
FINAL

Environmental Assessment

**For the High Explosive Research and Development Complex's
Proposed Long Term Upgrade and Expansion
RCS 08-837**

Prepared for:
Department of the Air Force
Eglin Air Force Base, Florida

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**FINDING OF NO SIGNIFICANT IMPACT
FOR THE HIGH EXPLOSIVE RESEARCH AND DEVELOPMENT COMPLEX'S
PROPOSED LONG TERM UPGRADE AND EXPANSION
EGLIN AIR FORCE BASE, FLORIDA**

RCS 08-837

Pursuant to the Council on Environmental Quality (CEQ) regulation for implementing the procedural provisions of the *National Environmental Policy Act (NEPA)*, Title 40 of the *Code of Federal Regulations (CFR)* §§1500-1508; Air Force Environmental Impact Analysis Process regulations 32 *CFR* §989 and *Department of Defense Directive 6050.1*, the Air Force has prepared an environmental assessment (EA) to identify and assess the potential impacts on the natural and human environment associated with the long term upgrade and expansion of the High Explosive Research and Development (HERD) complex at Eglin Air Force Base in Okaloosa County, Florida.

Purpose and Need for Expansion and Upgrade at the HERD Complex (EA Chapter 1.0, Pages 1-1 to 1-7)

The proposed action will support Advanced Energetics by providing the scientific and engineering research infrastructure required to formulate, analyze, produce, test and evaluate new explosive mixtures. AFRL is collaborating with several government agencies and academia to develop, characterize and produce new energetic formulations. Over the next several years, the Munitions Directorate is expecting to attract dozens of scientists and collaborators to help mature the nano-energetic technology. Currently, AFRL has been conducting very limited testing and evaluation of potential nano-energetic components at the HERD Complex. While the testing has been productive, the advanced energetics team is rapidly reaching the limit of the research capabilities provided by available infrastructure. The existing buildings were constructed in the 1960s, and the environmental controls, space and electrical power are insufficient or inappropriate to introduce new materials or accommodate testing on a scale needed for the expanding research programs at the HERD. To reduce costs and improve efficiency, it would be beneficial to conduct these tests in the HERD complex, at or near the existing buildings. The proposed action will further support AFRL's mission to discover, develop and integrate affordable warfighting technologies for America's aerospace forces. AFRL is a full-spectrum laboratory, responsible for planning and executing the AF science and technology program. The proposed action is needed in order for the Laboratory to provide leading-edge warfighting capabilities to America's air, space and cyberspace forces.

Description of Proposed Action and Alternatives (EA Chapter 2.0, Pages 2-1 to 2-4)

Two alternative site layouts plus the No Action alternative were analyzed in detail in the EA.

Preferred Alternative (EA Section 2.1, Pages 2-1 to 2-4): The proposed action includes an expansion of the fenced, access controlled area of the HERD complex to the west and south of the existing HERD campus. Expansion will include future explosives operations, testing, and storage buildings, non-explosives research and purpose buildings, supporting infrastructure for existing and future facilities and expansion of the central utilities system which distributes steam, chilled water, hot water and compressed air to existing and future buildings. In total, the expansion of the HERD complex may include the construction of as many as thirty six new

buildings and associated infrastructure, including roads, parking lots and stormwater conveyance network.

Alternative 1 (EA Section 2.2, Page 2-4): One alternative layout has been identified under the proposed action. This alternative includes a larger area of expansion to the west of the existing HERD campus, and places remote buildings and the expanded perimeter fence closer to the unnamed tributary to Toms Creek (which is known to support a population of the federally listed Okaloosa Darter). Construction under this alternative would include the same number of buildings and the same time-frame of construction as the proposed action.

No Action Alternative (EA Section 2.3, Page 2-4): Under the no action alternative no new buildings would be constructed, improvements to existing buildings would not be made, and the HERD complex would continue to operate under its existing capacity and energy inefficient utilities and infrastructure.

Summary of Anticipated Impacts (EA Chapter 4, Pages 4-1 to 4-27)

Land Use (EA Section 4.1, Pages 4-1 to 4-2): Land use impacts would not be significant. The construction site is within the existing compatible use zone.

Transportation (EA Section 4.2, Pages 4-3 to 4-4): There would be no significant transportation impacts from the Proposed Action. Since the HERD will remain in the same location, there would be no change in road usage. Access from Perimeter Road would continue. A minor increase in traffic to and from the site is anticipated.

Site Access (EA Section 4.3, Page 4-4): Site Access impacts would not be significant. Additional security screening for construction workers and vehicles would be required, as well as for outside scientists.

Air Traffic and Airspace Analysis (EA Section 4.4, Pages 4-4 to 4-6): No air traffic or airspace impacts are expected to occur.

Air Quality (EA Section 4.5, Pages 4-6 to 4-7): Combustive emissions and fugitive dust from construction would have temporary minor adverse impact. Air quality criteria would not be exceeded and the impacts would not be significant.

Hazardous Material and Hazardous Waste Management (EA Section 4.6, Pages 4-7 to 4-9): All hazardous materials and wastes will be used and disposed of according to all federal, state, local and AF regulations. Impacts would not be significant.

Solid Waste (EA Section 4.7, Pages 4-9 to 4-11): Solid wastes would increase as a result of construction and operation of the new facilities, but impacts would not be significant.

Noise and Vibration (EA Section 4.8, Pages 4-11 to 4-12): Site-related noise would not be significant. New construction will need to comply with the requirements of *AICUZ Program Manager's Guide* for noise level reductions. Construction noise would not perceptibly increase the average noise.

Human Health and Safety (EA Section 4.9, Pages 4-12 to 4-13): Human health and safety impacts would not be significant.

Utilities (EA Section 4.10, Pages 4-13 to 4-17): Utilities impacts would not be significant.

Stormwater (EA Section 4.11, Pages 4-17 to 4-20): Impervious surface area would increase resulting in an increase in stormwater runoff. A NPDES construction permit will ensure that impacts would not be significant.

Natural Resources (EA Section 4.12, Pages 4-20 to 4-21): Natural resources impacts would not be significant.

Biological Resources (EA Section 4.13, Pages 4-22 to 4-26): There would be no significant impacts to biological resources. Impacts to vegetation from land clearing would consist of less than 100 acres of Sandhill habitat. Endangered or threatened species would not be injured or killed. Eglin Natural Resources personnel would conduct site surveys prior to any construction activities and relocate, as necessary, any gopher tortoises found. If any animals were located during the surveys, a relocation permit would be obtained from the Florida Fish and Wildlife Conservation Commission (FWC) and animals in imminent danger from vegetative clearing would be relocated. Instructing vehicle and equipment operators to stop and allow animals to move away from the area before continuing activities would minimize the potential for vehicle strikes.

The proposed action would potentially impact 44 acres of migratory bird habitat and has the potential to cause adverse impacts to the resource. During this time, potential impacts would be greatest as land clearing could interrupt breeding and injure or kill adults and young. To avoid impacts to migratory birds, land clearing should occur on or after September 1 through March 15 to avoid the nesting season. The *Migratory Bird Treaty Act (MBTA)* does not contain any prohibition that applies to the destruction of a migratory bird nest alone (without birds or eggs), provided that no possession occurs during the destruction. If clearing occurs before September 1, care would be taken to leave snags in place. If snags need to be removed for construction purposes, they may be removed after September 1. Activities would cease if active bird nests with eggs or young are found. Coordination with Eglin Natural Resources Section, 96 CEG/CEVSN, is required prior to project initiation to ensure compliance with the *MBTA*. Therefore, no significant impacts to migratory birds are expected from land clearing activities.

Socioeconomics (EA Section 4.14, Page 4-27): Socioeconomic impacts would not be significant. Some minor beneficial impacts would result from creation of new jobs and construction. Because military activities take precedence over recreational activities, the HERD expansion area will be closed to archery, a current recreational use of the area, but this is such a small portion of the total land area available for archery, impacts are not significant.

Public Comment and Agency Review (EA, APPENDIX C)

A public notice was published in the Northwest Florida Daily News on April 19, 2012 inviting the public to review and comment upon the EA. Appendix C of the EA addresses public notification. The public comment period closed on May 5, 2012. No comments were received.

