminal (FTSAT) with an 8-ft (2.4-m) diameter antenna dish, mounted on a collapsible tripod (for remote, high-speed communications when existing communications infrastructure is unavailable)
- Regional Processor, Communications Equipment, and Local Control in transit cases (for system control, communications, and data management)
- Lightning protection system, including lightning masts for the IDS and SGS antennas, and grounding spikes.

Site Preparations

At home bases, the RAIDRS Squadron plans to locate each individual Deployable Sensor System on an existing, relatively flat, 10,000 square-ft (929 square-m) paved or gravel area. Each site would need to

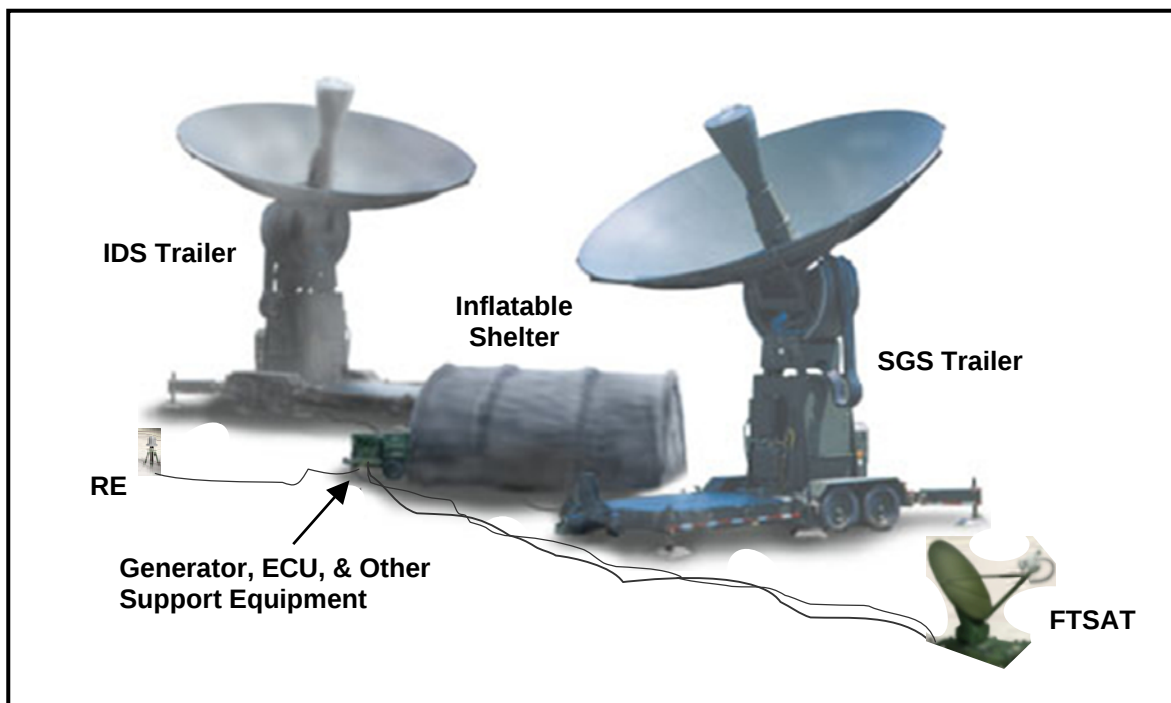


Figure 2-5. Representation of a Deployable Sensor System

have a clear looking angle to the South; however, the RAIDRS Squadron does not plan on selecting any sites that would require the removal of trees or structures. For safety and security purposes, an 8-ft (2.4 m) tall chain-link fence and gate would need to be built around each site. If electrical power and fiber optic connections were unavailable at the sites, the RAIDRS Squadron would need to have new connections brought in via underground trenching and/or by using aboveground conduits.

The non-deployable Trainer System, to be established at Peterson AFB, would require a similar paved and gravel area, including fencing and power/fiber optic connections. However, the trainer would not include a power generator, and it may not include some of the other equipment associated with a full Deployable Sensor System.

Equipment to be used during construction and site modifications—to install fencing, and power and fiber optic connections for each Deployable Sensor System and the Trainer System—would likely be limited to a backhoe/loader, crane, and truck transport. It is likely that all construction and related excavations would occur within predisturbed areas. Approximately 10 construction workers would be involved in this effort. Construction activities would occur in 2008 and last up to several weeks at each location.

Operations and Maintenance

While home-based at Patrick, Peterson, and/or other AFBs, program personnel would operate the Deployable Sensor Systems, and to some extent, would use them for training purposes, beginning in late 2008. At Peterson AFB, several of the 70 RB-10 personnel, previously identified in Section 2.1.1.1, would support the Deployable and Trainer System operations. At Patrick and other AFBs, up to five existing personnel would man each unit; no new personnel would be required.

During operations and training, the IDS and SGS antennas would only receive satellite signals as part of RFI alert and geolocation activities. The antennas would not present a RFR hazard; thus, they would not require a controlled hazard area around them. The FTSAT, however, would require a large clear zone when transmitting. Because the FTSAT transmits at up to 450 W of power in the SHF bands, it requires a maximum RFR hazard clear zone of 436 ft (133 m) from the front of the dish (depending on antenna elevation) and within a half-degree of the antenna's boresight⁶ (Lewis, 2006b). For safety purposes, RB-10 personnel would place "Keep Out" notices around radiation hazard areas within and outside the chain-link fencing before the FTSAT is used. Also, just as at the Hosted Sites, the RE would require an approximate 1-ft (0.3-m) safety clearance in front of the dish to minimize RFR risks (Lewis, 2006a).

During home-base operations, each system would draw approximately 25 kW of electrical power from the existing power grid on base, and require about 29,500 BTUs for heating and cooling. In addition, program personnel would periodically use and test the 60 kW generator associated with each deployable unit for training purposes, and to ensure proper operation and reliability. Operating time for each generator would be no more than 20 hours per year. As a precaution at each home base and deployment location, RB-10 personnel would place portable berms under the transportable generator sets to contain any spillage of fuel, oil, or other liquids.

Deployments

In addition to their normal operations and training at home bases, the USAF would deploy the Deployable IDS/SGS Sensor Systems periodically, or as necessary, to other DOD installations within or outside the United States as part of training exercises, to monitor and geolocate RFI events in regions where there are gaps in satellite monitoring coverage, or to fill in for fixed IDS/SGS sites that are down for repair.

In preparation for deployment, program and other base personnel would palletize each unit for storage, either in the fenced operations area or in existing warehouse space at the home base. Potential storage buildings at Peterson AFB include Buildings 104, 105, 106, and 108 (see Figure 2-2). The palletized equipment would be capable of transport by truck, rail, or ship. However, deployment of the units would most likely be by aircraft, which would require one C-17, one C-5, or two C-130 transport planes per unit.

Normally, four program personnel from the home base would support the deployment of each unit. During deployments, whether in the United States, within US territories and possessions, at USAKA, or elsewhere overseas, the personnel would set up the Deployable Sensor Systems for operation. Just as at the home bases, the equipment would be set up on existing paved or gravel areas. Depending on location, program and/or base personnel may place temporary fencing and/or "Keep Out" notices around the site, particularly if the FTSAT is used. During deployments, each unit's 60-kW generator could operate up to 24 hours per day, unless on-site power can be provided by the host installation. No other construction activities or facility modifications would be required at the host installations.

Deployments away from home bases would occur quarterly, or up to several times per year if deployed overseas. Each deployment would last several days to several weeks, depending on the assignment.

2.1.4 REMOTE SENSORS

As previously mentioned, the USAF would establish up to six Remote (fixed) Sensors at USAF or other DOD installations somewhere within the United States, US territories and possessions, and the USAKA. The Remote Sensors would serve as additional IDS sites to help monitor for any RFI events affecting SATCOM activities.

⁶ The boresight is the physical axis of a directional antenna, where the highest power density occurs.

Site Preparations

Establishing the Remote Sensors would require minimal site modifications. Depending on the military installations selected, existing SATCOM earth terminals (if available) would serve as IDS sensors. However, for those locations where SATCOM antennas are not available, the RAIDRS Squadron would install a new 8-ft (2.4-m) diameter antenna dish on a fixed pedestal or on the roof of an existing building. Trenching for underground fiber optic connections also would be required if connections are not readily available at the antenna site.

The only other changes to occur would be the addition of computer and other electronic equipment used to integrate RB-10 operations with the existing SATCOM earth terminal systems and/or other communication links. An existing building would house the new equipment, which would require less than 5 square ft (0.5 square m) of floor space. The equipment would tie into existing power and fiber optic connections. A lightning protection/grounding system would be incorporated into all new RB-10 equipment at the Remote Sensor sites. No other construction or site modifications would be necessary.

Equipment to be used during construction and site modifications—for installing any new antennas and underground fiber optic connections—would likely be limited to a backhoe/loader, crane, and truck transport. It is likely that all construction and related excavations would occur within predisturbed areas. Installing the equipment would require no more than 6 workers per site. This effort is expected to occur in the 2008 to 2009 time period, and take up to several days at each location.

Operations and Maintenance

Just as at the Hosted Sites, the Remote Sensor sites would not require dedicated RB-10 personnel on-site unless a system repair is required or for preventive maintenance inspections. It is envisioned that existing contractor logistics support at each location would provide long-term maintenance for the fixed systems.

Hosted Site operations would draw approximately 10 kW of electrical power from the existing power grid at each installation, and require about 24,500 BTUs for equipment heating/cooling, which should be well within current capacities at each site.

2.2 ALTERNATIVE ACTIONS

2.2.1 ALTERNATIVES TO THE PROPOSED ACTION

Depending on mission needs over the next several years, the USAF might still meet RB-10 objectives through a lower level of activity than that described in Section 2.1 for the Proposed Action. A lower intensity of activities at one or more locations, in some cases, may also provide a meaningful reduction in potential insignificant impacts when compared to the Proposed Action. Such alternatives (modifications) to the Proposed Action could come in the form of one or more of the following.

- **Eliminate the Backup COL** – During initial establishment and operations for the RB-10, system engineers and operators may determine that a Backup COL is not critical to ensuring RB-10 operations, in which case the Backup COL would not be established.
- **Eliminate the Non-Deployable IDS/SGS Trainer** – If the RAIDRS Squadron determines that sufficient training of personnel can be accomplished using the Deployable IDS/SGS Systems while home-based in the United States, the trainer unit would become unnecessary.

- **Implement Fewer Fixed and/or Transportable IDS and SGS Sensors** – Under this scenario, the total number of Hosted IDS/SGS Sites, Deployable IDS/SGS Systems, and/or Remote IDS Sensors fielded would be fewer than that currently proposed, because of changes in the RB-10 system architecture, changes in mission needs, or other logistical constraints.
- **Eliminate Backup Power Generators** – For the Primary and Backup COLs, a backup (emergency) power generator might not be necessary if the RAIDRS Squadron determines that the existing on-base power grid is sufficiently reliable for uninterrupted operations.

Though not analyzed separately in this EA, each of these alternatives would pose a slightly lower risk to the environment than the Proposed Action. The USAF will take the alternatives into consideration in determining how the Proposed Action, if selected, should be implemented in order to meet current and future mission needs.

2.2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, the USAF would not implement the RB-10. By not implementing the Proposed Action, the USAF would not be able to achieve its goal of providing support to the DCS area of SATCOM RFI resolution. Identification of possible RFI attacks, or other military or commercial interference to space system communications, could potentially occur, leaving US Forces without a means for rapid employment of DCS responses.

2.2.3 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

For establishment of the COLs and Hosted Sites, the USAF considered other military installations, but found them to be less suited in meeting geographical, logistical, and cost requirements. For example, Schriever AFB in Colorado was an alternative site for the Primary COL, but following evaluations, the USAF found the base to be unreasonable because of excessive construction requirements.

2.3 COMPARISON OF ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE

Table 2-1 presents a comparison of the potential environmental consequences of the Proposed Action and the No Action Alternative for those resources affected. The table addresses only those resource areas subject to potential impact (see Chapter 3.0 for a rationale of resources analyzed). A detailed discussion of the potential impacts can be found in Chapter 4.0 of this EA.

2.4 IDENTIFICATION OF THE PREFERRED ACTION

The USAF's preferred action is to implement the Proposed Action, as described in Section 2.1, which would include establishment and operation of the following RB-10 elements:

- Primary COL and Test Bed at Peterson AFB
- Backup COL at another AFB located within CONUS
- Up to six Hosted IDS/SGS Sites located at any of the USAF or other DOD installations in the United States that have existing SATCOM earth terminals
- Up to six Deployable IDS/SGS Sensor Systems and one non-deployable Trainer System home-based at AFBs in the United States. The first unit would be home-based at either Peterson AFB or Patrick AFB. If needed, the Trainer System would be established at Peterson AFB.

- Up to six Remote IDS Sensors at USAF or other DOD installations somewhere within the United States, US territories and possessions, and the USAKA.

The RB-10 system also includes the establishment of three Hosted Sites and approximately 20 Remote Sensors in other foreign nations around the world. However, as discussed earlier, decisions regarding these actions will require additional environmental reviews under Executive Order 12114.

Table 2-1. Comparison of Potential Environmental Consequences

Resources Affected	Proposed Action	No Action Alternative
Air Quality	Implementation of the RB-10 would not require major construction at any locations because the largest area of excavation would not measure much more than 0.02 acres (0.008 hectares). During these activities, ground disturbance and related operations would generate small amounts of fugitive dust. Trucks and other equipment would generate exhaust emissions intermittently during renovation and construction activities. Although no significant particulate matter emissions are anticipated, the program would implement standard dust reduction measures, including watering excavated and graded areas, applying synthetic or natural coverings to disturbed areas as needed, and establishing a vegetative or other permanent groundcover. Emissions of other criteria pollutants during construction, including ozone precursors, would be temporary and not significant. Over the long-term, air emissions from RB-10 operations, maintenance, and deployment activities would not exceed the National Ambient Air Quality Standards (NAAQS)—such as the primary standard for carbon monoxide (35 parts per million [ppm] averaged over 1 hour and 9 ppm averaged over 8 hours)—and they are not expected to exceed similar state ambient air quality standards. Based on detailed analysis of the Deployable IDS/SGS Sensor System—the RB-10 system element with the highest potential for air emissions—implementation of the RB-10 would not exceed ambient air quality <i>de minimis</i> thresholds at any installation, even within the most stringent nonattainment area. Also, when analysts compared RB-10 emissions to annual emission inventories for NAAQS nonattainment areas, they determined that program-related emissions would not exceed 10 percent of individual county emission inventories. As a result, the RB-10 operations would not be regionally significant. Where necessary, the USAF would obtain operating permits and complete toxicological risk screening for diesel-powered generator sets, in compliance with applicable state, county, and regional air quality regulations. When necessary to comply with permit or other operating restrictions, operators of the diesel-powered generator sets would limit the total daily or annual hours of operation, and/or the diesel engines would meet or exceed best available control technologies, such as particulate filtering systems and use of ultra-low-sulfur fuel.	The RB-10 would not be implemented; therefore, project related impacts to air quality would not occur. Air Quality conditions are not expected to change from that described for the Affected Environment in Section 3.1 of the EA.
Noise	For all affected locations, noise exposures from proposed renovation and construction activities would be minimal and short-term, and would occur only during daytime hours. The use of construction equipment (e.g., backhoe/loader, crane, and trucks) would generate peak noise levels of approximately 70 to 90 A-weighted decibels (dBA) at 50 ft (15 m). Because steady-state noise levels may exceed 85 dBA, construction contractors would be required to wear appropriate hearing protection in accordance with Occupational Safety and Health Administration (OSHA) requirements. Renovation and construction activities are most likely to occur within cantonment and/or other industrial areas at each installation; therefore, construction-related noise likely would not be an issue for residential areas or other sensitive receptors located on or off the installations. For most RB-10 locations, long-term noise levels from operations and maintenance would be virtually unchanged from current background noise levels. For some locations, periodic use of emergency and transportable generators would produce peak noise levels of approximately 70 dBA at 23 ft (7 m), well below the 85-dBA steady-state noise level for requiring hearing protection. Because the RB-10 system elements are expected to operate within	The RB-10 would not be implemented; therefore, project related impacts to the noise environment would not occur. Noise conditions are not expected to change from that described for the Affected Environment in Section 3.2 of the EA.