The EA was provided to the State Clearinghouse for review and *Coastal Zone Management Act* concurrence. The State Clearinghouse review is included in Appendix C of the EA.

Management Actions (EA Chapter 6, pages 6-1 to 6-5)

Land Use (EA Section 6.2.1, Page 6-1)

In accordance with section 2.1 of the environmental assessment, spatial orientation of the buildings will need final explosive siting approval prior to design and final permitting. Specific siting of these new facilities will be contingent upon *Explosives Site Plan* approvals through the Department of Defense Explosives Safety Board, which will occur in conjunction with the preliminary design process prior to construction. Section 2.1 of the environmental assessment provides specific layout criteria for the new facilities and areas.

Air Traffic and Airspace Analysis (EA Section 6.2.2, Pages 6-1 to 6-2)

As detailed in section 4.4.1 of the environmental assessment, the project planner should use the electronic “Notice Criteria Tool” on the FAA website to determine whether any of the proposed expansion (or renovations to existing buildings) will require FAA notification due to proximity to the Northwest Florida Regional Airport and should make the appropriate notifications within the required timeframe prior to scheduled construction. Furthermore, National Telecommunications and Information Administration notification is advised. As explained in section 4.4.1, the DoD Preliminary Screening Tool did determine that the construction may fall within the confines of an area of interest and may have an impact on military operations. A more detailed review will be required to identify any additional areas of concern. The project manager must keep 46 TW/XPE fully apprised of findings of the more detailed review as well as any impacts on military operations. If one or more of the proposed buildings is determined to be a hazard to aviation, it would be considered objectionable by the FAA and changes to the design (location, height, etc) of the improper building(s) will be required.

Air Quality (EA Section 6.2.3, Page 6-2)

In accordance with section 1.7 of the environmental assessment, research and development activities that are conducted on the Eglin AFB test ranges need to be evaluated to determine if they are within the limits of Eglin’s Title V permit. Furthermore, a fugitive dust permit will be required because the area to be impacted by the proposed action exceeds 25 acres. Eglin AFB will take reasonable precautions, such as watering, minimizing vehicle speeds on exposed earth to minimize fugitive particulate (dust) emissions during any construction activities in accordance with *Florida Administrative Code (FAC) 62-296.320*. Issuance of an air construction permit from FDEP will be required prior to beginning the proposed construction activities (*FAC 62-210.300*). The buildings where ultra-fine particles will be used will be self-contained. In addition, indoor air quality will be monitored closely with special sensors.

Hazardous Material and Hazardous Waste Management (EA Section 6.2.4, Pages 6-2 to 6-3)

As described in section 4.6.1, petroleum products and other hazardous materials (e.g., paints and solvents) that will be required during construction/renovation activities will be stored in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous waste will be reported and resolved according to the *Eglin AFB Facility Response Plan* (USAF, 2009a) and the *Hazardous Waste Management Plan* (USAF, 2010c). Should any excess hazardous materials related to construction/renovation activities require disposal, they will be disposed of according to applicable federal, state and local laws and regulations.

In accordance with section 1.7 of the environmental assessment, the hazardous materials used in the expanded facilities as well as the hazardous wastes generated will likely require a permit under the *Resource Conservation and Recovery Act of 1976*. As explained in detail in section 4.6.1, before a new hazardous material could be used at the HERD facility, including ultra-fine particles and other new compounds that may be used in the advanced energetics research program, it must be added to the HMMS inventory through an approval process, documented and reported.

As per section 3.5 of the environmental assessment, hazardous materials and wastes at the HERD will continue to be managed according to *AFRL/RW OI 32-7001 RW Environmental Management Program*. Furthermore, buildings to be renovated or demolished will be surveyed for asbestos-containing materials and any found will be abated and disposed of in accordance with all applicable federal, state and local laws, rules, regulations and standards and in accordance with the base's *Asbestos Management Plan* (USAF 2010a). Similarly, lead based paint will be managed and disposed of according to all applicable federal, state and local laws, rules, regulations and standards and in accordance with Eglin's *Lead Based Paint Management Plan* (USAF, 2010d). As detailed in section 4.6.1, all HERD explosives waste will continue to follow the specific requirements and operating instructions provided in *Flight Operating Instruction 32-3004* (October 6, 2010). Removal of explosives waste at Eglin will continue to utilize the OB/OD permit maintained by Eglin for disposal of waste. HERD personnel may coordinate specific disposal operations with EOD personnel based on increased explosives operating requirements that may be present under future HERD directives.

Solid Waste (EA Section 6.2.5, Page 6-3)

Solid wastes are to be managed in accordance with requirements as detailed in sections 3.6 and 4.7.1 of the environmental assessment.

Noise and Vibration (EA Section 6.2.6, Page 6-3)

As described in detail in sections 3.7 and 4.8.1 of the environmental assessment, measures to achieve noise level reductions must be incorporated into the design and construction of portions of buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low in accordance with *Air Force Handbook 32-7084 Figure 4 Land Use Compatibility*. Additionally, section 2.1 of the environmental assessment provides specific design criteria for the new facilities to deal with vibration.

Human Health and Safety (EA Section 6.2.7, Page 6-3)

As described in section 3.8 of the environmental assessment, developers working on the installations are required to prepare appropriate job site safety plans explaining how job safety will be assured throughout the life of the project. Developers are also required to follow applicable OSHA requirements. As stated in section 4.8.1, construction equipment operators will need to utilize increased hearing protection based on the JSF aircraft noise. Furthermore, programs and facilities at the HERD complex should be in compliance with standards and policies as detailed in section 3.8. As explained in section 4.5.1 of the environmental assessment, personal protective equipment (particularly respiratory protection) designed for ultra-fine particles will be worn by all employees working in the buildings where ultra-fine particles will be used. Other human health and safety requirements are detailed in section 4.9.1 of the environmental assessment.

Utilities (EA Section 6.2.8, Page 6-3)

In accordance with section 1.7 of the environmental assessment, Florida Department of Environmental Protection (FDEP) form 62-555.900(1) *Application for a Specific Permit to Construct PWS Components*; and 62-555.900(9) *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation* may be required. Likewise, wastewater permits, FDEP Form 62-604.300(8)(a) *Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System* (dependent on design), and FDEP Form 62-604.300(8)(b) *Request for Approval to Place Wastewater System into Operation* may also be required. Other utilities requirements are detailed in sections 4.10 and 4.10.1 of the environmental assessment. The proponent will ensure that the design engineer coordinates with 96 CEG/CEVC Compliance Engineering (850-882-7660) for utilities extension permitting.

Stormwater (EA Section 6.2.9, Page 6-4)

An Environmental Resource Permit (ERP) from the Northwest Florida Water Management District (NFWFMD) is required in accordance with *FAC 62-346*. In addition, any construction area larger than one acre would required a National Pollutant Discharge Elimination System (NPDES) General Permit under *40 CFR 122.26(b)(14)(x)*. A stormwater pollution prevention plan would also be required under the NPDES permit before beginning construction activities. Eglin AFB will submit a notice of intent to use the generic permit for stormwater discharge under the NPDES program prior to project initiation according to Section 403.0885, Florida Statutes. Best Management Practices such as erosion and sediment controls and stormwater management measures will be required to minimize erosion and stormwater runoff, and to regulate sediment control. Other stormwater requirements are detailed in sections 4.11 and 4.11.1 of the environmental assessment. The proponent will ensure that the design engineer coordinates with 96 CEG/CEVC Compliance Engineering (850-882-7660) for final stormwater design and permitting.

Soils (EA Section 6.2.10, Page 6-4)

One closed ERP site is located at the HERD complex, in the vicinity of Building 1197. Planned construction activities are possible in this area with prior coordination with Eglin AFB Environmental Management Restoration branch on the Work Clearance Request. Regardless, should any unusual odor, soil, or groundwater coloring be encountered during development activities in any areas, the construction must cease and Environmental Management Restoration must be contacted immediately. Other natural resources requirements are detailed in sections 4.12.2.1 and 4.12.3.1 of the environmental assessment.

Biological Resources (EA Section 6.2.11, Pages 6-4 and 6-5)

In accordance with Section 7 of the *Endangered Species Act*, consultation with the United States Fish and Wildlife Service (USFWS) has been conducted. Eglin has determined that the proposed action is not likely to adversely affect threatened or endangered species found in or around the project area. Appendix B of the environmental assessment contains the Biological Assessment with concurrence from USFWS with following avoidance and minimization measures:

- Construction personnel will be provided a description of the eastern indigo snake and its

protection under federal law. Indigo snake signs will be posted at construction sites. Personnel will be given instructions not to harass, injure, harm, or kill this species.

- Should an indigo snake be sighted, construction personnel will cease activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming activities. Personnel will contact the Eglin Natural Resources Section immediately.
- Use of hay bales and silt fences will be in place prior to and throughout construction to minimize erosion into the stream and lessen any potential downstream impact.
- Construction actions will occur at a minimum of 100 feet outside the darter stream.
- If possible, construction actions with potential to impact the Okaloosa darter (i.e. fence and tree clearing) would be completed between September and February to avoid the spawning season.
- Security Forces will follow the fence line and remain out of surrounding wooded areas and any wet areas during security patrols. If erosion issues occur they must notify the Natural Resources Section immediately.
- In the unlikely event that construction personnel come into contact with a black bear, all activities will cease until the bear has moved away from the area.
- Eglin AFB Natural Resources personnel will perform a gopher tortoise survey prior to any construction or disturbance.
- If a gopher tortoise burrow cannot be avoided, then the tortoise would be relocated in accordance with the FWC protocols.
- Should a gopher tortoise burrow be identified within the proposed path of construction by construction personnel, work would cease until Natural Resources personnel have investigated the burrow and relocated any gopher tortoise or commensals to a suitable location.


Sections 4.13.1.1, 4.13.2.1 and 4.13.3.1 of the environmental assessment contain additional biological resources requirements.

Cultural Resources (EA Section 6.2.12, Page 6-5)

In accordance with section 1.6.1 of the environmental assessment, if human remains or unexpected resources are encountered during construction activities, work should cease and Eglin's Cultural Resources Branch must be contacted (850-882-8459). Identified resources would be managed in compliance with federal law and Air Force regulations.

FINDING OF NO SIGNIFICANT IMPACT

Based on my review of the facts and analyses contained in the attached EA and as summarized above, I find the Proposed Action of Upgrading and Expanding the HERD Complex on Eglin Air Force Base will not have a significant impact on the natural or human environment; therefore, an environmental impact statement is not required. This analysis fulfills the requirements of *NEPA*, the President's Council on Environmental Quality 40 *CFR* §§1500-1508 and the Air Force EIAP regulations 32 *CFR* §989.



ANTHONY A. HIGDON, Colonel, USAF
Commander, 96th Civil Engineer Group

18 JUN 12

DATE

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List of Acronyms and Abbreviations

AAC	Air Armament Center
ACM	asbestos containing material
AE	ammunition and explosives
AF	Air Force
AFB	Air Force Base
AFH	Air Force Handbook
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection and Health
AFPD	Air Force Policy Directive
AFRL	Air Force Research Laboratory
agl	above ground level
ATV	all terrain vehicle
BMPs	Best Management Practices
BRAC	Base Realignment and Closure
C&D	Construction and Demolition
CDNL	C-weighted sound
CEG	Civil Engineer Group
CEQ	Council on Environmental Quality
CES	Civil Engineer Squadron
CFR	Code of Federal Regulations
CO	carbon monoxide
CZMA	Coastal Zone Management Act
dB	decibel
dBA	A-weighted decibels
dbh	diameter breast height
DNL	A-weighted sound
DoD	Department of Defense
DoDI	Department of Defense Instruction
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EOD	Explosive Ordinance Disposal
EOH	Environmental and Occupational Health
ERP	Environmental Resource Permit
ERP	Environmental Restoration Program
ESA	Endangered Species Act
EU	(Air) Emissions Units
FAA	Federal Aviation Administration
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FNAI	Florida Natural Areas Inventory
HAP	hazardous air pollutant
HERD	High Explosives Research and Development
HMC	hazardous material cell
HMMS	Hazardous Materials Management System

Table of Contents (continued)

List of Acronyms and Abbreviations (continued)

HQNC	High Quality Natural Communities
HVAC	heating, ventilating, and air conditioning
IAP	Initial Accumulation Point
INRMP	Integrated Natural Resources Management Plan
JSF	Joint Strike Fighter
LBP	lead-based paint
MACTEC	MACTEC Engineering and Consulting, Inc
MBTA	Migratory Bird Treaty Act
MMbtu/hr	million British thermal units per hour
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NSPS	New Source Performance Standards
NWFWMD	Northwest Florida Water Management District
OB/OD	Open Burn/Open Detonation
OE/AAA	Obstruction Evaluation/Airport Airspace Analysis
OI	operating instruction
OSHA	Occupation Safety and Health Administration
Pb	lead
PM ₁₀	Particulate Matter with an Aerodynamic Diameter Less Than or Equal to 10 Microns
PM _{2.5}	Particulate Matter with an Aerodynamic Diameter Less Than or Equal to 2.5 Microns
RCRA	Resource Conservation and Recovery Act
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
sq ft	square foot
SWPPP	Stormwater Pollution Prevention Plan
USAF	US Air Force
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service

1.0 Purpose and Need for Action

1.1 Introduction

The Air Force Research Laboratory (AFRL), with headquarters at Wright-Patterson Air Force Base (AFB), Ohio, was created in October 1997. The Laboratory was formed through the consolidation of four former Air Force (AF) Laboratories and the AF Office of Scientific Research. AFRL's mission is leading the discovery, development and integration of affordable warfighting technologies for America's aerospace forces. It is a full-spectrum laboratory, responsible for planning and executing the AF's science and technology program. AFRL leads a worldwide government, industry and academia partnership in the discovery, development and delivery of a wide range of revolutionary technology. AFRL accomplishes its mission through nine technology directorates located throughout the United States, the AF Office of Scientific Research and a central staff. With headquarters at Eglin AFB, FL (Figure 1-1), the Munitions Directorate develops, demonstrates and transitions science and technology for air-launched munitions for defeating ground fixed, mobile/relocatable, air and space targets to assure pre-eminence of United States air and space forces. The Munitions Directorate conducts basic research, exploratory development, and advanced development and demonstrations. It also participates in programs focused on technology transfer, dual-use technology and small business development. The directorate is dedicated to providing the AF with a strong revolutionary and evolutionary technology base upon which future air-delivered munitions can be developed to neutralize potential threats to the United States.

The AFRL anticipates expansion of the existing High Explosives Research and Development (HERD) complex research facilities at Eglin AFB to accommodate new lines of research and testing. This world class research complex will require conceptual planning and environmental analyses to ensure environmental compliance, sustainability (e.g. water, energy, waste streams, etc.), and optimization of this planning for efficient use of resources, space, and maintaining a safe and healthful working environment.

This Environmental Assessment (EA) will address the environmental consequences associated with the construction of up to 36 new buildings and associated infrastructure at the HERD Complex. The overarching environmental analysis will also consider, to the extent that they can be predicted, the potential consequences that may arise from the unusual/unique aspects of the research functions, equipment, performed in the buildings, the unique equipment used during the performance of those functions.

The proposed expansion is considered a major federal action subject to the requirements of the *National Environmental Policy Act (NEPA)* of 1969, as amended, which requires Federal agencies to consider environmental impacts in their decision-making process. This EA evaluates the potential for environmental consequences of the proposed action(s) associated with the expansion of the existing HERD research facilities at Eglin AFB, in accordance with the President's Council on Environmental Quality (CEQ) regulations for implementing *NEPA (Title 40 Code of Federal Regulations [CFR] 1500-1508)* and Air Force regulations for the Environmental Impact Analysis Process (EIAP) (32 CFR 989).