Table 2-1. Comparison of Potential Environmental Consequences

Resources Affected	Proposed Action	No Action Alternative
	cantonment and/or other industrial areas at each installation, generator or other equipment noise would not be an issue for residential areas or other sensitive receptors located on or off the installation. In addition, aircraft support operations for system deployments are not expected to result in changes in aircraft types or cause significant changes in the number of flights at any DOD airfields or municipal airports. Thus, aircraft noise levels at supporting airfields and airports would not change significantly.	
Biological Resources	Because all RB-10 system elements would likely be sited within cantonment and/or other industrial areas at each installation, very few areas of natural terrestrial, wetland, or other important habitats would occur in the immediate vicinity. Excavation and other construction-related activities would be short-term and intermittent, and they would most likely occur in pre-disturbed areas where the vegetative cover is managed on a regular basis. Also, as previously described, noise levels generated by construction activities, generators, and other equipment would not be substantial. During long-term operations of each Deployable Sensor System, occasional use of the portable FTSAT could present a potential RFR risk for birds, bats, and other flying wildlife that might enter the transmission beam during operations. However, the RFR from the FTSAT would not adversely affect wildlife because: (1) the FTSAT would only be used occasionally, (2) the irradiation effects would only extend out approximately 436 ft (133 m) along a narrow beam (up to several meters in diameter) in front of the dish antenna, and (3) birds or other wildlife flying through the beam would be exposed for no more than a few seconds at a time. At 436 ft (133 m), the maximum power density of the FTSAT beam would be 9.3 milliwatts per centimeter squared (mW/cm^2). As a result, power densities potentially encountered by wildlife would be well below the reference value of $10 \text{ mW}/\text{cm}^2$ for 6 minutes of continuous exposure—a recommended threshold value established by OSHA for human whole and partial body irradiation for frequencies ranging from 10 megahertz to 100 gigahertz. To prevent Deployable Sensor System lighting at Patrick AFB from potentially affecting the behavior and movement of Federally listed sea turtles at night, the RAIDRS Squadron would ensure that system lighting complies with management policies and procedures implemented by the base. The Squadron would coordinate with the Patrick AFB Environmental Office in development of a Light Management Plan that incorporates the latest and best available sea turtle lighting technology. The Environmental Office would then consult with the USFWS for plan approval. As a result, the USAF does not expect site preparations and operations to adversely affect threatened or endangered species, or critical and other sensitive habitats, at any RB-10 locations.	The RB-10 would not be implemented; therefore, project related impacts to biological resources would not occur. Biological Resource conditions are not expected to change from that described for the Affected Environment in Section 3.3 of the EA.
Cultural Resources	Ground disturbance requirements at all affected RB-10 sites would be minimal. Working with installation personnel, the RAIDRS Squadron plans that all system elements would be sited within cantonment and/or other industrial areas where most land areas have been previously disturbed. As a result, excavations for concrete pads and underground power/fiber optic connections are not likely to impact archaeological sites. However, prior to selecting suitable sites for construction activities, the RAIDRS Squadron would coordinate with the affected	The RB-10 would not be implemented; therefore, project related impacts to cultural resources would not occur. Cultural Resource

Table 2-1. Comparison of Potential Environmental Consequences

Resources Affected	Proposed Action	No Action Alternative
	installation Environmental Office to ensure that no known archaeological or other cultural resource sites would be adversely affected by proposed RB-10 activities. The Squadron would also commit to precautionary measures (e.g., on-site monitoring) should ground disturbance activities occur near known or potential resource sites. As part of the selection of buildings and sites for RB-10 long-term operations, program management and installation environmental staff would avoid choosing sites where activities could impact historic buildings and structures by altering their use, affecting their physical features, introducing visual or audible elements that would diminish the integrity of the property's historic significance, or resulting in structural damage to the property. As a result, the USAF does not expect RB-10 activities to impact any archaeological or historical properties at affected sites.	conditions are not expected to change from that described for the Affected Environment in Section 3.4 of the EA.
Public and Occupational Safety and Health	RB-10 operations and maintenance activities, in general, would present minimal health and safety risks to system operators (including both military personnel and contractors). System operators would be required to comply with applicable safety and health requirements at each installation. Operators would also undergo periodic training on the safety and handling aspects of the equipment, including maintenance operations and use of any hazardous materials. Because all RB-10 elements would be located on USAF and other DOD installations, system operations would not present any health risk to the general public. Of particular importance are the RFR risks and other hazards associated with operation of the FTSAT, a component of each Deployable Sensor System. As part of site selection for this system, each affected installation would conduct a radio frequency survey of potential sites to ensure electromagnetic compatibility with existing communications, airport operations, and other electrical and electronic systems. This would include compatibility with areas where ordnance and fuels are stored. The RFR health risk associated with the FTSAT requires a maximum hazard clear zone of 436 ft (133 m) from the front of the dish (depending on antenna elevation) and within a half-degree of the directional antenna's boresight. The long hazard area is based on an "uncontrolled environmental permissible exposure limit" of 9.3 mW/cm² over 6.4 minutes for the worst-case radio frequency emissions field generated by the FTSAT, as determined using Air Force Occupational Safety and Health standards. The FTSAT, however, would only be used occasionally for training purposes and when other existing communications infrastructure is unavailable. The FTSAT would be operated in accordance with DOD, USAF, and other applicable Service standards for RFR permissible exposure limits. Because certain components of the FTSAT contain beryllium oxide and cadmium-plated steel, equipment operators and handlers must use extra precautions when handling the FTSAT. At each home base, the program would include a gated chain-link fence around the Deployable Sensor System for both security and safety purposes. RB-10 personnel also would place "Keep Out" notices around radiation hazard areas before the FTSAT is used. When fielded at host installations, personnel would place either temporary fencing and/or "Keep Out" notices around the site, depending on installation requirements.	The RB-10 would not be implemented; therefore, project related impacts to health and safety would not occur. Health and Safety conditions are not expected to change from that described for the Affected Environment in Section 3.5 of the EA.

Table 2-1. Comparison of Potential Environmental Consequences

Resources Affected	Proposed Action	No Action Alternative
	For RB-10 operations and maintenance activities, personnel would follow all applicable Federal, state, and local health and safety requirements, such as OSHA regulations, as well as all appropriate DOD, USAF, and other Service regulations. By adhering to the established safety standards and procedures at each installation, military personnel, contractors, and the general public would be subjected to minimal levels of risk. Consequently, the USAF anticipates no significant impacts to health and safety.	
Hazardous Materials and Waste Management	Each affected location would require use of fuels and lubricants for equipment operation during excavation and other construction work. Other hazardous materials (such as paints, thinners, and sealants) may be used during the construction and renovation activities. If asbestos, lead-based paint, or other hazardous construction materials are present and they cannot be safely managed in place, workers would remove such materials from buildings and facilities and dispose of them in accordance with Federal, state, and local regulations. Long-term RB-10 operations and maintenance at installations involving generators, antenna dishes, mobile equipment, and electronic equipment would require use of diesel fuel, engine coolants, lubricants, sealants, cleaning solvents, paints, and other surface coatings. With the exception of fuel, engine oil, and coolants for the generators, normal maintenance of equipment at each affected location should not require more than a few pounds of any one material per year. Whenever possible, environmentally preferred and/or recyclable materials would be used. Hazardous wastes generated over the long term would consist mostly of waste engine oil and ethylene glycol-based coolant from diesel generators; and waste batteries (lead-acid, lithium, etc.) from generators, uninterrupted power supplies, computers, and other portable equipment. Based on normal maintenance schedules and expected generator operations, each generator would create 9.0 gal (33.9 L) of waste oil per year and approximately 5 gal (19 L) of waste coolant every 2 years. As for battery waste, about every 5 years, personnel would replace six lead-acid batteries at each COL facility and two lead-acid batteries in each RB-10 generator set. Each base would collect the waste lead-acid batteries for recycling and regeneration. Personnel would treat other battery waste generated by RB-10 systems, including lithium and alkaline batteries, as solid or hazardous waste, depending on the type of battery and electrolyte material used. Each affected installation would generate no more than a few pounds of this battery waste per year, and all hazardous and non-hazardous wastes would be properly disposed of in accordance with applicable Federal, state, local, DOD, and Service regulations. Overall, the hazardous material usage and hazardous waste generation expected from implementation of the RB-10 would result in minimal increases to current hazardous material/ waste management programs at each affected installation. As a result, the USAF does not expect any adverse impacts from the management of hazardous materials and waste.	The RB-10 would not be implemented; therefore, project related impacts on hazardous materials and waste management would not occur. Hazardous Materials and Waste Management conditions are not expected to change from that described for the Affected Environment in Section 3.6 of the EA.

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3.0 AFFECTED ENVIRONMENT

This chapter describes the environmental resources or topical areas that could potentially be affected by the Proposed Action. Because the RAIDRS Squadron has not yet been able to identify proposed locations for several of the RB-10 elements, this chapter presents general characteristics of the affected environment at USAF and other DOD installations across the United States, at US territorial islands and island possessions, and the USAKA. When appropriate, this chapter also describes site-specific conditions of the affected environments at Peterson and Patrick AFBs.

In analyzing the Proposed Action, the USAF considered various resources to provide a context for understanding potential effects and a basis for understanding the severity of any impacts. As a result, the USAF selected the following resources and topical areas for evaluation and discussion. The level of detail presented for each resource area is commensurate with the potential for impact to that resource.

- Air quality
- Noise
- Biological Resources
- Cultural Resources
- Public and Occupational Safety and Health
- Hazardous Materials and Waste Management (including Pollution Prevention).

This EA does not describe other environmental resource areas because of the following reasons. The Proposed Action likely would require minimal ground-disturbing activities; and those activities would have little or no impact on soils, geological resources, or water resources. A minimum number of construction workers would be needed at each site, and there would be little or no increase in personnel at installations; thus, there are no socioeconomic concerns. No disproportionate impacts to minority populations and low-income populations are expected to occur (refer to Section 4.4 for further discussion on Executive Order 12898 (Environmental Justice)). Program management expects that proposed RB-10 activities would fall within the limits of current operations, and all or most permits at each installation. As a result, there would be no adverse effects on land use, utilities, solid waste management, or traffic and transportation. Additionally, the Proposed Action would not require any changes to airspace usage and only minimal increases in existing aircraft operations.

The sources of data used and cited in the preparation of this chapter include available literature (such as EAs and resource management plans), installation and facility personnel, and regulatory agencies.

3.1 AIR QUALITY

Air quality in a given location is measured in terms of the concentration of various air pollutants in the atmosphere. Air pollution concentrations are determined by the type and amount of pollutants emitted into the air, the size and topography of the air basin, and the meteorological conditions related to the prevailing climate (i.e., wind speed and direction, atmospheric stability, mixing height, and air temperature). The pollutant concentrations are measured against Federal, state, and local ambient air quality standards that protect public health and welfare. Analysts determine existing ambient pollutant concentrations by evaluating data obtained from air monitoring stations located at near surface levels in representative areas, and maintained by appropriate state or local agencies.

The US Environmental Protection Agency (USEPA), in accordance with the Federal Clean Air Act (CAA), has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants.

Criteria pollutants consist of ozone (including volatile organic compounds [VOCs] and nitrogen oxides [NO_x] as precursors), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur oxides (SO_x), particulate matter with a diameter of less than 10 microns (PM₁₀), particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead (Pb). There are both primary and secondary NAAQS for these pollutants. The primary standards protect public health with an adequate margin of safety; the secondary standards protect the public from any known or anticipated adverse effects of a pollutant. Table 3-1 summarizes the primary and secondary NAAQS. State and local agencies may also establish ambient air quality standards. Such standards must address the same pollutants as the NAAQS, and they must be equal to or more stringent than the NAAQS. Some state and local agencies have developed standards for additional criteria pollutants, such as visibility and hydrogen sulfide.

The USEPA has characterized local and regional air quality through attainment status. If the pollutant concentration in a region meets the NAAQS, it is considered to be an attainment area. If the pollutant concentration in a region exceeds the NAAQS, it is considered to be a “nonattainment area.” The determination of attainment status varies by pollutant. For example, an area is in nonattainment status if the area exceeds its NAAQS for CO more than once per year at a single monitoring station. Some areas may be unclassified because insufficient data are available to characterize the area. Other areas are deemed “maintenance areas” if the area is in attainment, but NAAQS were exceeded in the past and a revised State Implementation Plan (SIP) has provided for attainment status for the 10 years after redesignation. Figure 3-1 shows all of the nonattainment areas throughout the country (by county), a few of which include USAF and other DOD installations. As an unincorporated organized territory of the United States, the Commonwealth of Puerto Rico is in attainment for NAAQS (USEPA, 2006a). Though the attainment status does not apply at other applicable US territorial islands and island possessions, or at the USAKA, these locations will probably not have air pollution problems or exceed applicable air quality standards, because of good wind dispersal and very few regional emission sources (USASMD, 1999, 2004).

The CAA requires each state to prepare an SIP that describes how they will meet or attain the NAAQS. The SIP contains emission limitations as well as record keeping and reporting requirements for affected sources. CAA Amendments specify that the requirements and compliance dates for reaching attainment be based on the severity of the air quality standard violation. A Federal agency cannot support a Proposed Action unless the activity will conform to the USEPA-approved SIP for the region. To make such a determination, the agency may need to conduct a conformity determination or analysis, which can involve having to conduct air emission calculations and modeling, and implement measures to mitigate air quality impacts. However, Federal agencies are exempt from performing a conformity analysis if the following conditions are met:

- The ongoing activities do not produce emissions above the *de minimis* levels⁷ specified in the rule. Table 3-2 shows the *de minimis* threshold levels for nonattainment and maintenance areas.
- The agency finds that the Federal action is not regionally significant. A Federal action is considered regionally significant when the total emissions from the action equal or exceed 10 percent of the air quality control area’s emissions inventory for any criteria pollutant.

At US military installations, stationary sources of air emissions (both point and area sources) will often include boilers, furnaces, generators, abrasive blasting operations, surface coating operations, wastewater treatment plants, fuel storage tanks, aircraft and ground vehicle refueling and maintenance operations, soil

⁷ *De minimis* refers to the level of emissions below regulatory concern.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Averaging Times	National Standards	
		Primary ⁽¹⁾	Secondary ⁽²⁾
Ozone	1-hour ⁽³⁾ (Applies only in limited areas)	0.12 ppm	Same as Primary
	8-hour ⁽⁴⁾	0.08 ppm	Same as Primary
Carbon Monoxide (CO)	1-hour ⁽⁵⁾	35 ppm (40 mg/m ³)	None
	8-hour ⁽⁵⁾	9 ppm (10 mg/m ³)	None
Nitrogen Dioxide (NO ₂)	Annual (Arithmetic Mean)	0.053 ppm (100 µg/m ³)	Same as Primary
Sulfur Oxides (SO _x)	3-hour ⁽⁵⁾	-----	0.5 ppm (1300 µg/m ³)
	24-hour ⁽⁵⁾	0.14 ppm	-----
	Annual (Arithmetic Mean)	0.03 ppm	-----
Particulate Matter (PM ₁₀)	24-hour ⁽⁵⁾	150 µg/m ³	Same as Primary
	Annual (Arithmetic Mean)	Revoked ⁽⁶⁾	Same as Primary
Particulate Matter (PM _{2.5})	24-hour ⁽⁷⁾	35 µg/m ³	Same as Primary
	Annual ⁽⁸⁾ (Arithmetic Mean)	15.0 µg/m ³	Same as Primary
Lead (Pb)	Quarterly Average	1.5 µg/m ³	Same as Primary

Notes:

¹ *Primary standards* set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly.

² *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

³ The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is equal to or less than one. As of June 15, 2005, the USEPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact Areas.

⁴ To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

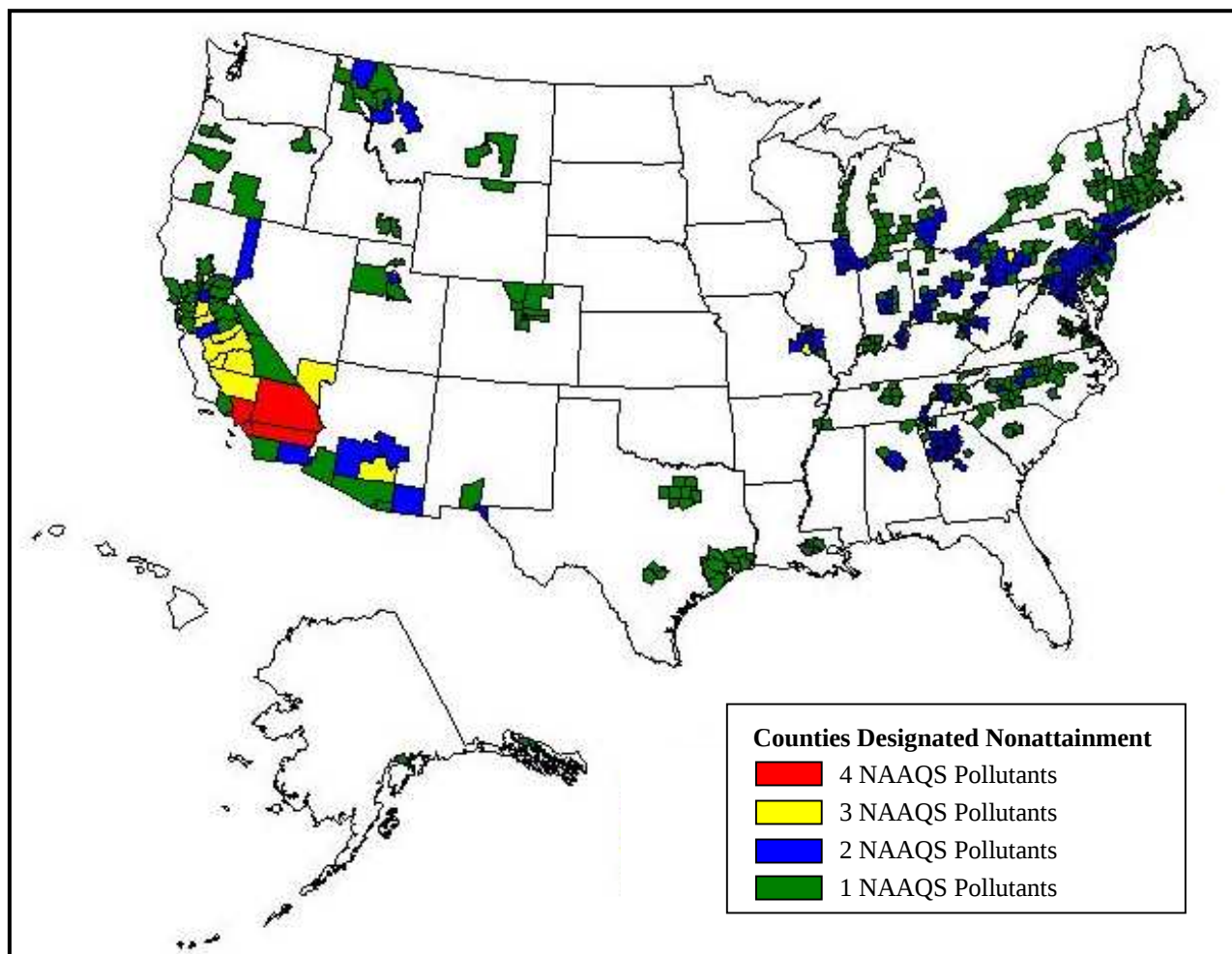
⁵ Not to be exceeded more than once per year.