Source: Counties – ESRI 2006



Air Force Research Laboratory HERD Complex			
Vicinity Map			
Drawn: JAT-3/9/2009	Eglin AFB, Florida	 AFRL-HERD at Eglin AFB, Florida Project # 6063080140	Figure 1-1
Checked: NMG-3/9/2009			

These Federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation, designed to ensure deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action. If appropriate, the findings of this EA will lead to issuance of a Finding of No Significant Impact.

1.2 Proposed Action

Eglin AFB occupies the southern half of Okaloosa County and portions of the southern halves of Santa Rosa and Walton counties. South of Eglin AFB in Okaloosa and Walton Counties is Choctawhatchee Bay. In Santa Rosa County, the southern and western boundaries of the AFB extend almost to Pensacola Bay. The base is the nation's largest AFB in terms of land area and encompasses an area of approximately 724 square miles comprised of land ranges and facilities, and more than 86,500 square miles of water ranges in the Gulf of Mexico. The installation consists of 27 ranges and 10 auxiliary fields, and maintains three active airfields (Eglin Main, Duke Field, and Hurlburt Field). Eglin Main occupies an area of 10,500 acres and is located in southern Okaloosa County, two miles southwest of the twin cities of Valparaiso and Niceville, and seven miles northeast of Fort Walton Beach. The HERD complex, which is the subject of this report, is located in the cantonment area of the Base.

The planned action includes a significant expansion of the fenced, access controlled area of the HERD complex. This expansion will include future explosives operating, testing and storage buildings, non-explosives research and special purpose buildings, the supporting infrastructure for those facilities, and a central system that will distribute steam, chilled water, hot water, and compressed air to both existing and future buildings.

The long-term expansion proposes the construction of as many as 36 new buildings and associated infrastructure (e.g. roads, parking lots, etc.) to support AFRL HERD operations at Eglin AFB. Long-term coordinated planning is good for the overall environment in that it promotes on-site sustainability.

In general, the majority of the proposed expansion would occur to the west of the existing buildings. Existing infrastructure would also be updated as part of the expansion, including the stormwater management system, electric, sewer, and central utilities, and fixtures in existing buildings.

The on-going use of high explosive and potential expansion into ultra-fine particle applications at the HERD complex present additional safety, bioenvironmental, and environmental challenges. These special requirements have been considered in the preparation of this EA.

This EA follows the organization established by the CEQ regulations (*40 CFR, Parts 1/500-1508*), and presents the following information:

- Section 1. Purpose and Need for the Action
- Section 2. Proposed Action and Alternatives

- Section 3. Characteristics of the Affected Environment
- Section 4. Potential for Environmental Consequences
- Section 5. Management Requirements
- Section 6. List of Preparers
- Section 7. Persons Contacted
- Section 8. References

1.3 Need for Proposed Action

The proposed action will support the AFRL HERD programs by providing the scientific and engineering research infrastructure required to formulate, analyze, produce, test, and evaluate new explosive mixtures. The advanced energetic team is rapidly reaching the limit of the research capabilities provided by available infrastructure. The existing buildings were constructed in the 1960s, and the environmental controls, space, and electrical power are insufficient or inappropriate to introduce new materials or accommodate testing on a scale needed for the expanding research programs at the HERD. Inefficient and inadequate facilities, utilities, and supply lines need to be updated to meet the demands of the 21st Century research program. To reduce costs and improve efficiency, it would be beneficial to continue existing research programs and introduce new ones in the HERD complex, at or near the existing buildings.

The proposed action will further support AFRL's mission to discover, develop, and integrate affordable warfighting technologies for America's aerospace forces. AFRL is a full-spectrum laboratory, responsible for planning and executing the AF science and technology program. The proposed action is needed in order for the Laboratory to provide leading-edge warfighting capabilities to America's air, space and cyberspace forces.

1.4 Objective of the Proposed Action

The objective of the Proposed Action is to anticipate the expansion needs of the existing facilities at the HERD complex at Eglin AFB to accommodate new lines of research and testing. In addition, the proposed action will allow for existing outdated facilities at the HERD complex to be updated and modernized.

1.5 Related Environmental Documents

The following documents provided additional information in the preparation of this EA:

- USAF. 2003. *Construction of New Energetics Buildings at the High Explosive Research and Development Facility (HERD) Final Environmental Assessment*, Department of the Air Force, Eglin Air Force Base, Florida. RCS 02-427, 02-1102, June 2003.
- BRAC. 2008. *Proposed Implementation of the Base Realignment and Closure (BRAC) 2005 Decisions and Related Actions at Eglin AFB, FL Final Environmental Impact Statement*. October 2008.

- ESE. 1994. *Final Environmental Assessment for Construction and Operation of an Experimental Demilitarization Facility (ECN 93-227) at Eglin Air Force Base, Florida*. Prepared for the Department of the Air Force, Eglin AFB
- INRMP. United States Air Force (USAF). 2009. *Integrated Natural Resources Management Plan (INRMP)*. Department of the Air Force, Eglin AFB, Florida.

1.6 Scope of the Environmental Assessment

This document was prepared in accordance with the requirements of the *NEPA* of 1969, the CEQ regulations of 1978, and 32 *CFR Part 989*. To initiate the environmental analysis, the proponent (AFRL/RW) submitted an AF Form 813 – Request for Environmental Impact Analysis – to the 96th Civil Engineer Group’s Environmental Management Division, Stewardship Branch, Environmental Analysis Section (96 CEG/CEVSP). A review of the AF Form 813 by CEVSP determined that the EIAP Working Group should address the Proposed Action. The EIAP Working Group consists of representatives from the Environmental Analysis Section (96 CEG/CEVSP), Environmental Engineering Section (96 CEG/CEVCE), Pollution Prevention Section (96 CEG/CEVCP), Natural Resources Section (96 CEG/CEVSN), Cultural Resources Section (96 CEG/CEVSH), Restoration Section (96 CEG/CEVR), Bioenvironmental Engineering Flight (96 AMDS/SGPB), Environmental Law Office (AAC/JAV), Ground Safety (AAC/SEG), Civil Engineering Programs Division (96 CEG/CEP), Environmental Public Affairs (96 ABW/PAV), and Range Safety (AAC/SEU) functions at Eglin AFB.

1.6.1 Issues Eliminated from Detailed Analysis

Based on the scope of the Proposed Action, alternatives, and preliminary analyses, the following issues were eliminated from further analysis.

Environmental Restoration Program (ERP) issues do not need to be evaluated, based on an indication of “all-clear” status of the area (conversation between Al Beach [CIV USAF AFMC AFRL/RWME] and Robin Bjorklund [CIV USAF AFMC 96 CEG/CEVR] on November 18, 2008 regarding the area that is included inside the proposed new fence, but outside the existing HERD fence).

Environmental Justice does not need to be evaluated in this EA because the project involves expansion of an existing facility and does not include any housing component nor is it located in proximity to residential neighborhoods. Environmental Justice issues associated with the Eglin AFB operations have been covered in other recent *NEPA* analyses, most notably the *BRAC EIS* (BRAC, 2008).

Floodplains are not evaluated in this EA because the entire project site lies outside the 100-year flood zone (INRMP, 2007).

Archaeological surveys have been conducted in the project area. No resources were recovered. Reports of these findings were submitted to the SHPO for review and concurrence has been received (personal communication from Shreve, Rhena L. (Lynn) CTR USAF AFMC 96 CEG/CEVH, February 18, 2009). Therefore it is not expected that Cultural Resources would be impacted by the project. If human remains

or unexpected resources are encountered during construction activities, work should cease and Eglin's Cultural Resources Branch must be contacted (850-882-8459).

1.6.2 Issues Studied in Detail

Preliminary analysis based on the scope of the Proposed Action and Alternatives identified the following potential environmental issues warranting detailed analysis:

- Land Use;
- Noise;
- Transportation Planning and Analysis;
- Site Access;
- Air Traffic;
- Noise and Vibration;
- Air Quality;
- Utilities;
- Solid Waste;
- Hazardous Material and Hazardous Waste Management [per *Air Force Instruction (AFI) 32-7042*];
- Natural Resources (including soils, surface water, groundwater and wetlands);
- Biological Resources (including wildlife, vegetation, non-native invasive species, and Threatened and Endangered Species);
- Socioeconomic Impact; and
- Storm Water Drainage.