⁶ Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the USEPA revoked the annual PM₁₀ standard in 2006.

⁷ To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m³.

⁸ To attain this standard, the 3-year average of the weighted annual mean PM_{2.5} concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.

Source: USEPA, 2006c



Source: USEPA, 2006b

Figure 3-1. Counties Designated Nonattainment for Criteria Pollutants (March 2006)

remediation, and solvent usage. Mobile sources generating air emissions can include various aircraft, missile and spacecraft launches, construction equipment, and numerous Government and personal motor vehicles.

For analysis purposes, this EA defines the Region of Influence (ROI) for inert air pollutants (all pollutants other than ozone and its precursors) to be generally limited to an area extending no more than a few hundred meters downwind from the source. The ROI for ozone and its precursors, however, may extend much further. Consequently, the overall air quality ROI includes the county or USEPA-designated Air Quality Control Region (AQCR) where the Proposed Action is to occur.

Peterson Air Force Base

Peterson AFB is located in the Colorado Springs Metropolitan Area, which lies within the San Isabel Intrastate AQCR. The region is currently in attainment for all criteria pollutants, but has only been in attainment for CO since 1999. As part of the redesignation as an attainment area, the Colorado Springs area will remain under a maintenance plan (last revised in 2003) until 2015 to demonstrate compliance with the CO standard. Under this maintenance plan, implemented under a SIP and approved by the

Table 3-2. Threshold Levels in NonAttainment Areas			
Area Designation		Pollutant	<i>de minimis</i> Level (tons per year)
Ozone	Extreme Nonattainment	NO _x or VOC	10
	Severe Nonattainment	NO _x or VOC	25
	Serious Nonattainment	NO _x or VOC	50
	Other Nonattainment, within Ozone Transport Region (OTR)	NO _x	100
	Other Nonattainment, within OTR	VOC	50
	Other Nonattainment, outside OTR	NO _x or VOC	100
	Maintenance	NO _x	100
	Maintenance, within OTR	VOC	50
	Maintenance, outside OTR	VOC	100
PM ₁₀	Serious Nonattainment	PM ₁₀	70
	Moderate Nonattainment	PM ₁₀	100
	Maintenance	PM ₁₀	100
CO	Nonattainment or Maintenance	CO	100
SO ₂	Nonattainment or Maintenance	SO ₂	100
NO ₂	Nonattainment or Maintenance	NO ₂	100
Pb	Nonattainment or Maintenance	Pb	25

Source: USEPA, 2005

USEPA, the Colorado Springs maintenance area has a mobile sources emissions budget of 270 tons (245 metric tons) per day for CO (this will increase to 531 tons [482 metric tons] per day from 2010 to 2015). The emission budget for construction non-road sources will be 2.83 tons (2.57 metric tons) per day in 2007. The emission budget for point sources (emissions from vents and smokestacks, including natural gas combustion) will be 3.34 tons (3.03 metric tons) per day in 2007 and 3.84 tons (3.48 metric tons) per day in 2010. (USAF, 2006a)

Table 3-3 shows the installation-wide criteria pollutant totals (actual and potential emissions), based on an Air Emissions Inventory completed at Peterson AFB for calendar year 2004. The inventory included calculations for actual emissions using emission factors and actual usage times for equipment. As defined in 40 CFR 52.21, the potential to emit is the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. For purposes of potential to emit calculations, the USEPA limits operating hours for emergency equipment (such as emergency generators) to 500 hours per year. The Colorado Air Pollution Control Division has issued the base a CAA Title V Operating Permit that is valid until March 2008. Peterson AFB is a major stationary source of NO_x, PM₁₀, and VOCs, as the potential to emit these pollutants exceeds 100 tons (90.7 metric tons) per year. (USAF, 2006a)

Patrick Air Force Base

Florida assesses regional air quality at the county level. Patrick AFB is located within Brevard County, which both the USEPA and Florida Department of Environmental Protection (FDEP) have designated to be in attainment for all criteria pollutants. (Dattilo-Bain and Turkoglu, 2006; USAF, 2005)

Table 3-3. Installation-Wide Stationary Air Pollutant Emissions for Peterson AFB (2004)

Stationary Sources	Emissions (tons per year)					
	NO _x	VOC	PM ₁₀	PM _{2.5}	CO	SO _x
Actual	22.11	56.66	5.05	1.94	15.79	0.29
Potential	206.85	148.64	29.85	12.50	101.65	5.70

Source: USAF, 2006a

Table 3-4 shows the 2005 installation-wide criteria pollutant totals (actual and potential emissions) for Patrick AFB. Base personnel calculated the emissions using emission factors and equipment usage times.

Table 3-4. Installation-Wide Stationary Air Pollutant Emissions for Patrick AFB (2005)

Stationary Sources	Emissions (tons per year)					
	NO _x	VOC	PM ₁₀	PM _{2.5}	CO	SO _x
Actual	3.42	33.73	44.88	-	2.32	0.04
Potential	63.12	96.06	47.64	-	38.31	0.91

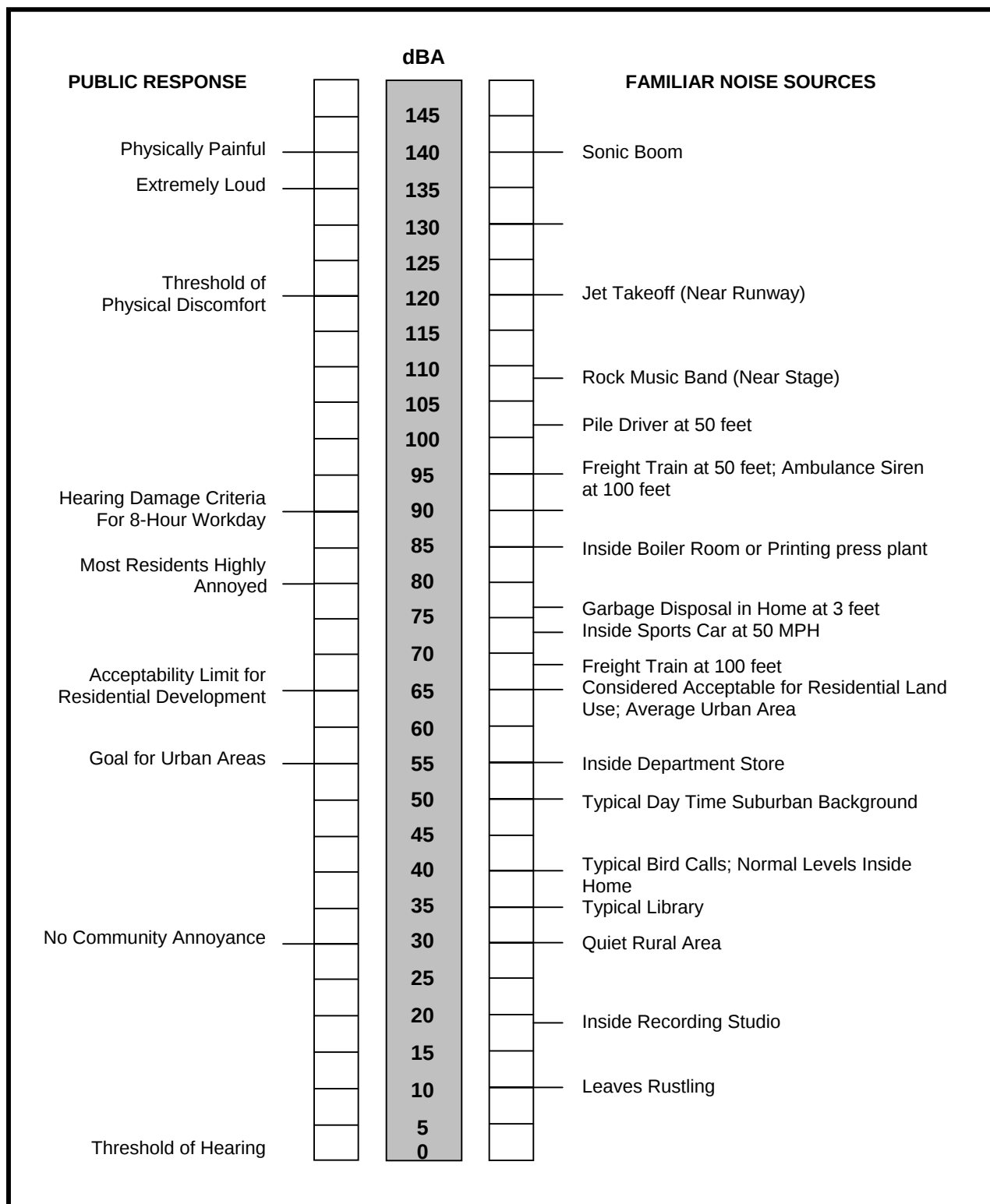
Source: Patrick AFB, 2005

The base is currently authorized to operate under a CAA Title V Air Permit issued by the FDEP, which will expire in September 2007. The Title V permit identifies portable generators as an insignificant unit; however, the permit sets operation time for fixed generators at 500 hours per year if they are used for emergency power. The FDEP has classified Patrick AFB as a major source of criteria pollutants since the facility-wide potential to emit is greater than 100 tons (90.7 metric tons) per year. (Dattilo-Bain and Turkoglu, 2006; USAF, 2005)

3.2 NOISE

Noise is most often defined as unwanted sound that is heard by people or wildlife and that interferes with normal activities or otherwise diminishes the quality of the environment. Sources of noise may be transient (e.g., a passing train or aircraft), continuous (e.g., heavy traffic or air conditioning equipment), or impulsive (e.g., a sonic boom or a pile driver). Sound waves traveling outward from a source exert a sound pressure measured in decibels (dB).

The human ear is not equally sensitive to all sound wave frequencies. Sound levels adjusted for frequency-dependent amplitude are called “weighted” sound levels. Weighted measurements emphasizing frequencies within human sensitivity are called A-weighted decibels (dBA). Established by the American National Standards Institute, A-weighting significantly reduces the measured pressure level for low-frequency sounds, while slightly increasing the measured pressure level for some high-frequency sounds. In summary, A-weighting is a filter used to relate sound frequencies to human-hearing thresholds. Figure 3-2 shows typical A-weighted sound levels measured for various sources. Noise from transportation sources, such as vehicles and aircraft, and from continuous sources, such as machinery and power generators, are usually assessed using dBA.



Source: Modified from USASDC, 1991

Figure 3-2. Typical Noise Levels of Familiar Noise Sources and Public Responses

Air Force Occupational Safety and Health (AFOSH) Standard 48-20 (*Occupational Noise and Hearing Conservation Program*) describes the USAF Hearing Conservation Program procedures used at USAF installations for military and civilian personnel. Under this Standard, a person must use hearing protection whenever exposed to steady-state noise of 85 dBA or more, or impulse noise of 140 dB sound pressure level or more, regardless of duration. Other military Service installations have similar standards in place, in accordance with DOD Instruction 6055.12 (*Hearing Conservation Program*). For contractors working on military installations, similar noise protection requirements under Occupational Safety and Health Administration (OSHA) regulations apply (29 CFR 1910.95).

Noise at US military installations typically comes from automobile and truck traffic, aircraft operations (including landings, takeoffs, and training approaches and departures for both fixed-wing and rotary-wing aircraft), combat vehicles, ordnance usage, and other mission support equipment. With the exception of those installations with active aircraft runways and training ranges, existing noise levels are generally low, with higher levels occurring near industrial facilities and transportation routes.

For noise analysis purposes, this EA defines the ROI as areas within 328 ft (100 m) of proposed RB-10 construction and operational sites. Noise from program related aircraft operations—air transport of Deployable Sensor Systems—was not included because of the limited increase in flight operations that would occur at existing airports and airfields.

Peterson Air Force Base

At Peterson AFB, noise levels around the base result primarily from aircraft operations. Peterson AFB shares three runways with the adjacent Colorado Springs Airport. Other major noise sources on base are generally associated with vehicle traffic and construction activities. These noises are mostly limited to the daytime hours. (USAF, 2006a)

Patrick Air Force Base

Like Peterson AFB, the major source of noise at Patrick AFB is aircraft operations. Two active runways are in the central portion of the base (USAF, 2005). Vehicle traffic, industrial operations, and construction activities represent other major sources of noise on base.

3.3 BIOLOGICAL RESOURCES

Biological resources mostly consist of native and exotic plant species and indigenous or migratory animal species, and their relationship to habitat, including terrestrial, aquatic (freshwater and marine), wetland, and riparian ecosystems. Of principal concern are Federal- and state-protected species and their prime habitats, including threatened and endangered species, migratory birds, and marine mammals.

The Endangered Species Act (ESA) of 1973 (16 United States Code [USC] 1531 *et seq.*) is the primary law that addresses biological resources. The USFWS administers the ESA, which states that all Federal agencies and departments shall seek to conserve endangered species and threatened species. Included with the protection of plants and animals themselves is a concern for their critical habitat, which is defined as specific areas within the geographical area occupied by the species at the time it is listed, and also areas that are essential to conservation of the species. Across all 50 states, the USFWS lists 1311 species of plants and animals as threatened or endangered, all of which are afforded protection under the ESA (USFWS, 2006). The National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136, Section 318) amended the ESA to allow the Secretary of the Interior to exempt DOD installations from critical habitat designations if an adequate natural resources management plan is in place. Under DOD Instruction 4715.3 (*Environmental Conservation Program*), agencies in charge of DOD controlled

lands and waters having suitable habitat for conserving and managing natural ecosystems must prepare and maintain an Integrated Natural Resources Management Plan (INRMP).

Other Federal statutes designed to protect the nation's biological resources include the following:

- **The Fish and Wildlife Coordination Act of 1958** (16 USC 661 *et seq.*) promotes conservation of non-game fish and wildlife and their habitats by all Federal agencies and departments.
- **The Migratory Bird Treaty Act of 1918**, as amended (16 USC 703 *et seq.*), protects migratory birds from actions such as hunting, capturing, or killing of the listed species or their nests and eggs.
- **The Bald and Golden Eagle Protection Act** (16 USC 668 *et seq.*) specifically protects those two species from unauthorized capture, purchase, transportation, etc. of the birds, their nests, or their eggs.
- **The Marine Mammal Protection Act of 1972** (16 USC 1361 *et seq.*) and its later amendments serves to protect marine mammals from human activities, ensuring that marine mammals are maintained at, or in some cases restored to, healthy population levels. The Act divides jurisdiction over marine mammals between two agencies, the USFWS and the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service.

In addition to the Federal laws, various state laws and regulations afford protection to state-listed plant and animal species or habitat areas of special concern. At the USAKA, the US Government has established standards for the protection of endangered species and wildlife resources, which are described in the *Environmental Standards and Procedures for United States Army Kwajalein Atoll (USAKA) Activities in the Republic of the Marshall Islands*, also referred to as the USAKA Environmental Standards (USASMD, 2006).

At US military installations, the numbers and variety of plant and animal species can vary significantly, depending on the types of terrestrial and aquatic habitats found on and adjacent to an installation. For many installations, local wildlife includes a wide range of small mammals, indigenous and migratory birds, reptiles and amphibians, and invertebrate species. Military installations sometimes serve as important refuge for protected species as a result of well-managed controls placed on human activities and on invasive species. Because biological resources are specific to any given site, locally based environmental agencies and installation Environmental Office staff represent key sources of information on biological characteristics. The regional or local field office of the USFWS maintains and periodically updates lists of Federally protected plant and animal species are maintained for each county. Current lists of state-listed species reside with the equivalent state-level agency and/or natural heritage database. When there is unknown potential or conflicting information regarding the presence of protected species or critical habitat, a qualified botanist or wildlife biologist should make on-site observations.

For purposes of analyzing biological resources, this EA limits the ROI to areas in the vicinity of RB-10 construction activities and operations subjected to surface disturbance, and to equipment-related noise and RFR emissions.