1.7 Applicable Regulatory Requirements and Coordination

The AFRL EOH Team, on behalf of the organization, coordinates with Eglin environmental organizations; 96 CEG/CEV, with the participation of the AFRL EOH Team, interfaces with Florida regulators as necessary.

Eglin AFB is currently operating under a Title V air operation permit. This permit regulates all stationary air emission sources on the Eglin Military Complex. One category of emission sources regulated under the permit is the “unregulated” source category. These sources are not regulated by any specific federal or state regulation, but are regulated by the facility-wide requirements of the permit. Research and development activities that are conducted on the Eglin AFB test ranges are included in the unregulated source category and will need to be evaluated to determine if they are within the limits of Eglin’s Title V permit.

The total new land area impacted by the proposed project would be approximately 47 acres. Applicable permitting requirements must be satisfied in accordance with 62-346 of the *Florida Administrative Code (FAC)* (Environmental Resource Permitting) and the National Pollutant Discharge Elimination System (*FAC 62-621*). Coordination with 96 CEG/CEVCE is required to obtain stormwater and utility extension permits, including consultation with the Northwest Florida Water Management District (NFWFMD) and other state, federal, and local regulating agencies.

A fugitive dust permit will be required because the area to be impacted by the proposed action exceeds 25 acres.

The hazardous materials used in the expanded facilities as well as the hazardous wastes generated will likely require a permit under *Resource Conservation and Recovery Act of 1976 (RCRA)*. Hazardous

materials and hazardous waste are managed according to IAW 32 series instructions and AFRL/RW Environmental Management operating instruction (OI) 32-7001. The AFRL EOH Team will ensure compliance with these instructions and coordinates with Eglin environmental organizations. 96 CEG/CEVC, with the participation of the AFRL EOH Team, interfaces with any FL regulators.

A *Coastal Zone Management Act (CZMA)* consistency determination has been prepared and sent to the Florida Clearinghouse for review and concurrence.

An *Endangered Species Act (ESA)* Section 7 consultation has been completed and sent to the United States Fish and Wildlife Service (USFWS) for review and concurrence.

In the event the proposed action cannot avoid impacts to gopher tortoises, application for an on-site relocation permit should be made, and the permit obtained prior to construction. The gopher tortoise(s) can be relocated, and silt fencing placed to prevent the tortoise(s) from returning to the original gopher tortoise burrow.

The following may be required in order to comply with *Safe Drinking Water Act* regulations: Florida Department of Environmental Protection (FDEP) form 62-555.900(1) *Application for a Specific Permit to Construct PWS Components*; and 62-555.900(9) *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation*.

Similarly, the following may also be required: Wastewater, FDEP Form 62-604.300(8)(a) *Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System* (dependent on design), and FDEP Form 62-604.300(8)(b) *Request for Approval to Place Wastewater System into Operation*.

2.0 Description of Proposed Action and Alternatives

This section presents the proposed action, an alternative action, and the no action alternative.

2.1 Proposed Action (Preferred Alternative)

The proposed action includes a significant expansion of the fenced, access controlled area of the facility. This expansion will include future explosives operating, testing and storage buildings, non-explosives research and special purpose buildings, the supporting infrastructure for those facilities, and the expansion of the central utilities system that distributes steam, chilled water, hot water, and compressed air to both existing and future buildings. This project proposes the construction of a total of as many as thirty six new buildings and associated infrastructure (e.g. roads, parking lots, stormwater conveyance, etc) to support the AFRL HERD at Eglin AFB. The conceptual layout of the proposed buildings to be added in the expansion is described in more detail in the following paragraphs. Spatial orientation of the buildings will need final explosive siting approval prior to design and final permitting. The conceptual layout for the buildings and infrastructure that are expected be constructed under the preferred alternative is shown in Figure 2-1.

New construction will likely include:

- The construction of the Energetic Damage Mechanisms Research Center currently planned for construction under the P-341 Military Construction contract. This building will be constructed south and west of the HERD complex access road, immediately west of Perimeter Road. This building will consist of metal frame construction and will primarily house office space for HERD employees. Utilities for this building will be served by the expanded central utilities building, plus water and sewer from the main Eglin AFB service lines.
- The construction of the Advanced Energetics Research Laboratory which is currently under a stop work order pending approval of increased funding. Following construction, this building will house separate laboratories for ultra-fine particle research and development. The first laboratory will be utilized for mechanical properties characterization and micro-scale shock and shear initiation of reactive materials. The second laboratory housed in this complex will provide equipment for benchtop energetics and efficient cryosolid positron moderators. Additionally, the advanced energetics complex will house two chemical laboratories, vacuum pumps, and storage for compressed gas cylinders. This building will incorporate existing Building 1281, which is currently vacant.
- Construction of the Ultra-fine Particle Energetics Basic Research Laboratory is proposed for construction under the expansion project. The design and construction of this complex is unique in that its research and development activities must be shielded from excess vibration that may occur as a result of the expansion of the joint strike fighter operations at Eglin AFB. As a result, preliminary design of the facility requires a portion of the building to be constructed underground, with additional levels (primarily office space) constructed above the research facilities. It is anticipated that this building will use earthen barriers along its top and sides, similar to earthen walls surrounding the explosive storage igloos, to protect against excess noise and vibration. The unique underground design of this facility necessitates additional stormwater conveyance to prevent flooding and maintain access to the lower level of the facility. To accomplish this, a buried concrete pipe will be installed to convey stormwater away from the building and into existing/expanded stormwater conveyance infrastructure.



- The construction of three new explosives storage buildings to the east of the existing igloos will be completed as a replacement for Building 1217, which is currently serving as a small storage area. Storage capabilities under the three new buildings will be significantly increased, as each building will contain six individual explosive storage bays. Design of these storage buildings will use a concrete frame surrounded on the top and sides by an earthen wall for added protection. Vents will be installed within each bay to allow for air exchange and prevent noxious substance buildup within the storage bays.
- Construction of the Advanced Munitions Complex is a proposed project under FTFA 043000.
- Construction of the HERD Complex Communications Center will be completed as a part of the future “non-hazardous” buildings planned for the southern end of the existing HERD complex. This building will be accessible twenty four hours a day and will provide the necessary communications infrastructure to support the long term HERD complex expansion. Restrooms will be provided in this facility, requiring extension of sanitary sewer lines.
- Six new explosive storage igloos will be constructed to facilitate expanded HERD explosive operations under the long term complex expansion. The storage igloos will be constructed in a similar manner to the existing igloos, consisting of a concrete block wall encased within an earthen berm around the sides and top for additional protection. The future igloos will be constructed in the same location as the existing igloos, and will require expansion of the HERD access road to the southwest to allow for maximum space utilization while still meeting quantity distance arc requirements.
- The construction of five hands-on explosives operations buildings and ten remote explosives operations buildings will be completed in areas proposed for expansion to the west of the HERD complex. These explosives operations facilities will be constructed in a similar manner to the remote explosive operations facilities (Buildings 1221, 1227, and 1233) currently in operation in the HERD complex. Explosives operations buildings will be constructed of concrete block and will be surrounded on three sides by protective bin walls. One hands-on explosives operations building (hands-on explosives operations Building 4) will incorporate unique facilities not used in other explosives operations buildings, including chemical storage, clean rooms, and contained glove boxes. In an effort to preserve the natural pine flatwoods in this area, space between the northernmost buildings not proposed for construction will be left in their natural state. The unique quantity distance arc requirements for explosives operations requires that adequate space be maintained between future buildings, thereby allowing for natural buffers for protection of uplands and tributaries to Tom’s Creek.
- No demolition is currently projected as part of these plans.

The proposed expansion would occur to the south and west of the existing AFRL HERD buildings. The buildings that would be constructed in the western-most portion of the expansion area include both hands on and remote explosives buildings, and as such will require installation of large bin walls (tall steel containers filled with earth) for safety purposes. Existing infrastructure would also be updated as part of the expansion, including the stormwater management system, various utilities, and fixtures in existing buildings. Specific siting of these new facilities will be contingent upon Explosives Site Plan approvals through the Department of Defense Explosives Safety Board, which will occur in conjunction with the preliminary design process prior to construction.