Peterson Air Force Base

Prior construction activities (e.g., excavation, grading, and bulldozing) and ongoing landscaping practices have impacted the majority of lands on Peterson AFB. These activities have permanently altered the native habitats on base. As a result, most of Peterson AFB (including the area around Building 504)

consists of a mosaic of highly managed traditional turf, shrub, and tree landscaping, interspersed with lower maintenance areas featuring swathes of rock mulch or xeric grasses and native forbs. The only natural vegetation on Peterson AFB, found on the east side of the base, consists of mid- to tall-grass prairie within a life zone largely dominated by short-grass plains. (USAF, 2004b)

The main built-up portion of Peterson AFB provides limited quality habitat for wildlife. Those species occurring on the base represent a mixture typical of both the foothills of the Southern Rocky Mountains and the western edge of the high plains. The base is home to approximately 45 bird species, 25 species of small mammals, and 8 reptile/amphibian species. None of these species, however, are considered rare, threatened, or endangered by Federal or state standards. (USAF, 2004b, 2006a)

Peterson AFB manages all activities affecting natural resources in accordance with the base INRMP (Peterson AFB, 2005) and all applicable regulations.

Patrick Air Force Base

Because of Patrick AFB's location on Florida's Atlantic Coast, many of the plant and animal species found on base are associated with a coastal marine ecosystem. The sandy, infertile soils and erratic rainfall make it difficult to establish and maintain vegetative growth. Landscape plantings make up the majority of vegetation found around the base. Native beach/dune and estuarine wetland vegetation comprise a small amount of the base land area. Other areas are primarily colonized by herbaceous vegetation, opportunistic species, landscape specimens, and interspersed invasive, exotic plants, such as the Brazilian Pepper, Australian Pine, and torpedo grass. Three state-listed threatened or endangered plant species are known to occur on base: beach star, coastal vervain, and Simpson's stopper (see Appendix A). (Dattilo-Bain and Turkoglu, 2006; Patrick AFB, 2004)

The USFWS, the Florida Fish and Wildlife Conservation Commission, and the Florida National Areas Inventory have identified 17 endangered or threatened wildlife species that are known to occur or potentially occur on Patrick AFB. These include several sea turtle and migratory bird species, and the American alligator. Another 15 state-listed Species of Special Concern⁸ also occur or potentially occur on base. Appendix A provides a complete listing of protected species on Patrick AFB. (Dattilo-Bain and Turkoglu, 2006; Patrick AFB, 2004)

Patrick AFB manages all activities affecting natural resources in accordance with the base INRMP (Patrick AFB, 2001a) and all applicable regulations.

3.4 CULTURAL RESOURCES

Cultural resources include prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. Cultural resources are limited, nonrenewable resources whose potential for scientific research (or value as a traditional resource) may be easily diminished by actions impacting their integrity.

Numerous laws and regulations require that possible effects to cultural resources be considered during the planning and execution of Federal undertakings. These laws and regulations stipulate a process of compliance and consultation, define the responsibilities of the Federal agency proposing the action, and prescribe the relationship among other involved agencies (e.g., the SHPO and the US Advisory Council

⁸ Species of Special Concern status applies to plants and animals not listed under the Federal ESA or similar state-level statutes, but for which concerns for the future well-being of the taxon exist.

on Historic Preservation). In addition to NEPA, the primary laws pertaining to the treatment of cultural resources during environmental analysis are as follows:

- **The National Historic Preservation Act of 1966** (16 USC 470 *et seq.*) establishes a national policy to preserve, restore, and maintain cultural resources. The Act establishes the National Register of Historic Places (NRHP) as the mechanism to designate public or privately owned properties deserving protection. Federal agencies must take into account the effect of a project on any property included in or eligible for inclusion in the National Register.
- **The Archaeological and Historic Preservation Act of 1974** (16 USC 469) provides for the preservation of historic and archaeological data that might be irreparably lost or destroyed as the result of “any alteration of the terrain caused as a result of any Federal construction project or Federally licensed activity or program.”
- **The Archaeological Resources Protection Act of 1979** (16 USC 470) establishes uniform definitions, standards, and procedures to be followed by all Federal land managers in providing protection for archaeological resources.

Within the Defense Department, DOD Directive 4710.1 (*Archeological and Historic Resources Management*) establishes the policy, procedures, and responsibilities of all military personnel for the management of archaeological and historic resources under the jurisdiction of the DOD. For all lands and waters under DOD control containing cultural resources, DOD Instruction 4715.3 (*Environmental Conservation Program*) requires the responsible agency to prepare, maintain, and implement an Integrated Cultural Resources Management Plan (ICRMP) for the appropriate management of such resources. Consistent with the USAKA Environmental Standards, the US Army has a historic preservation plan (similar to an ICRMP) in place for the protection and management of cultural resources on Kwajalein Atoll (USAKA, 2006; USASMDC, 2006).

The presence of cultural resources will vary from region to region. Historic resources are widespread in the United States, its territories and possessions, and at the USAKA. Archaeological resources exist in every region of the country, with materials from more recent cultural systems being more numerous and better preserved. At US military installations, historic properties and structures can range from early colonial frontier forts to those of scientific and technological value, including the Cold War Era and the Manned Space Program. Intact archaeological resources tend to occur only in areas that have not been heavily disturbed and developed. Depending on the integrity and historical significance of a site or property, it may be listed or eligible for listing on the NRHP.

Data sources for cultural resources include those available from the SHPO and from NRHP-eligible properties and landmarks listed in the National Register Information System (NPS, 2006). In addition, the Environmental Office at DOD installations will often have detailed survey records for much of the installation. When necessary, a qualified archaeologist or historian should conduct on-site cultural resource investigations to obtain definitive information regarding the presence or absence of cultural resources.

In general, the ROI⁹ for cultural resources encompasses areas requiring ground disturbance (e.g., construction for new structures and underground utilities) and all buildings or structures requiring modification, renovation, demolition, or abandonment.

⁹ The term ROI is synonymous with the “area of potential effect” as defined under cultural resources regulations, 36 CFR 800.16(d).

Peterson Air Force Base

The vicinity of Peterson AFB is thought to have been occupied by indigenous groups for at least 12 thousand years. Prehistory within the Peterson AFB region is characterized on the basis of artifacts that historians have assigned to the Pre-Projectile Point, Paleo-Indian, Archaic, and Ceramic Stages. During various surveys on Peterson AFB, researchers have found six isolated prehistoric artifacts, none of which were determined to be eligible for listing on the NRHP. The low density of prehistoric remains on base is consistent with the densities for the rolling plains observed on adjacent properties. All areas within Peterson AFB have been inventoried and all resources evaluated. As a result, base officials recommend that no further work be conducted for prehistoric resources at the existing base. (Peterson AFB, 2004a; USAF, 2006a)

In 1926, commercial aircraft began operating in Colorado Springs at the eventual site of Peterson AFB. Military influences in the Peterson AFB region began in 1942 with the opening of Camp Carson (now named Fort Carson located just south of Colorado Springs) and the beginning of military operations at the Colorado Springs Municipal Airport. (Peterson AFB, 2004a)

Historic resources at Peterson AFB have all been inventoried—including resources from World War II (WWII) and the Cold War Era—and evaluated for their National Register eligibility. Five buildings associated with the Old Colorado Springs Municipal Airport—comprising 8.6 acres (3.5 hectares) near the center of the Peterson AFB—were designated a Historic District in 1988, four of which were listed on the NRHP in 1996. As part of the District, Buildings 979, 981, 982, and 999 are contributing (eligible for the NRHP as individual buildings) and Building 980 is non-contributing (not eligible for the NRHP as an individual building) due to its somewhat later (about 1950) construction date. All of the buildings currently serve as a museum, distinguished visitors quarters, or are used for light administrative functions. (Peterson AFB, 2004a; USAF, 2006a)

Only one building from WWII, Building 880 located just south of the Historic District, meets the criteria for inclusion in the NRHP. The other WWII buildings (hangars along the flight line) have not retained their integrity or are of temporary construction. None of the Cold War Era facilities meet the stringent National Register criteria for facilities less than 50 years of age (36 CFR 60.4g). (Peterson AFB, 2004a; USAF, 2006a)

Peterson AFB manages all activities affecting cultural resources in accordance with the base ICRMP (Peterson AFB, 2004a) and all applicable regulations.

Patrick Air Force Base

Archaeologists conducting surveys at Patrick AFB have not identified any sites of importance. Based on a detailed inspection by the National Park Service, it is highly unlikely that Patrick AFB contains any significant archaeological resources that could be affected by future construction. A letter from the Florida SHPO to the base Commander, dated August 25, 1981, concurred with this finding. (Patrick AFB, 2004; USAF, 2005)

As for historical resources, a Historical American Building Survey did identify numerous structures and three districts on base as having potentially eligibility for listing in the NRHP. The US Government established Patrick AFB in 1940 as the Banana River Naval Air Station, and some WWII-era buildings still exist on base. All structures 45 years old or older are potentially eligible for listing in the NRHP. Currently, approximately 60 structures on base are at least 45 years of age. (Patrick AFB, 2004; USAF, 2005)

Patrick AFB manages all activities affecting cultural resources in accordance with the base ICRMP (Patrick AFB, 2001b) and all applicable regulations.

3.5 PUBLIC AND OCCUPATIONAL SAFETY AND HEALTH

Health and safety includes consideration of any activities, occurrences, or operations that have the potential to affect the well-being, safety, or health of workers or members of the general public. The primary goal is to identify and prevent accidents or impacts to onsite workers and the general public. In terms of the Proposed Action, safety and health risks would occur primarily from accidents during construction, operation, and maintenance activities. Typical potential hazards and accidents include:

- Fires
- Explosions of flammable liquids, solids, or compressed gases
- Electrical shock or burns
- RFR from radars and communication antennas
- Inhalation or dermal exposure to hazardous materials or waste
- Spills of chemicals and fuels
- Falling debris related to construction
- Falls from structures
- Accidents related to earth-moving equipment, power tools, and other machinery
- Transportation accidents (air, land, and sea).

The DOD has developed policies and procedures for implementing safety and health requirements across all military Services. The DOD specifies key requirements in DOD Instruction 6055.1 (*DOD Safety and Occupational Health [SOH] Program*), DOD Instruction 6055.5 (*Industrial Hygiene and Occupational Health*), DOD Directive 4715.1E (*Environmental, Safety, and Occupational Health [ESOH]*), and in DOD Military Standard 882C (*System Safety Program Requirements*). DOD Instruction 6055.11 (*Protection of DOD Personnel from Exposure to Radiofrequency Radiation and Military Exempt Lasers*) provides exposure limits and procedures for the protection of personnel from RFR (DOD, 1996). Additional DOD safety and/or health requirements apply to other specialized areas, including explosives safety and range safety. Each military Service has adopted regulations that follow the DOD specifications and has instituted additional procedures unique to that Service's requirements. Contractors working on military installations normally will follow applicable OSHA regulatory requirements (29 CFR), except when DOD, Service, or installation-specific requirements apply. Implementation of these regulatory requirements and procedures ensure that there is minimal risk to the health and safety of installation personnel and contractors, as well as to the general public, from military activities and operations.

In terms of an ROI for safety and health, it would include all areas within which installation personnel, contractors, or the public could be exposed to hazards originating from any activity associated with the Proposed Action. This would include installation facilities and operations supporting the RB-10.

Peterson Air Force Base and Patrick Air Force Base

For all USAF personnel, Air Force Instruction (AFI) 91-202 (*The US Air Force Mishap Prevention Program*) implements the USAF's Safety Program for determining and applying standards to help eliminate unsafe acts or conditions that cause mishaps. For the AFSPC and subordinate units—including those at Peterson AFB and Patrick AFB—AFI 91-202, AFSPC Supplement 1, implements and extends the guidance of AFI 91-202. AFI 91-301 (*Air Force Occupational and Environmental Safety, Fire Protection, and Health Program*) outlines the AFOSH standards program for managing health and safety-related risks that affect USAF personnel. Specific to RFR issues, AFOSH 48-9 (*Radio Frequency*

Radiation Safety Program) identifies permissible exposure limits (PELs).¹⁰ In addition, the individual USAF installations will often augment these requirements to clarify local roles, responsibilities, and authorities by creating supplementary operating instructions.

The Safety Office at each base is responsible for reviewing and managing safety-related issues occurring on the installation. For example, the 21st SW Safety Office at Peterson AFB and the 45th SW Safety Office at Patrick AFB have this responsibility.

3.6 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

In general, hazardous materials and hazardous waste include substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to the public health, welfare, or the environment when released. The USEPA regulates hazardous chemicals, substances, and wastes under the Resource Conservation and Recovery Act (RCRA) (42 USC 6901 *et seq.*); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601 *et seq.*, as amended); and the Toxic Substances Control Act (15 USC 2622). In addition, the OSHA has definitions and workplace safety-related requirements and thresholds for listed hazardous and toxic substances (29 CFR), and the US Department of Transportation (DOT) has definitions and requirements for the safe transport of hazardous materials (49 CFR).

The primary DOD policies and procedures for the management of hazardous materials and hazardous waste, including pollution prevention, are specified in DOD Instruction 4715.4 (*Pollution Prevention*), DOD Instruction 4714.6 (*Environmental Compliance*), and in DOD Directive 4715.1E mentioned earlier. Each Service has adopted these requirements and implemented programs for managing hazardous materials and wastes at their installations.

DOD installations use and store a variety of hazardous materials to support the wide range of military activities they conduct. Maintenance and support operations may require the use of products containing hazardous materials, including paints, solvents, lubricants, acids, batteries, fuels, surface coatings, cleaning compounds, and pesticides. As specified in DOD Instruction 4715.4, all installations must maintain inventory management and control processes to minimize use of hazardous materials, and to maintain and execute pollution prevention plans to eliminate or reduce the use and disposal of hazardous materials.

In terms of hazardous waste generation at DOD installations, the wastes must be handled, stored, transported, disposed of, or recycled in compliance with all applicable regulations. Common sources of hazardous waste include waste fuel, waste oil, spent solvents, paint waste, used batteries, electronic equipment containing heavy metals, and demolition waste containing asbestos and lead-based paint (LBP).

For the analysis of hazardous materials and waste management at USAF and other military installations, this EA defines the ROI as those installation facilities that: (1) handle and transport hazardous materials; (2) collect, store (on a short-term basis), and ship hazardous waste; and (3) are in close proximity to environmental restoration sites that were previously contaminated.

¹⁰ The PEL is the exposure value to which an individual may be exposed to RFR without exhibiting damaging biological effects.

Peterson Air Force Base and Patrick Air Force Base

For Peterson AFB, Patrick AFB, and other USAF installations, AFI 32-7086 (*Hazardous Materials Management*) and AFI 32-7042 (*Solid and Hazardous Waste Compliance*) specify requirements for the development of procedures to manage hazardous materials and waste, including the development of installation-specific hazardous material management programs and hazardous waste management plans. AFI 32-7080 (*Pollution Prevention*) provides direction for the development of pollution prevention programs. In accordance with AFI 32-4002 (*Hazardous Materials Emergency Response Program*), each installation must also develop a hazardous materials emergency response plan and procedures; this documentation provides guidelines and instructions to prevent and respond to accidental spills of hazardous materials, including a description of appropriate prevention, control, and countermeasures.

At both Peterson AFB and Patrick AFB, organizations must manage hazardous materials through the respective on-base HAZMART. The HAZMART is the single point of control and accountability for the requisitioning, receipt, distribution, issue, and reissue of hazardous materials. Hazardous materials obtained from off base suppliers are also coordinated through HAZMART. Hazardous materials are inventoried and tracked using Environmental Management System software. Hazardous waste at each base is managed in accordance with RCRA requirements. The transportation of hazardous materials and waste outside the base boundaries is governed by US DOT regulations (49 CFR 100-199).

Base personnel are implementing the Installation Restoration Program (IRP) to investigate and clean up areas on base that may have been contaminated by hazardous materials or wastes through spills or leaks. The IRP represents the DOD's CERCLA-based environmental restoration program. Within the USAF, AFI 32-7020 (*Environmental Restoration Program*) provides guidance and procedures for executing the IRP for the cleanup and restoration of contaminated sites. IRP sites located on Peterson AFB include old landfills, drainage lines, leach fields, spill sites, and a fire training area (USAF, 2006a). At Patrick AFB, there are 30 IRP sites, 28 of which are either proposed for closure (pending regulatory agency concurrence) or are under long-term monitoring land use controls (Patrick AFB, 2004; USAF, 2005). The two remaining sites are under further investigation and appropriate action(s) are being taken.

Also at each base, asbestos and LBP are known to exist or might potentially exist inside some of the older buildings (USAF, 2005, 2006a). Asbestos surveys conducted for Peterson AFB's Building 504 (site of the proposed Primary COL) in 1993 and in 1996 identified vinyl asbestos floor tile and asbestos-containing mudded joint packings on water heating supply piping (Peterson AFB, 1996). When asbestos-containing materials and LBP are present, base personnel take appropriate steps in managing these materials in accordance with applicable Federal, state, local, and USAF requirements, which include AFI 32-1052 (*Facility Asbestos Management*) and the 1993 USAF policy letter addressing *Air Force Policy and Guidance on Lead-Based Paint in Facilities*.