There will be a security fence around the entire perimeter of the expanded HERD compound. A 30 foot swath outside of the perimeter fence would be cleared for security purposes and the forest land to the west of the existing HERD complex between the fence and the creek would no longer be available for hunting or other recreational uses. At present there are erosion issues associated with motorized security patrols

along the perimeter of the existing security fence, and those practices will continue outside the perimeter fence following expansion. Therefore, off-site erosion control measures such as providing native vegetative ground covering or reinforcing with rocks, rip-rap stone, or asphalt are also being designed as part of the project to protect water quality in the wetlands and streams adjacent to the project site.

The sites for the buildings proposed to the south of the existing complex would likely be cleared and maintained as cleared land, similar to that which is found in the existing HERD complex.

New stormwater detention basins will be constructed as part of the proposed action to meet NFWMD stormwater requirements for new construction. Reuse of stormwater and utilities condensate may be implemented on-site to aid in erosion control by establishing and maintaining vegetation on berms and side slopes.

2.2 Alternative 1

One alternative layout is under consideration for the proposed action. This alternative has a larger footprint with the remote buildings and perimeter fence lying closer to the unnamed tributary to Tom's Creek (which is known to support a population of the federally listed Okaloosa Darter). This alternative would ultimately involve construction of the same number of buildings at the same time-frame as the Preferred Alternative. The two alternatives differ only in layout of the facilities (more compressed in the Preferred Alternative) and stream buffer width (narrower in Alternative 1).

2.3 No-Action Alternative

Under the No-Action Alternative no new buildings would be constructed, improvements to existing buildings would not be made, and the HERD complex would continue to operate with the existing infrastructure which will not be able to support expected future research programs.

2.4 Comparison of Alternatives

A summary of the similarities and differences between the alternative actions that are being considered in this EA are summarized in Table 2-1.

Table 2-1. Comparison of Action Alternatives

	No Action Alternative	Preferred Alternative	Alternative 1
Total Area of HERD Compound (Acres)	79.0	123.6	126.2
Number of New Buildings	0	Up to 36	Up to 36
Total area of Impervious Surface (Acres)	4.6	20.2	20.2
Linear Feet of Fence	8103	10208	10421
Miles of Roadways on HERD Compound	1.9	4.3	4.3
Acres of Forest Cover Not Impacted	84.3	40.3	37.7
Acres of Wetland Impacts	0	0	0

3.0 Affected Environment

3.1 Land Use

Land use generally refers to the management and use of land by people. Eglin AFB is the largest forested military reservation in the United States. The AFRL HERD complex is located within Eglin AFB, west of Niceville in Okaloosa County, Florida. The AFRL HERD complex project area is bordered by Tom's Creek to the north, an unnamed tributary of Tom's Creek to the west, forested and developed areas to the south and a paved road (Perimeter Road) to the east.

The AFRL HERD project area includes pine flatwoods (Florida Land Use and Cover Classification System 4110) and industrial (Florida Land Use and Cover Classification System 1500) land uses. The dominant land use of the HERD lands at Eglin AFB is pine flatwoods, comprising approximately 65 percent (149 acres) of the subject site, with a developed industrial area that comprises approximately 35 percent (79 acres) of the subject site. The industrial area supports the AFRL HERD activities, providing the scientific and engineering research infrastructure required to formulate, analyze, produce, test, and evaluate explosive mixtures. Several areas within the existing HERD compound remain as pockets of either pine flatwood or as open space created during previous construction actions.

Buildings that are currently located at the AFRL HERD complex house a number of munitions research programs. Existing buildings include waste storage, physical plant, research, explosives test, and munitions storage functions. The existing buildings are summarized in Table 3-1.

Table 3-1. Current Buildings in the HERD Compound

Building Number	Current Use
984	Explosives Storage/Operations
991	AFRL/RW Dynamics Laboratory
992	Wood Shop/Maintenance
993	Underground Explosive Storage
994	Underground Explosive Storage
1197	Central Utilities Plant
1198	Miscellaneous Waste Storage Igloos
1199	Miscellaneous Waste Storage Igloos
1200	Explosive Propellants lab
1201	Main Office
1202	Explosive Chemical Synthesis Building
1206	Explosives Operations Center
1213	Non-Hazardous Storage/Maintenance Shed
1217	Six-Cubicle Storage
1221	Remote Explosives Operations
1224	Underground Explosives Storage
1227	Remote Explosives Operations
1233	Remote Explosives Operations
1239	X-ray Facilities
1245	Remote Explosives Operations

Table 3-1. Current Buildings in the HERD Compound (continued)

Building Number	Current Use
1247	Hands On Explosives Operations
1262	Solvent Storage
1281	Currently Vacant / Not Used
1292	Five Bay Hazardous Materials Storage
1293	Flammable Solids Storage
1294	Inert Materials Storage
Igloos (1295 through 1299)	Explosives Storage
1201T	Office Trailer

Source: USAF, 2009.

3.2 Transportation

The project area only includes road segments in the internal roadway system of the base.

Parking areas at the HERD complex are primarily located at the southern entrance, adjacent the main office building and outside of the security fence entrance. 3,500 square foot (sq ft) of asphalt parking is located just south of the main office building, with an additional 14,000 sq ft of asphalt parking located outside of the security fence. 8,500 sq ft of temporary gravel parking is available immediately south of Building 1203 (temporary office trailer). Buildings located throughout the facility generally do not have dedicated parking areas, but usually contain areas of expanded pavement where parking and loading for facility operations occurs. However, Building 991 (dynamics laboratory) contains approximately 3,000 sq ft of parking to the southeast of the building.

3.3 Air Traffic and Airspace

This section details the Federal Aviation Administration (FAA) requirements for notification of construction which has the possibility of interfering with air traffic. FAA Regulations, Part 77, establishes standards for determining obstructions in navigable airspace and sets forth requirements for FAA notification of proposed construction, which may result in an Obstruction Evaluation / Airport Airspace Analysis (OE/AAA). These regulations require FAA notification for proposed new construction, or alteration of existing structures, higher than 200 feet above ground level (agl). Notification is also required if the obstruction is more than specified heights lower than 200 feet agl and the obstruction falls within any restricted airspace associated with aircraft approach patterns. The requirement of notification for obstructions of specified heights lower than 200 feet agl is determined by a ratio of the distance between the obstruction and the airport, and the difference in the elevation of the airport and the elevation of the highest point of the obstruction, as listed in Table 3-2 (FAA, 2009a).

Table 3-2. FAA Notification Requirements for Construction Within Airport Restricted Space

Airport Type/Runway Length	Restricted Space	Specified Ratio
Airports with runway longer than 3,200 feet	20,000 feet (3.8 miles)	100:1
Airports with runway 3,200 feet or shorter	10,000 feet (1.9 miles)	50:1
Heliports	5,000 feet (0.95 miles)	25:1

Source: FAA, 2009a.

In addition to the Notice Criteria Tool, the FAA website also offers a Department of Defense (DoD) Preliminary Screening Tool which enables developers to obtain a preliminary review of potential impacts to Long Range Radar(s), Military Training Route(s) and Special Use Airspace prior to official OE/AAA filing (FAA, 2009b).

3.4 Air Quality

The base is the nation's largest AFB in terms of land area and encompasses an area of approximately 726 square miles comprised of land ranges and facilities, and more than 86,500 square miles of water ranges in the Gulf of Mexico. The installation consists of 27 ranges and 10 auxiliary fields, and maintains three active airfields (Eglin Main, Duke Field, and Hurlburt Field). Eglin Main occupies an area of 10,500 acres and is located in southern Okaloosa County, two miles southwest of the twin cities of Valparaiso and Niceville, and seven miles northeast of Fort Walton Beach.

According to the Title V Air Operation Permit number 0910031-013-AV issued to Eglin AFB, stationary sources of emissions at Eglin AFB include the following:

- Perchloroethylene Dry Cleaner;
- Paint Booths;
- Non-Aerospace Paint Booths;
- Two natural gas-fired boilers rated at 14.6 million British thermal units per hour (MMBtu/hr) each (Building 2825);
- Two natural gas-fired boilers rated at 11.7 MMBtu/hr each (Building 438);
- One natural gas-fired boilers rated at 31.4 MMBtu/hr (Building 438);
- Stationary Compression Ignition Internal Combustion Engines;
- Gasoline Storage Tanks; and
- Bulk Gasoline Plant.