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4.0 ENVIRONMENTAL CONSEQUENCES

This chapter presents the potential environmental consequences of the Proposed Action and No Action Alternative, described in Chapter 2.0 of this EA, when compared to the affected environment described in Chapter 3.0. The amount of detail presented in each section of the analysis is proportional to the potential for impact. The discussions address both *direct* and *indirect* impacts,¹¹ where applicable, in addition to any *cumulative* effects¹² that might occur. Also included in the discussions, where necessary, are appropriate environmental monitoring and management actions and requirements, which are summarized in Section 4.3. Lastly, discussion on environmental justice concerns is provided in Section 4.4.

Chapter 6.0 lists all agencies and other personnel consulted as part of this analysis.

4.1 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

The following sections describe the potential environmental consequences of implementing the proposed RB-10. For each environmental resource or topical area, general impacts are first described for all USAF and other DOD installations across the United States, at US territorial islands and island possessions, and the USAKA that potentially could be affected by the Proposed Action. Additional site-specific impacts are then described for activities proposed at Peterson AFB and Patrick AFB.

4.1.1 Air Quality

4.1.1.1 General Impacts for All Affected Locations

Impacts from Site Preparations

A summary list of site preparation requirements for the proposed RB-10 system elements is provided below:

- Minor building renovations at each COL location
- Installation of computer and other electronic equipment at each COL, Hosted Site, and Remote Sensor site
- At each COL, installation of a fixed 60 kW generator, including excavation and construction for a new 900 square ft (84 square m) concrete pad (as necessary)
- At each Hosted Site, installation of a 16- to 23-ft (5- to 7-m) SGS antenna dish, including excavation and construction for a new 200 square ft (19 square m) concrete pad (as necessary)
- Installation of an 8 ft (2.4 m) IDS antenna dish at each Remote Sensor site (as necessary)

¹¹ *Direct* impacts are caused by the action and occur at the same time and place. *Indirect* impacts occur later in time or are farther removed in distance, but are still reasonably foreseeable.

¹² *Cumulative* effects are considered those resulting from the incremental effects of an action when considering relevant past, present, and reasonably foreseeable future actions, regardless of the agencies or parties involved. In other words, cumulative effects can result from individually minor, but collectively potentially significant, impacts occurring over the duration of the Proposed Action and within the same geographical area.

- Placement of each home-based Deployable Sensor System, and the Trainer System, within an existing, relatively flat 10,000 square ft (929 square m) paved or gravel area
- Minor excavation work for installing underground power and/or fiber optic connections at all locations (as necessary)
- Chain-link fencing around each Hosted Site SGS antenna and around each Deployable Sensor System (as necessary).

These activities would last several days to several weeks at each affected location. During these activities, ground disturbance and related operations would generate small amounts of fugitive dust. Trucks and other equipment would generate exhaust emissions intermittently during renovation and construction activities. Although no significant PM_{2.5} and PM₁₀ emissions are anticipated, workers would implement standard dust reduction measures, including the watering of excavated and graded areas, applying synthetic or natural coverings (netting or mulching) to disturbed areas as needed, and establishing a vegetative or other permanent groundcover following completion of project activities. Emissions of other criteria pollutants, including ozone precursors, would be minor and temporary, and would not be significant. Proper tuning and preventive maintenance of construction and other support vehicles would serve to minimize engine exhaust emissions.

Impacts from Operations and Maintenance (including Deployments)

Both Hosted Sites and Remote Sensor sites would: (1) not require additional personnel, (2) require minimal logistical support, and (3) require minimal increases from existing power, heating, and cooling systems. As a result, these two RB-10 elements would result in little or no change for both stationary and mobile source emissions at any installation.

COL operations would require up to 30 additional commuting personnel for the Primary COL and no more than 20 additional personnel for the Backup COL, which would result in a small increase in mobile emissions at each location. Stationary source emissions for the COLs would increase slightly from the increases in use of power, heating, and cooling systems, and from periodic use of the new 60 kW backup generator (up to 25 hours per year) at each location. Section 4.1.1.2 provides further discussions on the Primary COL at Peterson AFB.

When home-based, the Deployable Sensor Systems would generate minimal emissions. Mostly existing personnel would support system operations, resulting in little or no increase in the number of commuters. Each system would utilize minimal amounts of electrical power from the existing installation power grid, and the transportable 60 kW generator would run no more than 20 hours per year. As a result, only minimal increases in stationary and mobile source emissions would occur at any affected installation.

However, during deployments, the Deployable Sensor Systems would be palletized and shipped off base to a temporary location at another installation within or outside the United States. Most likely, the USAF would transport the systems via truck for local transport and by aircraft for longer travel distances. To air transport each system, one C-5, one C-17, or two C-130 aircraft would be used. Once fielded, RB-10 personnel would operate the transportable 60 kW generator for up to 24 hours per day, unless the host installation can provide on-site power. Each deployment is expected to last several days to several weeks. These actions would result in brief increases in mobile emissions at each home base and temporary increases in stationary and mobile emissions at the host installation.

Because the RB-10 elements are planned to be operated in several regions of the country, the system would need to comply with the specific air quality standards, permits, and other applicable criteria

associated with each affected state, county, and/or AQCR. Thus, in determining the potential for air quality impacts, the USAF selected the RB-10 system element with the highest potential for air emissions for analysis. In this case, the deployment of a Deployable Sensor System was selected. For this scenario, a single Deployable Sensor System would be transported via aircraft to a host installation, where the transportable 60 kW generator would operate 24 hours per day over a period of 14 days, for a total of 336 hours. At the completion of the mission, the system would be flown back to its respective home base. Table 4-1 shows the resulting 60 kW generator emissions from this scenario.

Table 4-1. Estimated Emissions for a 134 Horse Power Diesel Generator Set				
Pollutant	Grams/hp per hour¹	Grams per day	Pounds (kilograms) per day	Pounds (kilograms) per 14-day mission
Hydrocarbons (HC)	1.12	3,602	7.9 (3.6)	111 (50)
NO _x	14.1	45,346	99.9 (45.3)	1,399 (635)
CO	3.0	9,648	21.2 (9.6)	297 (135)
SO ₂	0.183	589	1.3 (0.6)	18 (8)
PM	1.0	3,216	7.1 (3.2)	99 (45)

¹ Default diesel engine emission factors (SBCAPCD, 2006a).

For air transport of a single Deployable Sensor System, Table 4-2 identifies aircraft emissions for landing/take-off cycles—including approach, landing, idling time, take-off, and climb out—for both C-130 and C-5 aircraft. In support of each mission, each transport plane would require two landing and take-off cycles—once during delivery of the system to the host installation, and once during pick up for the return flight to the home base. Though not shown, the host installation would expect resulting air emissions for a single C-17 aircraft to be more than for the C-130 transports, but less than for the C-5 transport.

Table 4-2. Estimated Aircraft Air Emissions per Deployment Mission¹		
Pollutant	Two C-130 Transports² pounds (kilograms)	One C-5 Transport pounds (kilograms)
HC	70.0 (31.8)	145.5 (66.0)
NO _x	45.8 (20.8)	151.2 (68.6)
CO	78.2 (35.5)	252.2 (114.4)
SO ₂	3.4 (1.5)	5.3 (2.4)

Notes:

¹ Emissions are based on two landing/take-off cycles occurring below 3,000 ft (914 m) in elevation.

² Transport of a single Deployable Sensor System requires two C-130 aircraft.

Source: MDA, 2005

Based on a single, 2-week deployment for one Deployable Sensor System, Table 4-3 shows the total generator and aircraft transport emissions (from Tables 4-1 and 4-2, respectively). As for air transport, the analysis used the more conservative C-5 aircraft emission levels. For comparison purposes, Table 4-3 also shows the most stringent non-attainment area *de minimis* levels from Table 3-2.

Table 4-3. Total Deployable Sensor System Deployment-Related Air Emissions				
Pollutant	60 kW Generator Emissions per 14-day Mission tons	C-5 Landing/Take-Off Emissions per Mission tons	Total Emissions per Mission tons	Most Stringent <i>de minimis</i> Level tons per year
HC ¹	0.06	0.07	0.13	10
NO _x	0.70	0.08	0.78	10
CO	0.15	0.13	0.28	100
SO ₂	0.01	0.003	0.01	100
PM	0.05	(no data)	0.05	70

¹ When in a gaseous form, hydrocarbons (HC) are also called volatile organic compounds (VOC).

As shown in Table 4-3, the air emissions from this deployment scenario would not exceed the *de minimis* regulatory thresholds, even within the most stringent nonattainment area (i.e., an extreme nonattainment area for ozone). Also, when compared to annual emission inventories for NAAQS nonattainment areas—such as in Southern California (see Figure 3-1)—analysis determined that the deployment scenario-related emissions did not exceed 10 percent of individual county emission inventories (refer to USEPA [2006d] for annual emissions inventory data by county). As a result, the RB-10 operations would not be regionally significant.

Over the long-term, air emissions from RB-10 operations, maintenance, and deployment activities would not exceed the NAAQS shown in Table 3-1, and they are not expected to exceed similar state ambient air quality standards. However, depending on location, the 60 kW generators for the COLs and Deployable Sensor Systems may still require an operating permit, and at some locations, a risk screening analysis for the toxic particulates in diesel exhaust. For example, Santa Barbara County in Southern California requires organizations to obtain an Air Pollution Control District (APCD) permit to operate diesel engines rated greater than 50 hp (SBCAPCD, 2006b). As part of the permitting process in Santa Barbara County, new engines also must undergo a toxicological risk screening assessment. If the screening analysis indicates risk levels above APCD significance thresholds, the permit applicant would be required to conduct a more detailed Health Risk Assessment modeling study (SBCAPCD, 2005). When necessary to comply with permit or other operating restrictions, operators of the diesel-powered generator sets would limit the total daily or annual hours of operation, and/or the diesel engines would meet or exceed best available control technologies (BACT), such as particulate filtering systems and use of ultra-low-sulfur fuel.

Cumulative Effects

Construction-related activities for RB-10 system elements, and for other projects in the same general area, likely would occur at different times, with little or no overlap, and generally would be short-term. Because of this and the implementation of best management practices during construction, fugitive dust and other emissions would not have a significant effect on local or regional air quality, or violate air quality standards.

The Proposed Action would comply with applicable Federal, state, regional air quality laws and standards designed to minimize long-term cumulative impacts to air quality.

4.1.1.2 Peterson Air Force Base

Because the total area of ground disturbance at Peterson AFB would measure not much more than 0.02 acres (0.008 hectares), the RB-10 program does not require a construction/grading permit from El Paso County for fugitive particulate emissions. The program would require a permit if the total excavated area were to equal or exceed 1 acre (0.4 hectares).

Both the proposed fixed generator for the Primary COL and the transportable generator for the Deployable Sensor System are rated at 60 kW, powered by 134 horsepower diesel engines. In accordance with 5 Code of Colorado Regulations 1001, Regulation 3, Paragraph II.D.I.ttt(i), emergency generators rated at less than 260 horsepower are exempt from permitting.

Short-term and long-term emissions from the Proposed Action at Peterson AFB would not exceed the NAAQS or Colorado Ambient Air Quality Standards due to: (1) the small amount of criteria pollutants generated, (2) the meteorological conditions (winds average between 8 and 12 miles [13 and 19 kilometers] per hour) in which the emissions would be dispersed, and (3) the limited amount of time during which emissions would be released.

As previously discussed, Peterson AFB, as part of the Colorado Springs Metropolitan Area, is located within a maintenance area for CO. Project-related emissions would be regionally significant if they exceeded 10 percent of the inventory for any affected pollutant (in this case, CO). The SIP budget for mobile sources of CO in the Colorado Springs Metropolitan Area is currently 270 tons (245 metric tons) per day (98,550 tons [89,385 metric tons] per year), but it would increase to 531 tons (482 metric tons) per day beginning in 2010. Emissions from the proposed action (construction and operation) would not comprise 10 percent of the daily inventory and are not regionally significant.

Conformity thresholds, as defined in 40 CFR 51, Subpart W, are used to determine conformity with the SIP. For projects at Peterson AFB, the threshold for CO is 100 tons (90.7 metric tons) per year. Estimated emissions from the Proposed Action are far less than this threshold and they would conform to the SIP. Thus, they are not significant. The Proposed Action is not regionally significant and the total direct and indirect emissions would be below the 100 tons (90.7 metric tons) per year *de minimis* threshold for CO. Therefore, the Proposed Action at Peterson AFB is exempt from further conformity analysis pursuant to 40 CFR 93.153.

4.1.1.3 Patrick Air Force Base

As described in Section 4.1.1.1, the anticipated emissions from the construction and home base operation of a Deployable Sensor System would not exceed the NAAQS or Florida Ambient Air Quality Standards. Since Patrick AFB is located in an attainment area for NAAQS, the general conformity rules do not apply. Therefore, a conformity determination is not required. Additionally, the base's current Title V permit would cover the 60 kW transportable generator as an insignificant unit.

4.1.2 Noise

4.1.2.1 General Impacts for All Affected Locations

Impacts from Site Preparations

For all affected locations, noise exposures from proposed renovation and construction activities would be minimal and short-term, and would occur only during daytime hours. The use of construction equipment (e.g., backhoe/loader, crane, and trucks) would generate peak noise levels of approximately 70 to 90 dBA

at 50 ft (15 m) (FHA, 2006). Because steady-state noise levels may exceed 85 dBA, construction contractors would be required to wear appropriate hearing protection in accordance with OSHA requirements.

The renovation and construction activities are most likely to occur within the cantonment and/or other industrial areas at each installation. Thus, construction-related noise likely would not be an issue for residential areas or other sensitive receptors located on or off the installation.

Impacts from Operations and Maintenance (including Deployments)

For most RB-10 locations, long-term noise levels from operations and maintenance would be virtually unchanged from current background noise levels. There would be some minor increases in local commuter traffic for the two COL facilities. For each COL and home-based Deployable Sensor System, personnel would periodically test and operate the 60 kW generators, but the RAIDRS Squadron does not expect generators to exceed 25 hours of operation per year. During deployments, however, the Deployable Sensor Systems would operate the transportable 60 kW generator for up to 24 hours per day, and potentially for several days or weeks if the host installation cannot provide on-site power. Peak noise levels from generator operation would be approximately 70 dBA at 23 ft (7 m) (PM-MEP, 2006), which is well below the 85 dBA steady-state noise level for requiring hearing protection. Because the COLs and Deployable Sensor Systems are expected to operate within cantonment and/or other industrial areas at each installation, including host installations during deployments, generator or other equipment noise would not be an issue for residential areas or other sensitive receptors located on or off the installation. Resulting noise levels would be insignificant in terms of annoyance or hearing impacts.

The USAF does not expect deployment operations for the Deployable Sensor Systems to result in changes in the types of aircraft used or cause significant changes in the number of flights at any DOD airfields or municipal airports. For each home-based system, deployments are only expected to occur quarterly, or up to several times per year if deployed overseas. Thus, aircraft noise levels at supporting airfields and airports would not change significantly.

Cumulative Effects

Based on the locations, noise levels, and duration of RB-10 activities previously discussed, short- and long-term impacts on ambient noise levels would be minimal, and would not substantially contribute to cumulative impacts at any site.

4.1.2.2 Peterson Air Force Base

Short-term and long-term noise levels would increase slightly at Building 504, site of the proposed Primary COL. Building 504, however, is within 1,500 ft (457 m) of an active runway and just on the edge of the 65 Day-Night Level noise contour (a 24-hour average noise level) for the Colorado Springs Airport, which is shared with Peterson AFB (USAF, 2006a). The airport supports more than 200,000 aircraft operations per year (COS, 2006). Therefore, noise impacts from the Primary COL are not considered significant.

Although specific sites for the proposed Deployable Sensor System and the Trainer System have not yet been identified at Peterson AFB, discussions in Section 4.1.2.1 conclude that noise-related impacts from these system elements would not be significant.

4.1.2.3 Patrick Air Force Base

Although a specific site for the Deployable Sensor System has not yet been identified at Patrick AFB, discussions in Section 4.1.2.1 conclude that noise-related impacts from this system element would not be significant. Much of the base is already affected by aircraft noise from airfield operations.

4.1.3 Biological Resources

4.1.3.1 General Impacts for All Affected Locations

Impacts from Site Preparations

As previously described in Section 4.1.1.1, ground disturbance at affected RB-10 sites would be minimal. Because all system elements would likely be sited within cantonment and/or other industrial areas at each installation, very few areas of natural terrestrial, wetland, or other important habitats would occur in the immediate vicinity. Excavation would most likely occur in pre-disturbed areas where the vegetative cover is managed on a regular basis. Also, as described in Section 4.1.2.1, noise levels generated by construction activities would not be substantial. These activities would be relatively short-term and intermittent.

However, prior to selecting suitable sites for construction activities, the RAIDRS Squadron would coordinate with the affected installation Environmental Office to ensure that no protected biological resources would be adversely affected by proposed RB-10 activities.

As a result, site preparations at all RB-10 locations are not expected to adversely affect any threatened or endangered species, or critical and other sensitive habitats. Installation Environmental Office personnel would manage any biological resource issues that might occur in accordance with the installation's INRMP or equivalent regulatory standards.

Impacts from Operations and Maintenance (including Deployments)

Just as for site preparation activities, long-term operation and maintenance activities would not adversely affect any threatened or endangered species, or critical and other sensitive habitats.

The only potential risk would be for birds, bats, or other flying wildlife to enter the radio frequency beam while the FTSAT is operating at a Deployable Sensor System site. However, the RFR from the FTSAT would not adversely affect wildlife because: (1) the FTSAT would only be used occasionally, (2) the irradiation effects would only extend out approximately 436 ft (133 m) along a narrow beam (up to several meters in diameter) in front of the dish antenna, and (3) birds or other wildlife flying through the beam would be exposed for no more than a few seconds at a time. At 436 ft (133 m), the maximum power density of the FTSAT beam would be 9.3 milliwatts per centimeter squared (mW/cm^2) (Lewis, 2006b). As a result, power densities potentially encountered by wildlife would be well below the reference value of $10 \text{ mW}/\text{cm}^2$ for 6 minutes of continuous exposure—a recommended threshold value established by OSHA for human whole and partial body irradiation for frequencies ranging from 10 megahertz to 100 gigahertz (29 CFR 1910.97).

The installation Environmental Office would manage any biological resource issues that might occur in accordance with the installation's INRMP or equivalent regulatory standards.

Cumulative Effects

Because the RB-10 activities would have little or no direct or indirect impacts on biological resources, no cumulative impacts would be expected.

4.1.3.2 Peterson Air Force Base

Because the Primary COL would be located within the base cantonment area (Figure 2-2), and no rare, threatened, or endangered species are known to occur on base, there would be no adverse impacts to protected wildlife or habitats.

Although specific sites for the Deployable Sensor System and the Trainer System have not yet been identified at Peterson AFB, discussions above and in Section 4.1.3.1 conclude that the system elements would not have an adverse affect on protected wildlife or habitats.

4.1.3.3 Patrick Air Force Base

At Patrick AFB, various threatened and endangered plant and animal species have been identified as occurring or potentially occurring on base (see Appendix A). As a result, the potential exists for the Deployable Sensor System to adversely affect protected species. Most of these species, however, occur only in the local waters or along the shoreline areas.

Artificial lighting has been documented to detrimentally affect sea turtles' nesting and hatching behaviors along beaches. Through consultations with the USFWS and in compliance with the ESA, the 45th Space Wing has implemented policies and procedures for minimizing potential impacts. The 45th SW Instruction 32-7001 (*Exterior Lighting Management*) requires, organizations, tenants, and residents at Patrick AFB to minimizing exterior lighting from April 1 through October 31, between 9:00 pm and 6:00 am. Exterior lighting that is not mission-, safety-, or security-essential must be extinguished during this time frame. Although artificial lighting for the Deployable Sensor System has not yet been determined, the RAIDRS Squadron would ensure that system lighting complies with 45th SW Instruction 32-7001 requirements. The RAIDRS Squadron would coordinate with the Patrick AFB Environmental Office in development of a Light Management Plan that incorporates the latest and best available sea turtle lighting technology. The Environmental Office would then consult with the USFWS for plan approval.

Although a specific site has not yet been identified at Patrick AFB for the Deployable Sensor System, discussions above and in Section 4.1.3.1 conclude that the system element would not have an adverse affect on protected wildlife or habitats. To ensure that no impacts occur, the RAIDRS Squadron would coordinate with the Patrick AFB Environmental Office to help determine a suitable location on base.

4.1.4 Cultural Resources

4.1.4.1 General Impacts for All Affected Locations

Impacts from Site Preparations

As previously described in Section 4.1.1.1, ground disturbance at affected RB-10 sites would be minimal. All system elements would likely be sited within cantonment and/or other industrial areas where most land areas have been previously disturbed. As a result, excavations for concrete pads and underground power/fiber optic connections are not likely to impact archaeological sites.

However, prior to selecting suitable sites for construction activities, the RAIDRS Squadron would coordinate with the affected installation Environmental Office to ensure that proposed RB-10 activities would not adversely affect known archaeological or other cultural resource sites. If selected RB-10 sites were in the vicinity of known archaeological sites, the Squadron would coordinate with installation officials to modify design plans and related construction activities to ensure that the archaeological resource areas were avoided. If digging, trenching, or other excavation work were to occur within 100 ft (30 m) of any known or potential archaeological site, a qualified archaeologist and/or Native American specialist would need to be present during the earth disturbing activities. In the unlikely event that previously undocumented sites are discovered during the execution of the Proposed Action, work would be temporarily suspended within 100 ft (30 m) of the discovered item and the installation archaeologist would immediately be notified. Workers would not resume earth-disturbing activities until after the site has been secured and properly evaluated. To avoid unauthorized artifact collection, workers would not be told the location of nearby archaeological sites unless the sites are to be specifically avoided by construction activities. Contractors and installation support personnel would be informed of the sensitivity of cultural resources and the mitigation measures that might be required if sites were to be inadvertently damaged or destroyed.

Also, as part of the selection of buildings and sites to support RB-10 elements, historic buildings and structures would be avoided as much as possible so as not to alter their use, affect their physical features, introduce visual or audible elements that would diminish the integrity of the property's historic significance, or result in structural damage to the property.

As a result, site preparation activities are not expected to impact archaeological sites or historic buildings at any locations. Installation officials would manage any cultural resource issues that might occur in accordance with the installation's ICRMP or equivalent historic preservation plan.

Impacts from Operations and Maintenance (including Deployments)

Long-term operations and maintenance activities are not expected to impact any archaeological or historical properties. RB-10 personnel would be reminded of the sensitivity of cultural resources and the issues of inadvertently damaging or destroying such resources.

The installation Environmental Office would manage any cultural resource issues that might occur in accordance with the installation's ICRMP or equivalent historic preservation plan.

Cumulative Effects

Because the RB-10 activities would have little or no direct or indirect impacts on cultural resources, no cumulative impacts would be expected.

4.1.4.2 Peterson Air Force Base

Because all areas of Peterson AFB have been evaluated for archaeological resources, and no archaeological sites are known to exist or are eligible for listing on the NRHP, proposed RB-10 activities would not impact these types of resources.

Modifications and use of Building 504 as the Primary COL would not adversely affect the on-base Historic District or any of the buildings associated with the district. Per the request of the Colorado SHPO (see Appendix B), the Peterson AFB Environmental Office, in support of the RAIDRS Squadron, submitted a completed Architectural Inventory Form (Office of Archaeology and Historic Preservation [OAHP] Form 1403) on Building 504 to the SHPO on February 26, 2007. Modifications to Building 504

for the RB-10 would not begin until the SHPO has made a determination of the historic significance of the building.

Although specific sites for the Deployable Sensor System and the Trainer System have not yet been identified at Peterson AFB, discussions in Section 4.1.4.1 conclude that the system elements would not have an adverse effect on historic buildings. As a precaution, the RAIDRS Squadron, in coordination with the Peterson AFB Environmental Office, would notify the Colorado SHPO on the proposed locations of the Deployable Sensor System and Trainer System. On-base construction and modifications for these RB-10 system elements would not begin until the SHPO has made a determination of possible effects on historic resources.

4.1.4.3 Patrick Air Force Base

Because it has been determined that it is highly unlikely for significant archaeological resources to occur at Patrick AFB, proposed RB-10 activities would not impact these types of resources.

There are approximately 60 historic buildings on base that are eligible or potentially eligible for listing in the NRHP. Although a specific site for the Deployable Sensor System has not yet been identified at Patrick AFB, the system element would not alter the use of any of the historic buildings, affect their physical features, damage them, or permanently diminish their integrity for historic significance. Thus, no adverse impacts to historic buildings would occur. To ensure that no impacts occur, the RAIDRS Squadron would coordinate with the Patrick AFB Environmental Office to help determine a suitable location on the base.

4.1.5 Public and Occupational Safety and Health

4.1.5.1 General Impacts for All Affected Locations

Impacts from Site Preparations

For proposed RB-10 renovation and construction activities, workers (including both military personnel and contractors) would have to comply with applicable DOD, military Service, and OSHA regulations and standards for health and safety. Any building renovations for the two COLs would also provide the opportunity to remove any hazardous construction materials that might be present (including asbestos and LBP), thereby reducing the safety risks posed by these materials. Because all site preparation activities would occur within installation boundaries, the general public would not be exposed to health and safety risks. Consequently, no significant impacts to health and safety are expected.

Impacts from Operations and Maintenance (including Deployments)

RB-10 operations and maintenance activities, in general, would present minimal health and safety risks to system operators (including both military personnel and contractors). System operators would comply with applicable safety and health requirements at each installation. Operators would also undergo periodic training on the safety and handling aspects of the equipment, including maintenance operations and use of any hazardous materials. Because all RB-10 elements would be located on USAF and other DOD installations, system operations would not present any health risk to the general public.

In selecting sites for RB-10 system operations, the USAF would take into consideration the potential RFR effects associated with the FTSAT (as part of the Deployable Sensor Systems) and RE (which is part of the Hosted Sites and Deployable Sensor Systems). In accordance with DOD Directive 3222.3 (*DOD Electromagnetic Environmental Effects [E3] Program*) and applicable Service standards, each affected

installation would conduct a radio frequency survey of potential sites to ensure electromagnetic compatibility with existing communications, airport operations, and other electrical and electronic systems. This would include compatibility with areas where ordnance and fuels are stored, which can be vulnerable to RFR effects.

Of particular importance are the potential health risks from the non-ionizing RFR emitted by the FTSAT and RE. The RE would transmit only 1 W of power in the UHF and SHF radio frequency bands; thus requiring an approximate 1-ft (0.3-m) safety clearance in front of the dish during operation. The 1-ft (0.3-m) safety requirement is based on an “uncontrolled environmental PEL”¹³ of 3.9 mW/cm² over 6 minutes for the worst-case SHF emissions field generated by the RE, as determined using AFOSH 48-9 standards (Lewis, 2006a). The PELs used in AFOSH 48-9 are derived from the recommended exposure levels in American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE) C95.1-1991, which serves as a consensus standard developed by representatives of industry, scientific communities, government agencies, and the public (USAF, 1997).

The more powerful FTSAT transmits at up to 450 W of power in the SHF bands; thus requiring a much longer 436 ft (133 m) hazard clear zone in front of the dish (depending on antenna elevation) and within a half-degree of the directional antenna’s boresight (Lewis, 2006b). The longer hazard area is based on an “uncontrolled environmental PEL” of 9.3 mW/cm² over 6.4 minutes for the worst-case SHF emissions field generated by the FTSAT, as determined using AFOSH 48-9 standards (Lewis, 2006b). The FTSAT would only be used occasionally for training purposes and when other existing communications infrastructure is unavailable. RB-10 personnel would operate both the RE and FTSAT in accordance with DOD, AFOSH, and other applicable Service standards for RFR permissible exposure limits.

Because certain components of the FTSAT contain beryllium oxide and cadmium-plated steel, equipment operators and handlers must use extra precautions should FTSAT components become damaged or release dust. Under such circumstances, appropriate safety gear and breathing apparatus may become necessary for the handling and repair of FTSAT components. (USAF, 2001b)

At the home base, a gated chain-link fence would surround each Deployable Sensor System for both security and safety purposes. RB-10 personnel also would place “Keep Out” notices around radiation hazard areas within and outside the chain-link fencing before the FTSAT is used. When fielded at host installations, either temporary fencing and/or “Keep Out” notices would be placed around the site, depending on installation requirements.

For safe operation, the RE units at the Hosted Sites would be elevated either on a pole or on the roof of a building away from personnel.

For RB-10 operations and maintenance activities, program personnel would comply with all applicable Federal, state, and local health and safety requirements, such as OSHA regulations, as well as all appropriate DOD, USAF, and other Service regulations. By adhering to the established safety standards and procedures described above and in Section 3.5, military personnel, contractors, and the general public would be subjected to minimal levels of risk. Consequently, the USAF anticipates no significant impacts to health and safety.

¹³ *Uncontrolled environment exposures* can occur in areas where individuals would have no knowledge or control of their exposure to RFR. These locations would include living quarters or workplaces where there are no expectations that the PEL may be exceeded. (USAF, 1997)

Cumulative Effects

At each affected DOD installation, all projects must comply with applicable standards, policies, and procedures for health and safety. Installation personnel closely review and monitor all hazardous operations to ensure that there are no unacceptable risks to the public, military personnel, and contractors. Because implementation of the RB-10 would also comply with these same requirements, the USAF expects no significant cumulative impacts to health and safety.

4.1.5.2 Peterson Air Force Base

As described in Section 4.1.5.1, all RB-10 activities and operations would comply with DOD, USAF, OSHA, and other applicable safety and health regulations. Thus, no significant impacts to health and safety are expected at Peterson AFB.

As a precaution for fielding the Deployable Sensor System and Trainer System at Peterson AFB, the RAIDRS Squadron, in coordination with Peterson AFB, will submit a Notice of Proposed Construction or Alteration (Federal Aviation Administration [FAA] Form 7460-1) to the FAA for evaluation once on-base sites have been identified. Site construction and modifications for these RB-10 system elements would not begin until the Colorado Springs Airport has reviewed the results for potential impacts on air navigation.

4.1.5.3 Patrick Air Force Base

As described in Section 4.1.5.1, all RB-10 activities and operations would comply with DOD, USAF, OSHA, and other applicable safety and health regulations. Thus, no significant impacts to health and safety are expected at Patrick AFB.

4.1.6 Hazardous Materials and Waste Management

4.1.6.1 General Impacts for All Affected Locations

Impacts from Site Preparations

At each affected location, contractors and support personnel would use fuels and lubricants for equipment during excavation and other construction work. Other hazardous materials (such as paints, thinners, and sealants) may be used during the construction and renovation activities. Overall, construction and renovation activities would minimally change the short-term usage of hazardous materials.

Building renovations for the proposed COL facilities may require surveys for asbestos-containing materials and LBP if such information is not already available. Unless installation policy allows for these materials to be safely managed in place, they would need to be removed from the buildings and facilities, containerized, and disposed of in accordance with Federal, state, and local regulations.

To ensure that proposed excavations and other construction activities do not damage or interfere with existing IRP sites, the RAIDRS Squadron would first coordinate with the affected installation Environmental Office or other responsible office prior to project implementation. In most cases, projects are able to work within IRP sites as long as contaminated soils are left on site, contaminated groundwater is not disturbed, and monitoring/treatment locations are not impacted while working under appropriate safety guidelines. If during excavations that contaminated sites are inadvertently discovered, the affected installation Environmental Office would immediately be contacted and further excavations at the site would cease until a remedial investigation of the site has been conducted.

Overall, a short-term increase in hazardous waste generation would occur during site preparations at each RB-10 location, but it would not have any significant environmental impact. Hazardous material and waste management programs would not have to change.

Impacts from Operations and Maintenance (including Deployments)

Long-term RB-10 operations and maintenance of generators, antenna dishes, mobile equipment, and electronic equipment would require use of diesel fuel, lubricants, sealants, cleaning solvents, paints, and other surface coatings. With the exception of fuel and engine oil for the generators, normal maintenance of equipment at each location should not require more than a few pounds of any one material per year. Whenever possible, program operations would use environmentally preferred and/or recyclable materials.

The diesel fuel consumption rate for the fixed and transportable 60 kW generators is approximately 5 gal (19 L) per hour for the rated power generation load (PM-MEP, 2006). At this rate, each COL generator would use up to 125 gal (471 L) of fuel per year, based on 25 hours of annual operation. While home-based, the Deployable Sensor System generators would use up to 100 gal (377 L) of fuel over 20 hours of annual operation. During deployments, however, generator fuel consumption would be much higher and quantities would vary, depending on the duration of each assignment. As a precaution at each location, RB-10 personnel would place portable berms under the transportable generator sets to contain any spillage of fuel, oil, or other liquids. The RAIDRS Squadron would coordinate with each affected installation Environmental Office to ensure that generator operations comply with on-site spill prevention, control, and countermeasure requirements.

Hazardous wastes generated by RB-10 system elements would consist mostly of waste engine oil and ethylene glycol-based coolant from diesel generators; and waste batteries (lead-acid, lithium, etc.) from generators, UPS, computers, and other portable equipment. The engine oil capacity for the fixed and transportable generators is 4.5 gal (17.0 L), while the coolant capacity is 5.1 gal (19.2 L) (USAF, 2000). Based on normal maintenance schedules and expected generator operations, engine oil would be changed twice a year, resulting in 9.0 gal (33.9 L) of waste oil from each generator every year. The coolant in each generator would normally be changed every 2 years, resulting in approximately 5 gal (19 L) of waste coolant per generator. If Deployable Sensor System generators were operated for extended periods during deployments, then the oil/coolant maintenance schedules likely would need to be accelerated. Both the waste oil and waste coolant would be collected for recycling purposes.

As for batteries, about every 5 years, personnel would replace the sealed lead-acid batteries contained in each of the COL's UPS systems (six commercial batteries) and in each 60 kW generator set (two automotive-type batteries). The lead cores and the sulfuric acid electrolyte from the batteries would be recycled/regenerated for use in the commercial manufacturing of new batteries. Other battery waste generated by RB-10 systems, including lithium and alkaline batteries, would be treated as solid or hazardous waste, depending on the type of battery and electrolyte material used. Each affected installation would generate no more than a few pounds of this battery waste per year.