Also included in this permit are miscellaneous insignificant emission units and/or activities. The permit states that based on the Title V permit application, this facility is not a major source of hazardous air pollutants (HAPs).

The Federal regulations that apply to specific sources at Eglin AFB (according to Eglin's Title V Permit) are presented in Table 3-3.

National Ambient Air Quality Standards (NAAQS) consist of primary and secondary national ambient air concentrations set for six criteria pollutants [i.e., ozone, carbon monoxide (CO), particulate matter less than 10 micrometers (PM₁₀), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead (Pb)]. The primary NAAQS are promulgated to protect the public health and the secondary NAAQS are promulgated to protect the public welfare (e.g., agricultural crops, properties, environment, or any aspect of enjoyment to the general public) from any known or anticipated adverse effects associated with the presence of pollutants in the ambient air. These counties in which Eglin AFB, including HERD, are currently classified by the US Environmental Protection Agency (USEPA) as being in attainment for all NAAQS criteria pollutants (*40 CFR 81.310*).

Table 3-3. Summary of Air Emissions Units (EU) at Eglin AFB

EU ID	Description	NESHAPs and/or Rule
008	Perchloroethylene Dry Cleaner	(MACT) 40 CFR 63 Subpart M
004, 010-014, 017, 018, 031, 031, 032, 034 & 038	Paint Booth	(MACT) 40 CFR 63 Subpart GG; Hand-wipe cleaning, flush cleaning, and waste storage and handling requirements under National Emissions Standards for Hazardous Air Pollutants (NESHAPs).
020, 021, 023, 024, 027, 028 & 035	Non-Aerospace Paint Booth	Rule 62-296.320(4)(b)1., FAC
006	Two natural gas-fired boilers rated at 14.6 MMBtu/hr (Bldg. 2825)	Rule 62-296.406, FAC & 40 CFR 60, Subpart Dc
007	Two natural gas-fired boilers rated at 1411.76 MMBtu/hr (Bldg. 438)	Rule 62-296.406, FAC
033	One natural gas-fired boilers rated at 31.4 MMBtu/hr (Bldg. 438)	Rule 62-296.406, FAC & 40 CFR 60, Subpart Dc
039	Stationary Compression Ignition Internal Combustion Engine	40 CFR 60 Subpart IIII
041	Gasoline Storage Tanks	40 CFR 63 Subpart CCCCCC
042	Gasoline Bulk Plant	40 CFR 63 Subpart BBBBBB
030	Unregulated EUs and /or Activities	None
036	Internal Combustion Sources (Generators)	None
040	Stationary Spark Ignition Internal Combustion Engines	None

Source: Eglin AFB Title V Permit.

New Source Performance Standards (NSPS) are federal air quality standards codified under 40 CFR Part 60 of the federal regulations that apply to specific categories of sources and EUs. The USEPA developed the NSPS regulations so that newer sources would emit fewer pollutants than the existing sources. The regulations help ensure that as newer units are installed and existing units are modified, they meet environmental standards that promote clean air. If a facility operates existing equipment that is included in the definition of an affected facility under the NSPS, the facility needs to be aware of how changes to the facility could trigger applicability to these standards. Subpart A (40 CFR § 60.1-60.29) includes the general provisions of the NSPS regulations. This section includes definitions for modifications and reconstruction in terms of triggering NSPS regulations. This subpart applies to all the individual NSPS regulations.

The following NSPS categories currently apply to AFRL HERD:

- 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units [between 10 and 100 million British thermal units per hour (MMBtu/hr) and constructed, modified or reconstructed after June 9, 1989].

An air emissions inventory describes the amount and types of emissions from a facility or within an area. It is an estimate of total mass emissions of pollutants generated from a source or sources during a year.

Eglin AFB's Okaloosa County's 2000 Air Emissions Inventories are shown in Table 3-4. It is important to note that emissions from the airfield adjacent to the HERD compound are included in the Okaloosa County totals, and that the contribution of HERD's research programs and waste incinerator to the County emissions totals are quite small.

Table 3-4. Baseline Emissions Inventory (Totals)

Pollutant Emission Source	Pollutants (tons/year)				
	CO	NO _x	PM	SO _x	VOCs
Eglin AFB Total Emissions (2007)	65.96	86.01	91.57	3.96	162.95
Santa Rosa County Total (2002)	53,052	11,095	14,308	3,012	8,519
Walton County Total (2002)	33,893	4,681	7,785	246	4,890
Okaloosa County Total (2002)	63,273	7,132	8,736	839	10,333

Source: Data from Eglin AFB, 2010.

According to a 1994 Environmental Assessment for Construction and Operation of an Experimental Demilitarization Facility at Eglin AFB, Florida, the maximum amount of energetic waste processed per day at AFRL HERD was approximately 300 pounds. Based on the information provided by HERD at that time, it was estimated that the HERD complex produced 1.49 tons nitrous oxide per year, 0.30 tons nitrogen per year, and 0.05 tons oxygen per year. "*Other trace gases that may be produced during the HERD munitions waste processing (e.g. chlorinated volatiles, SO_x) will be removed by a scrubber*" (ESE, 1994). As described below in Section 3.5 the quantity of waste produced at AFRL HERD is larger now, and presumably the air emissions are greater as well. Those emissions are quite small in terms of the airshed.

3.5 Hazardous and Other Wastes

Hazardous materials listed under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* and the *Emergency Planning and Community Right-to-Know Act* are defined as any substances that, due to quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health, welfare, or the environment. Hazardous wastes listed under the *RCRA* are defined as any solid, liquid, or contained gaseous or semisolid waste, or any combination of wastes that poses a substantive present or potential hazard to human health or the environment. In addition, hazardous wastes must meet either a hazardous characteristic of ignitability, corrosively, toxicity, or reactivity under *40 CFR 261* or be listed as a waste under *40 CFR 261*. Examples of hazardous materials include cleaning products, paint-related products, petroleum products and energetic waste, etc. State laws pertaining to hazardous materials management include the *Florida Right-to-Know Act*; *Florida Statutes Title 17, Chapter 252*; the Hazardous Waste section of the FDEP; and the Florida Department of Transportation Motor Carrier Compliance Department that implements *49 CFR 178* under Florida statute annotated *Title 29, Section 403.721*.

Eglin AFB is classified as a Large Quantity Generator of hazardous waste per *Federal Guidelines Title 40* of the *CFR 260.10* and *262.34*. The installation maintains a USEPA hazardous waste generator identification number (FL8570024366). Eglin AFB has implemented a *Hazardous Waste Management*

Plan, Eglin AFB Instruction 32-7003 that identifies hazardous waste generation areas and addresses the proper packaging, labeling, storage, and handling of hazardous wastes. The plan also addresses record keeping; spill contingency and response requirements; and education and training of appropriate personnel in the hazards, safe handling, and transportation of these materials (USAF, 2010c). In order to carry out the *Hazardous Waste Management Plan*, Eglin AFB has implemented a comprehensive Hazardous Material Management Process which is comprised of several elements (BRAC 2008):

1. Hazardous Material Cell (HMC) - a single point for hazardous material requests, evaluation, and authorization.
2. Hazardous Materials Management System (HMMS) - a tracking system which connects the review/authorization and the distribution/collection process.
3. Customer service-based storage and distribution process

Crucial among these elements is the HMC, whose role is to screen, control, track and report the acquisition of hazardous materials. The HMC consists of representatives from each of the organizations on Eglin AFB that are most closely associated with hazardous material acquisition, storage, distribution, use and disposal: 96 LG (Supply), Bio-environmental Engineering (BEE), AAC/SEOG (Safety), 96 CEG/CEV (Environmental Management) and AAC/PK (Contracting). At HERD, hazardous materials and wastes are managed according to AFRL/RW OI 32-7001 *RW Environmental Management Program*. The HMC oversees the procurement of all hazardous material entering Eglin AFB, procuring hazardous materials only for those organizations on base with an approved authorization (demonstrate a legitimate requirement for that material and have the required expertise to manage and use that material in compliance with all applicable federal, state and local regulations) (USAF, 2010b).