All hazardous and non-hazardous wastes would be properly disposed of in accordance with applicable Federal, state, local, DOD, and Service regulations. Hazardous material and waste management programs would not have to change. As a result, no adverse impacts from the management of hazardous materials and waste are expected.

Cumulative Effects

Implementing the RB-10 would not introduce new hazardous materials and wastes at installations, and only a small increase in wastes would occur. Therefore, no significant cumulative impacts from the management of hazardous materials and waste are anticipated.

4.1.6.2 Peterson Air Force Base

As described in Section 4.1.6.1, proposed RB-10 activities are not expected to result in short- or long-term impacts to on-base hazardous material and waste handling operations.

During renovations of Building 504 for the Primary COL, asbestos-containing materials may need to be removed and properly disposed of. Also, surveys for possible LBP in the building may become necessary if such information is not available.

The new diesel generators would comply with the Peterson AFB *Spill Prevention, Control, and Countermeasures Plan* (Peterson AFB, 2004b), which addresses spill prevention and secondary containment. Appropriate systems, structures, and procedures would be used to prevent fuel, oil, and coolant discharges during operations and maintenance.

4.1.6.3 Patrick Air Force Base

As described in Section 4.1.6.1, proposed RB-10 activities are not expected to result in short- or long-term impacts to on-base hazardous material and waste handling operations.

4.2 ENVIRONMENTAL CONSEQUENCES OF THE NO ACTION ALTERNATIVE

Under the No Action Alternative, the USAF would not implement the RB-10. As a result, potential impacts from proposed facility modifications, construction, and long-term operations and maintenance would not occur. USAF and other DOD installations would continue ongoing operations, with environmental conditions expected to remain unchanged from that described for the Affected Environment in Chapter 3.0 of the EA.

4.3 SUMMARY OF ENVIRONMENTAL MONITORING AND MANAGEMENT ACTIONS

Throughout this EA, various management controls and engineering systems are described for all locations affected. Required by Federal, state, DOD, USAF, and other Service-specific environmental, health, and safety regulations, installations implement these measures through normal operating procedures. Though the USAF does not expect significant or other major impacts to result from implementation of the Proposed Action, some specific environmental monitoring and management activities have been identified to further minimize the level of insignificant impacts that might occur at some locations or in some environmental settings. These are summarized below and include the relevant sections of the EA where they are further described.

- During excavations and other earth-disturbing activities, the RAIDRS Squadron would coordinate with the affected installation to implement standard dust reduction measures, including application of water to excavated and graded areas, applying synthetic or natural coverings (netting or mulching) to disturbed areas as needed, and establishing a vegetative or other permanent groundcover following completion of project activities. (Section 4.1.1.1)

- To minimize engine exhaust emissions, the RAIDRS Squadron would coordinate with the affected installation to ensure proper tuning and preventive maintenance of construction and other support vehicles. (Section 4.1.1.1)
- When required, the RAIDRS Squadron would coordinate with the affected installation to obtain a permit to operate diesel powered generator sets in compliance with applicable state, county, and regional air quality regulations. As part of the permitting process, the program would follow toxicological risk screening requirements, as necessary. (Section 4.1.1.1)
- When necessary to comply with permit or other operating restrictions, operators of diesel-powered generator sets would limit the total daily or annual hours of operation, and/or the diesel engines would meet or exceed BACT technologies, such as particulate filtering systems and use of ultra-low-sulfur fuel. (Section 4.1.1.1)
- Because steady-state noise levels may exceed 85 dBA, construction contractors would be required to wear appropriate hearing protection in accordance with OSHA requirements. (Section 4.1.2.1)
- To ensure that no protected biological resources would be adversely affected by proposed RB-10 activities, the RAIDRS Squadron would coordinate with the affected installation Environmental Office prior to project implementation. (Section 4.1.3.1)
- To prevent Deployable Sensor System lighting at Patrick AFB from potentially affecting the behavior and movement of adult sea turtles and hatchlings at night, the RAIDRS Squadron would ensure that system lighting complies with 45th SW Instruction 32-7001. The RAIDRS Squadron would coordinate with the Patrick AFB Environmental Office in development of a Light Management Plan that incorporates the latest and best available sea turtle lighting technology. The Environmental Office would then consult with the USFWS for plan approval. (Section 4.1.3.3)
- To ensure that no known archaeological or other cultural resource sites would be adversely affected by proposed RB-10 activities, the RAIDRS Squadron would coordinate with the affected installation Environmental Office prior to project implementation. (Section 4.1.4.1)
- If selected RB-10 sites were in the vicinity of known archaeological resources, the RAIDRS Squadron would coordinate with the affected installation Environmental Office to modify design plans and related construction activities to ensure that the archaeological resource areas are avoided. If digging, trenching, or other excavation work were to occur within 100 ft (30 m) of any known archaeological site or potential site, then a qualified archaeologist and/or Native American specialist would need to be present during the earth disturbing activities. In the unlikely event that previously undocumented sites are discovered during the execution of the Proposed Action, work would be temporarily suspended within 100 ft (30 m) of the discovered item and the installation archaeologist would immediately be notified. Workers would not resume earth-disturbing activities until after the site has been secured and properly evaluated. (Section 4.1.4.1)
- To avoid unauthorized artifact collection, installation personnel would not inform workers of the location of nearby archaeological sites unless the sites are to be specifically avoided by construction activities. The installation Environmental Office would inform contractors and

installation support personnel of the sensitivity of cultural resources and the mitigation measures that might be required if sites are inadvertently damaged or destroyed. (Section 4.1.4.1)

- As part of the selection of buildings and sites for RB-10 long-term operations, the RAIDRS Squadron would coordinate with the affected installation Environmental Office to avoid historic buildings and structures as much as possible so as not to alter their use, affect their physical features, introduce visual or audible elements that would diminish the integrity of the property's historic significance, or result in structural damage to the property. (Section 4.1.4.1)
- Per the request of the Colorado SHPO, the Peterson AFB Environmental Office, in support of the RAIDRS Squadron, submitted a completed Architectural Inventory Form (Office of Archaeology and Historic Preservation [OAHP] Form 1403) on Building 504 to the SHPO on February 26, 2007. Modifications to Building 504 for the RB-10 would not begin until the SHPO has made a determination of the historic significance of the building. (Section 4.1.4.2)
- The RAIDRS Squadron, in coordination with the Peterson AFB Environmental Office, would notify the Colorado SHPO on the proposed locations of the Deployable Sensor System and Trainer System. Construction and modifications for these RB-10 system elements would not begin until the SHPO has made a determination of possible effects on historic resources at Peterson AFB. (Section 4.1.4.2)
- RB-10 system operators would undergo periodic training on the safety and handling aspects of the equipment, including maintenance operations and use of any hazardous materials. (Section 4.1.5.1)
- In selecting sites for FTSAT and RE operations, each affected installation would conduct a radio frequency survey to ensure electromagnetic compatibility with existing communications, airport operations, and other electrical and electronic systems. This would include compatibility with areas where ordnance and fuels are stored. (Section 4.1.5.1)
- RB-10 personnel would operate both the FTSAT and RE in accordance with DOD, AFOSH, and other applicable Service standards for RFR permissible exposure limits. (Section 4.1.5.1)
- Should FTSAT components containing beryllium oxide or cadmium-plated steel become damaged or release dust, RB-10 personnel would employ appropriate safety gear and breathing apparatus during the handling and repair of the FTSAT. (Section 4.1.5.1)
- When home-based and used for operations and/or training, each Deployable Sensor System would be located inside a gated chain-link fence for both security and safety purposes. RB-10 personnel also would place "Keep Out" notices around radiation hazard areas within and outside the chain-link fencing before the FTSAT is used. When fielded at host installations, either temporary fencing and/or "Keep Out" notices would be placed around the site, depending on installation requirements. (Section 4.1.5.1)
- For fielding the Deployable Sensor System and Trainer System at Peterson AFB, the RAIDRS Squadron, in coordination with Peterson AFB, will submit a Notice of Proposed Construction or Alteration (FAA Form 7460-1) to the FAA for evaluation once on-base sites have been identified. Site construction and modifications for these RB-10 system elements would not begin until the Colorado Springs Airport has reviewed the results for potential impacts on air navigation. (Section 4.1.5.2)

- Building renovations for the proposed facilities may require surveys for asbestos containing materials and LBP if such information is not already available. The RAIDRS Squadron would coordinate with the affected installation Environmental Office in conducting these surveys, when necessary. Unless installation policy allows for these materials to be safely managed in place, workers would remove such materials from buildings and facilities and dispose of them in accordance with Federal, state, and local regulations. (Section 4.1.6.1)
- To ensure that proposed excavations and other construction activities do not damage or interfere with existing IRP sites, the RAIDRS Squadron would coordinate with the affected installation Environmental Office or other responsible office prior to project implementation. (Section 4.1.6.1)
- If workers inadvertently discover contaminated sites during excavations, the affected installation Environmental Office would immediately be contacted and further excavations at the site would cease until a remedial investigation of the site has been conducted. (Section 4.1.6.1)
- Whenever possible, RB-10 program operations would use environmentally preferred and/or recyclable materials. (Section 4.1.6.1)
- As a precaution at each home base and deployment location, RB-10 personnel would place portable berms under the transportable generator sets to contain any spillage of fuel, oil, or other liquids. (Section 4.1.6.1)
- The RAIDRS Squadron would coordinate with each affected installation Environmental Office to ensure that RB-10 generator operations comply with on-site spill prevention, control, and countermeasure requirements. (Section 4.1.6.1)

4.4 FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS (EXECUTIVE ORDER 12898)

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was signed by the President on February 11, 1994. This Executive Order requires that each Federal agency identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

For the Proposed RB-10, the USAF considered the potential for disproportionate impacts on low-income and minority populations. Impacts to environmental justice would be considered significant if impacts to minority populations or low-income communities, due to the Proposed Action, were disproportionately high and adverse. Because proposed RB-10 operations would (1) take place within installation boundaries, and (2) require no changes to airspace usage and only minimal increases in existing aircraft operations, there would be no disproportionate impacts to minorities or low-income populations. Thus, no environmental justice impacts would result from implementation of the RB-10 program.

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8.0 DISTRIBUTION LIST

The following is a list of agencies, organizations, and officials that were sent a copy of the Draft EA/FONSI for the RAIDRS Block-10. A separate list is provided for each affected installation.

Patrick Air Force Base

- US Fish and Wildlife Service, Jacksonville, FL
- Florida Department of Environmental Protection, Florida State Clearinghouse, Tallahassee, FL

Peterson Air Force Base

- US Fish and Wildlife Service, Ecological Services Field Office, Lakewood, CO
- Colorado Department of Natural Resources, Division of Wildlife, Colorado Springs, CO
- Colorado Department of Public Health and Environment, Air Pollution Control Division, Denver, CO
- Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, Denver, CO
- Colorado State Historic Preservation Officer, Denver, CO
- Colorado Springs Airport, Colorado Springs, CO

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APPENDIX A

***PROTECTED SPECIES LIST FOR
PATRICK AIR FORCE BASE, FLORIDA***

Protected Species List for Patrick Air Force Base, Florida				
Common Name	Scientific Name	Federal Status	Florida Status	Known to Occur ¹
Reptiles and Amphibians				
Green sea turtle	<i>Chelonia mydas mydas</i>	Endangered	Endangered	X
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered	Endangered	X
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	Endangered	X
Kemp's ridley sea turtle	<i>Lepidochelys kemp</i>	Endangered	Endangered	
Loggerhead sea turtle	<i>Caretta caretta caretta</i>	Threatened	Threatened	X
American alligator	<i>Alligator mississippiensis</i>	Threatened (S/A) ²	SSC	X
Eastern indigo snake	<i>Drymarchon corais couperi</i>	Threatened	Threatened	
Atlantic salt marsh snake	<i>Nerodia clarkii taenaita</i>	Threatened	Threatened	
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>		SCC	
Gopher frog	<i>Rana capito</i>		SSC	
Gopher tortoise	<i>Gopherus polyphemus</i>		SSC	X
Mammals				
Southeastern beach mouse	<i>Peromyscus polionotus niveiventris</i>	Threatened	Threatened	
Florida mouse	<i>Podomys floridanus</i>		SSC	
West Indian manatee	<i>Trichechus manatus latirostris</i>	Endangered	Endangered	X
Birds				
Southeastern snowy plover	<i>Charadrius alexandriainus tenuirostris</i>	MBTA	Threatened	X
Wood stork	<i>Mycteria americana</i>	Endangered/MBTA	Endangered	X
Bald eagle	<i>Haliaeetus leucocephalus</i>	Threatened/MBTA	Threatened	X
Piping plover	<i>Charadrius melodus</i>	Threatened/MBTA	Threatened	X
Osprey	<i>Pandion haliaetus</i>	MBTA	SSC	X
Southeastern American kestrel	<i>Falco sparverius paulus</i>	MBTA	Threatened	X
Arctic peregrine falcon	<i>Falco peregrinus</i>	Threatened/MBTA	Endangered	X
Roseate tern	<i>Sterna dougallii dougallii</i>	Threatened/MBTA	Threatened	
Least tern	<i>Sterna antillarum</i>	MBTA	Threatened	X
Roseate spoonbill	<i>Ajaia ajaja</i>	MBTA	SSC	X

Protected Species List for Patrick Air Force Base, Florida				
Common Name	Scientific Name	Federal Status	Florida Status	Known to Occur ¹
Brown Pelican	<i>Pelecanus occidentalis</i>	MBTA	SSC	X
Snowy egret	<i>Egretta thula</i>	MBTA	SSC	X
Little blue heron	<i>Egretta caerulea</i>	MBTA	SSC	X
Tricolored heron	<i>Egretta tricolor</i>	MBTA	SSC	X
Reddish egret	<i>Egretta rufescens</i>	MBTA	SSC	X
White ibis	<i>Eudocimus albus</i>	MBTA	SSC	X
Burrowing owl	<i>Athene cunicularia</i>	MBTA	SSC	X
Black skimmer	<i>Rynchops niger</i>	MBTA	SSC	X
American Oystercatcher	<i>Haematopus palliatus</i>	MBTA	SSC	X
Plants				
Shell Mound Prickly Pear Cactus	<i>Opuntia stricta</i>		Threatened	
Sand dune spurge	<i>Chamaesyce cumulicola</i>		Endangered	
Beach star	<i>Remirea maritima</i>		Endangered	X
Inkberry	<i>Scaevola plumieri</i>		Threatened	
Sea lavender	<i>Tournefortia gnaphalodes</i>		Endangered	
Coastal vervain	<i>Glandularia maritima</i>		Endangered	X
Simpson's stopper	<i>Myrcianthes fragrans</i>		Threatened	X

Notes:

¹ Identifies species that have been documented on base. All other species have the potential to occur on base.

² Similarity of appearance to a threatened taxon in the entire range.

SSC = Species of Special Concern

MBTA = Migratory Bird Treaty Act

Source: Dattilo-Bain and Turkoglu, 2006; Patrick AFB, 2004

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APPENDIX B

COMMENTS AND RESPONSES ON THE DRAFT ENVIRONMENTAL ASSESSMENT

**Comments and Responses on the
Draft Environmental Assessment for
Rapid Attack Identification, Detection, and Reporting System – Block 10**

A log of comment documents received on the Draft Environmental Assessment (EA) is provided below, and includes the document date, author, and his/her organization. A photocopy of each comment document can be found on the page number identified. Within each of the documents, comment numbers have been added along the right margins and are numbered sequentially. A corresponding list of comment responses is provided immediately following each of the comment documents. The page number for the responses is also identified below. Note that in addition to the comment responses, the text of the Final EA has been revised, as appropriate, to reflect the concerns expressed in the comments.

Comment Documents Received

Date	Author	Organization	Page Number	
			Comments	Responses
Jan 2, 2007	Georgianna Contiguglia	Colorado Historical Society, Office of Archaeology and Historic Preservation	B-3	B-8
Jan 8, 2007	Sally Mann	Florida Department of Environmental Protection, Office of Intergovernmental Programs	B-9	B-10
Jan 11, 2007	Vanessa Henderson	Colorado Springs Airport	B-11	B-12
Jan 18, 2007	Ann Marie Lauritsen	US Fish and Wildlife Service (Jacksonville, FL)	B-13	B-14
Jan 22, 2007	Shaun Deeney	Colorado Department of Natural Resources, Division of Wildlife	B-15	B-16
Jan 24, 2007	Sheila Gaston	Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division	B-17	B-18



COLORADO
HISTORICAL
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

2 January 2007

Vincent R. Caponpon, GG-14
Chief, Environmental Management
Department of the Air Force
Space and Missile Systems Center (AFSPC)
SMC/EAHV
483 North Aviation Boulevard
El Segundo, CA 90245-2808

RE: Draft Environmental Assessment, Rapid Attack Identification, Detection, and Reporting
System – Block 10 (RB-10)

Dear Mr. Caponpon:

Thank you for your recent correspondence dated 18 December 2006, concerning the proposed establishment of a Rapid Attack Identification, Detection, and Reporting System at Peterson Air Force Base. Our office has reviewed the submitted materials. At this time we do not have any information on Building 504, which would be used as part of this project. Since specific sites for sensor and trainer systems have not yet been established for Peterson AFB, we do not know if their eventual locations will have an adverse effect on the existing Peterson AFB historic district.

We request that you submit an *Architectural Inventory Form #1403* for Building 504, so that we can determine whether it has any historic significance. Even if the building is historic, it is possible that the proposed work will have no effect on the building's historic features. We will be able to make this determination once we have received a copy of the *Inventory Form*.

We would also like to request the ability to comment on this project when the locations for the Deployable Sensor System and the Trainer System are identified, so that we can comment on the possible effects (if any) these systems will have on nearby historic resources.

If you have any questions, please contact Joseph Saldibar, Architectural Services Coordinator, at (303) 866-3741.

Sincerely,

for Mark Wolfe
Georgianna Contiguglia
State Historic Preservation Officer, and
President, Colorado Historical Society

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION

303-866-3392 * Fax 303-866-2711 * E-mail: oahp@chs.state.co.us * Internet: www.coloradohistory-oahp.org

COLORADO CULTURAL RESOURCE SURVEY

Architectural Inventory Form

(Page 1 of 4)

Official Eligibility Determination

(OAHP use only)

Date _____ Initials _____
☐ Determined Eligible - National Register
☐ Determined Not Eligible - National Register
☐ Determined Eligible - State Register
☐ Determined Not Eligible - State Register
☐ Need Data
☐ Contributes to eligible National Register District
☐ Noncontributing to eligible National Register District

I. IDENTIFICATION

1. Resource number: _____
2. Temporary resource number: _____
3. County: _____
4. City: _____
5. Historic building name: _____
6. Current building name: _____
7. Building address: _____
8. Owner name and address: _____

II. GEOGRAPHIC INFORMATION

9. P.M. _____ Township _____ Range _____
 _____ ¼ of _____ ¼ of _____ ¼ of _____ ¼ of section _____
10. UTM reference
 Zone _____; _____mE _____mN
11. USGS quad name: _____
 Year: _____ Map scale: 7.5' _____ 15' _____ Attach photocopy of appropriate map section.
12. Lot(s): _____ Block: _____
 Addition: _____ Year of Addition: _____
13. Boundary Description and Justification: _____

III. Architectural Description

14. Building plan (footprint, shape): _____
15. Dimensions in feet: Length _____ x Width _____
16. Number of stories: _____
17. Primary external wall material(s) (enter no more than two): _____

18. Roof configuration: (enter no more than one): _____

Resource Number: _____

Temporary Resource Number: _____

Architectural Inventory Form

(Page 2 of 4)

19. Primary external roof material (enter no more than one): _____

20. Special features (enter all that apply): _____

21. General architectural description: _____

22. Architectural style/building type: _____

23. Landscaping or special setting features: _____

24. Associated buildings, features, or objects: _____

IV. ARCHITECTURAL HISTORY

25. Date of Construction: Estimate _____ Actual _____

Source of information: _____

26. Architect: _____

Source of information: _____

27. Builder/Contractor: _____

Source of information: _____

28. Original owner: _____

Source of information: _____

29. Construction history (include description and dates of major additions, alterations, or demolitions): _____

30. Original location ____ Moved ____ Date of move(s): _____

Resource Number: _____

Temporary Resource Number: _____

Architectural Inventory Form

(Page 3 of 4)

V. HISTORICAL ASSOCIATIONS

31. Original use(s): _____

32. Intermediate use(s): _____

33. Current use(s): _____

34. Site type(s): _____

35. Historical background: _____

36. Sources of information: _____

VI. SIGNIFICANCE

37. Local landmark designation: Yes ____ No ____ Date of designation: _____

Designating authority: _____

38. Applicable National Register Criteria:

____ A. Associated with events that have made a significant contribution to the broad pattern of our history;

____ B. Associated with the lives of persons significant in our past;

____ C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possess high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;

____ D. Has yielded, or may be likely to yield, information important in history or prehistory.

____ Qualifies under Criteria Considerations A through G (see Manual)

____ Does not meet any of the above National Register criteria

39. Area(s) of significance: _____

Resource Number: _____
Temporary Resource Number: _____

Architectural Inventory Form
(Page 4 of 4)

40. Period of significance: _____

41. Level of significance: National _____ State _____ Local _____
42. Statement of significance: _____

43. Assessment of historic physical integrity related to significance: _____

VII. NATIONAL REGISTER ELIGIBILITY ASSESSMENT

44. National Register eligibility field assessment:
Eligible _____ Not Eligible _____ Need Data _____
45. Is there National Register district potential? Yes _____ No _____ Discuss: _____

- If there is National Register district potential, is this building: Contributing _____ Noncontributing _____
46. If the building is in existing National Register district, is it: Contributing _____ Noncontributing _____

VIII. RECORDING INFORMATION

47. Photograph numbers: _____ Negatives filed at: _____
48. Report title: _____
49. Date(s): _____ 50. Recorder(s): _____
51. Organization: _____
52. Address: _____
53. Phone number(s): _____

NOTE: Please attach a sketch map, a photocopy of the USGS quad. map indicating resource location, and photographs.

Colorado Historical Society - Office of Archaeology & Historic Preservation
1300 Broadway, Denver, CO 80203 (303) 866-3395

RESPONSES TO COLORADO HISTORICAL SOCIETY COMMENTS (January 2, 2007)

Response to Comment #1

As described in Section 2.1.1.1 of the EA, Building 504 is a single-story office building constructed in 1969. The building is not located within the Historic District on base.

Response to Comment #2

As described in Section 4.1.4.1 of the EA, historic buildings and structures would be avoided as much as possible so as not to alter their use, affect their physical features, introduce visual or audible elements that would diminish the integrity of the property's historic significance, or result in structural damage to the property. This would include avoiding the Peterson AFB Historic District.

Response to Comment #3

In support of the RAIDRS Squadron, the Peterson AFB Environmental Office submitted a completed Architectural Inventory Form (OAHP Form 1403) on Building 504 to Mr. Dan Corson at the Colorado SHPO on February 26, 2007, via electronic mail. Modifications to Building 504 for the RB-10 would not begin until the SHPO has made a determination of the historic significance of the building. *(Note, Sections 4.1.4.2 and 4.3 of the Final EA have been modified accordingly.)*

Response to Comment #4

Once sites have been identified, the RAIDRS Squadron, in coordination with the Peterson AFB Environmental Office, will notify the Colorado SHPO on the proposed locations of the Deployable Sensor System and Trainer System on base. Site construction and modifications for these RB-10 system elements would not begin until the SHPO has made a determination of possible effects on historic resources on base. *(Note, Sections 4.1.4.2 and 4.3 of the Final EA have been modified accordingly.)*



Florida Department of Environmental Protection

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

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary - Designee

January 8, 2007

Mr. Leonard Aragon
SMC/EAHV
Department of the Air Force
483 North Aviation Boulevard
El Segundo, CA 90245-2808

RE: Department of the Air Force – Draft Environmental Assessment for Rapid Attack
Identification, Detection, and Reporting System-Block 10, Patrick Air Force Base –
Brevard County, Florida.
SAI # FL200701083002C

Dear Mr. Aragon:

Florida State Clearinghouse staff, 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 reviewed the referenced draft environmental assessment (EA).

Based on the information contained in the draft EA and minimal project impacts, the
state has determined that the proposed federal activities are consistent with the Florida Coastal
Management Program.

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

Sincerely,

Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/lm

**RESPONSES TO FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMENTS (January 8, 2007)**

Response to Comment #1

The USAF acknowledges the findings that the proposed RB-10 activities at Patrick AFB would be consistent with the Florida Coastal Management Program.

-----Original Message-----

From: Vanessa Henderson [<mailto:vhenderson@springsgov.com>]

Sent: Thursday, January 11, 2007 1:40 PM

To: Aragon, Leonard A Civ SMC/EAF

Subject: Comments on Draft EA for RB-10

Hello -

I was sent the Draft EA to review and comment from the Colorado Springs Airport's perspective. We have two comments, which are:

Environmental:

Towards the beginning of the document in Site Preparations (page 10), the construction of a backup generator is discussed. There is no mention of any secondary containment being constructed. It isn't until page 51 that secondary containment is discussed. I think it might be helpful to include something about containment towards the beginning because I wondered about it every time a generator was discussed.

1

Operations:

The proposer shall submit a Notice of Proposed Construction or Alteration (FAA Form 7460-1) to the FAA for evaluation. The Airport will need to review the results and consider any impacts prior to authorizing the installation of this equipment on Airport property.

2

Thank you for the opportunity to comment on this document. If you have questions about the environmental comment, please feel free to contact me. If you have questions about the operations comment, please feel free to contact John McGinley at (719) 550-1905.

Vanessa Henderson, EI

Environmental Safety & Health Coordinator Colorado Springs Airport 7770 Milton E. Proby Parkway, Suite 50 Colorado Springs, CO 80916-4961

Phone: 719.550.1915

Cell: 719.238.7754

Fax: 719.550.1991

E-mail: vhenderson@springsgov.com <<mailto:vhenderson@springsgov.com>>

RESPONSES TO COLORADO SPRINGS AIRPORT COMMENTS (January 11, 2007)

Response to Comment #1

Information on secondary containment systems, structures, and/or berms for backup generators has been added to Sections 2.1.1.1 and 2.1.3 of the Final EA.

Response to Comment #2

Once on-base sites have been identified for the Deployable Sensor System and Trainer System, the RAIDRS Squadron, in coordination with Peterson AFB, will submit a Notice of Proposed Construction or Alteration (FAA Form 7460-1) to the FAA for evaluation. Site construction and modifications for these RB-10 system elements would not begin until the Colorado Springs Airport has reviewed the results for potential impacts on air navigation. *(Note, Sections 4.1.5.2 and 4.3 of the Final EA have been modified accordingly.)*

For the Primary COL at Building 504, there are no new antennas or changes to existing antennas. Additionally, the proposed construction, alterations, and additions at Building 504 would either be shielded within the existing structure or no taller than adjacent structures. Thus, submittal of FAA Form 7460-1 is not required for the COL, as per 14 CFR 77.15(a).

-----Original Message-----

From: AnnMarie_Lauritsen@fws.gov [mailto:AnnMarie_Lauritsen@fws.gov]

Sent: Thursday, January 18, 2007 12:09 PM

To: Aragon, Leonard A Civ SMC/EAF

Subject: Comments on the draft EA for Rapid Attack Identification, Detection, and Reporting System at Patrick Air Force Base

FWS Log Number: 41910-2007-TA-0186

Dear Mr. Aragon:

The U.S. Fish and Wildlife Service (Service) has reviewed the draft Environmental Assessment (EA) for Rapid Attack Identification, Detection, and Reporting System at Patrick Air Force Base (PAFB) in Brevard County, Florida. The draft EA was published in the December 22, 2006 Federal Register. The Air Force sent us a hard copy of the draft EA and FONSI with a cover letter, dated December 18, 2006, which we received December 20. As noted in the draft EA, activities associated with the program's lighting has the potential to affect the following federally listed species: green (Chelonia mydas), leatherback (Dermochelys coriacea), Kemp's ridley (Lepidochelys kempii), hawksbill (Eretmochelys imbricata) and loggerhead (Caretta caretta) nesting sea turtles. In addition, potential impacts to migratory birds, another Federal Trust resource.

1

For sea turtles, we suggest the Air Force consider developing a "Light Management Plan" that incorporates the latest and best available sea turtle lighting technology to reduce direct lighting, uplighting, and skyglow visible from the beach.

2

The Service is the lead Federal Agency charged with the protection and conservation of Federal Trust Resources, such as threatened and endangered species and migratory birds, in accordance with the Endangered Species Act of 1973, as amended (ESA) (87 Stat. 884; 16 U.S.C. 1531 et seq.), and the Migratory Bird Treaty Act (40 Stat. 755; 16 U.S.C. 701 et seq.). Communication tower guidance is largely based on our agency's Interim Guidelines for Recommendations on Communication Tower Siting, Construction, Operation, and Decommissioning. This document is posted on our national web site, and may be reviewed and downloaded by accessing <http://www.fws.gov/migratorybirds/issues/towers/comtow.html>.

3

The Service appreciates the cooperation of the Air Force. We look forward to working with you and your staff regarding the Rapid Attack Identification, Detection, and reporting System-Block 10. For further coordination please contact Ann Marie Lauritsen at (904) 232-2580 ext. 111.

Ann Marie Lauritsen, Wildlife Biologist

US Fish and Wildlife Service

6620 Southpoint Boulevard South Suite #310 Jacksonville, Florida 32216

904/232-2580 ext 111 www.fws.gov/northflorida

RESPONSES TO US FISH AND WILDLIFE SERVICE (JACKSONVILLE, FL) COMMENTS (January 18, 2007)

Response to Comment #1

As described in Sections 3.3, 4.1.3.1, and 4.1.3.3, and in Appendix A, of the EA, there are federally listed sea turtles and migratory birds at Patrick AFB that could potentially be affected by proposed RB-10 activities, but that no adverse impacts on such species are expected to occur. *(Note, Appendix A has been modified in the Final EA to include the hawksbill sea turtle [Eretmochelys imbricate]).*

Response to Comment #2

Once the USAF has determined that RB-10 system elements would be fielded at Patrick AFB and require artificial lighting, the RAIDRS Squadron would coordinate with the base Environmental Office in development of a Light Management Plan that incorporates the latest and best available sea turtle lighting technology. The base would then consult with the USFWS for plan approval. *(Note, Sections 4.1.3.3 and 4.3 of the Final EA have been modified accordingly.)*

Response to Comment #3

The USAF has reviewed the USFWS's Interim Guidelines for Recommendations on Communication Tower Siting, Construction, Operation, and Decommissioning. As described in Section 2.1.3 of the EA, the proposed Deployable Sensor System would include two 18-ft (5.4-m) diameter antenna dishes. Once erected, each antenna would stand no more than 25 ft (7.6 m) in height. Because of the relatively low height of these antennas and lack of guy wires, no bird strikes are expected to occur.

STATE OF COLORADO

Bill Ritter Jr., Governor

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WILDLIFE

AN EQUAL OPPORTUNITY EMPLOYER

Bruce McCloskey, Director
Southeast Region
4255 Sinton Road
Colorado Springs, CO 80907
719-227-5200



*For Wildlife-
For People*

January 22, 2007

SMC/EA/V

Attn: Leonard Aragon

483 North Aviation Boulevard

El Segundo, CA 90245-2808

Leonard.Aragon@losangeles.af.mil

Subject: Draft Environmental Assessment (EA) for Rapid Attack Identification
Detection and Reporting System-Block 10 (RB-10)

Dear Sir:

The Colorado Division of Wildlife is in receipt of the above referenced permit application and is familiar with the site. Based both on the location and type of action being proposed the Division believes impacts to the wildlife resource to be negligible. We appreciate being given the opportunity to comment. Please feel free to contact Steve Cooley at 719-227-5282 should you have any questions or require additional information.

Sincerely,

Shaun Deeney
Area Wildlife Manager

xc: File
SE Region
Steve Cooley

DEPARTMENT OF NATURAL RESOURCES, Harris D. Sherman, Executive Director
WILDLIFE COMMISSION, Jeffrey Crawford, Chair • Tom Burke, Vice Chair • Claire O'Neal, Secretary
Members, Robert Bray • Brad Coors • Rick Enstrom • Richard Ray • James McAnally • Ken Torres
Ex Officio Members, Harris Sherman and John Stulp

**RESPONSES TO COLORADO DEPARTMENT OF NATURAL RESOURCES
COMMENTS (January 22, 2007)**

Response to Comment #1

The USAF acknowledges the findings that the proposed RB-10 activities at Peterson AFB would have negligible impacts to wildlife.

STATE OF COLORADO

Bill Owens, Governor
Douglas H. Benevento, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1830
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3080

<http://www.cdphe.state.co.us>



Colorado Department
of Public Health
and Environment

January 24, 2007

SMC/EAFV
Attn: Leonard Aragon
483 North Aviation Boulevard
El Segundo, CA 90245-2808

Re: Draft Environmental Assessment for Rapid Attack Identification,
Detection, and Reporting System - Block 10

Dear Mr. Aragon:

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division (the Division) has received and reviewed the report mentioned above. The proposed action consists of several activities to be based out of Peterson Air Force Base located in Colorado Springs, Colorado. These activities would include establishing the Primary Central Operating Location (command center) in the existing Building 504 on base. Peterson Air Force Base is currently considered a small quantity hazardous waste generator and any additional wastes generated by these proposed activities should follow all State and Federal regulations.

The Division does not have any objections or comments to the proposed activities at this time. If you have any questions, please feel free to call me at 303-692-3332.

Sincerely,

Sheila J. Gaston
Remediation and Restoration Unit
Federal Facilities Program
Hazardous Materials and Waste Management Division

cc: Jeff Edson, CDPHE/HMWMD
File PET 1.1

1

RESPONSES TO COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT COMMENTS (January 24, 2007)

Response to Comment #1

As described in Section 4.1.6.1 of the EA, all hazardous wastes resulting from proposed RB-10 activities at Peterson AFB and other locations would be properly disposed of in accordance with applicable Federal, state, local, DOD, and Service regulations.