The HMC manages hazardous materials by means of the HMMS computer database, an automated environmental tracking tool that controls and manages the use of hazardous materials from “cradle to grave”. It provides for hazardous materials management, chemical distribution point management, shelf-life and waste management. It tracks supply data, vendor information, shops, employees, and authorizations to use hazardous materials. The HMC controls material inventory by monitoring material supply and demand to provide the minimum reasonable working reserve (USAF, 2010b).

Eglin uses a shop-level issue point to consolidate and minimize hazardous materials in a centrally managed service-oriented function. Shops may maintain limited quantities of hazardous materials located in kits as approved by the issue point operating instruction (USAF, 2010b). Hazardous wastes are initially stored at approximately 155 Initial Accumulation Points (IAPs) at work locations. No more than 55 gallons of hazardous waste or 1 quart of acutely hazardous waste can be stored at these IAPs. Once the storage limit is reached, the waste is taken to the central Hazardous Waste Accumulation Site, Building 524, where the material may be accumulated for up to 90 days (USAF, 2010c). There are six accumulation sites on Eglin AFB. A licensed contractor, Willow Environmental Services, manages the central 90-day storage facility for collecting, consolidating, and processing hazardous waste. When disposal is required, they transport the waste to the Defense Reutilization and Marketing Office (DRMO) Part B storage facility. A licensed disposal contractor under contract with DRMO transports the waste from the DRMO storage facility to a licensed disposal facility. Procedures and responsibilities for

responding to a hazardous waste spill or other incident are described in the *Eglin AFB Facility Response Plan* (USAF, 2009a).

The AFRL HERD complex operates in accordance with the above-described base-wide *Hazardous Materials Management Plan*. The AFRL HERD has its own on-site issue point manager. The AFRL HERD complex handles numerous materials designated as hazardous which are used in operational applications. These materials include metals, solvents, corrosives, isocyanides, and explosives. These materials are managed through AFRL's Eglin's HMMS. The AFRL HERD Chemical Hygiene Plan generally requires each AFRL facility to maintain a current inventory of all hazardous materials maintained within the complex, their chemical hazards, necessary health and safety precautions to be employed for substance handling, storage requirements and extensive employee training protocols. The purchasing of hazardous materials is completed by the RW EOH Team and authorized through the HMC and Eglin AFB Bioenvironmental Engineering.

Hazardous wastes generated at the facility are predominately unused materials associated with the munitions development processes. It is preferred for unused materials to be timely disposed as opposed to managed in storage as a hazardous material. To a lesser extent, hazardous wastes include residues from on-site processes.

There are eight IAPs within the HERD complex located at Buildings 1200 Bay 4, 1206 Bay 1, 1227 Bay 1, 1227 Bay 2, 1224, 1247, 1206 Bay 6, and 1281. On a monthly basis, Willow Environmental Services collects the hazardous wastes coordinated through 96th CEG Service Contracts.

Explosive Ordnance Disposal (EOD) at Eglin AFB is managed by the 96th Civil Engineer Squadron (96 CES/CED). Specific requirements and operating instructions for EOD personnel are provided in *Flight Operating Instruction 32-3004* (October 6, 2010). Munitions disposal operations are normally conducted for units assigned to Eglin AFB on a quarterly basis; however special disposal operations may be scheduled to meet the needs of Eglin AFB explosive waste generators. Eglin AFB maintains an Open Burn/Open Detonation (OB/OD) permit under Eglin AFB RCRA Part B, Subpart X Permit (Application) and FDEP Agency Eglin AFB Permit Identification Number FL8 570 024 366, issued October 15, 2010. This permit generally allows the disposal of explosives wastes to be performed by the DoD as part of training exercises. At the AFRL HERD Complex IAPs for explosive wastes are located at each testing laboratory in close proximity to the waste generation points. At the end of each testing operation the explosive wastes are transferred to the on-site 45-day accumulation site located in Buildings 1198 and 1199 (Igloos). The HERD manifests the explosive wastes directly to the DoD with coordination through the 96th CES. In 2008 monthly explosive waste volumes at the HERD ranged from approximately 10 lbs/month to 1000 lbs/month.

Used oil is generally not considered a hazardous waste, but can potentially be a severe water pollutant. Eglin stores used oil from generators around the base at its used oil facility on Range Road. The oil yard is maintained by the Eglin Recycling Center through which all used oil disposals are coordinated. Used

oil collected at the Eglin facility generally undergoes refinement and is sold to private firms outside of Eglin AFB. Old oil drums or other collection devices, including both solvents and used oil, are cleaned and provided to the Eglin range for target practice. At the AFRL HERD Complex there is one central collection point for Used Oil. On an as-needed basis the on-site issue point manager contacts the Recycling Center to coordinate the pick-up and transport of the used oil.

Universal wastes generated within Eglin AFB include batteries that exhibit a hazardous waste characteristic and fluorescent lamps (including compact fluorescent lamps, fluorescent tubes, mercury vapor lamps, metal halide lamps, high pressure sodium lamps, neon lamps, other high intensity discharge lamps containing mercury, and mercury containing devices. Local policy *AACI 32-7003* states that universal waste will be processed as hazardous waste to be recycled. Universal waste for all generators at Eglin AFB is collected at Building 592, either through drop off or scheduled pickup. It is the responsibility of the generator to adhere to all federal and state requirements for handling, storage, and labeling of universal waste. Federal universal waste regulations are set forth in *40 CFR part 273*. Florida statutes for Universal Waste are covered under Chapter 62-730. At the AFRL HERD Complex universal waste generally includes spent batteries and fluorescent light tubes. The materials are stored in two locations on the Complex. Periodically, based on need, the on-site issue point manager coordinates through the 96th CEG Contracting Services to have Willow Environmental Services to collect the Universal Wastes for transport to the Eglin Recycling Facility.

Asbestos is regulated by the USEPA, FDEP and Occupational Safety and Health Administration (OSHA). Emissions of asbestos fibers to ambient air are regulated under Section 112 of the *Clean Air Act*. OSHA is the prime agency addressing the need for operation and maintenance controls. OSHA generally defers to the USEPA's requirements for asbestos surveys. The USEPA's rules concerning asbestos were issued under the National Emissions Standards for Hazardous Air Pollutants (NESHAP) [*40 CFR Part 61, Subpart M*]. The NESHAP specifically requires that regulated asbestos-containing materials (ACM) be removed from any regulated facility prior to demolition or renovation. The NESHAP also requires that buildings to be renovated or demolished be surveyed for ACM. Asbestos has been identified in older buildings at Eglin AFB (BRAC, 2008). ACMs include insulation, floor tiles, mastic, pipe-wrap, roofing, and other materials, such as transite siding. In order to manage ACM, Eglin maintains a computerized database system, which supports activities that include asbestos physical survey data (e.g., building number, survey date, inspector, location/functional space, material type/description, assessment comments); asbestos laboratory analysis data; and asbestos abatement data (e.g., abatement start/completion dates, contractor name, contractor rating, abatement cost, disposal fee, air monitoring costs, total cost) (BRAC, 2008). Eglin AFB environmental staff uses the database system to manage ACM in accordance with the base's *Asbestos Management Plan* (USAF, 2010a). This plan specifies procedures for removal, encapsulation, enclosure, and repair activities associated with ACM abatement projects, and is designed to protect installation personnel and residents from exposure to airborne asbestos fibers. The base manages asbestos in-place where possible, removing it only when there is a threat to human health or the environment or when it is in the way of construction or demolition. Removal and disposal of asbestos is carried out in strict compliance with all applicable federal, state, and local laws,

rules, regulations, and standards (BRAC, 2008). Since asbestos wasn't banned until the mid-70's, there could be ACM in existing buildings at the HERD Complex. Because some of the actions will involve demolition of older buildings, and modifications to existing buildings, the provisions related to ACM would apply.

A Lead-Based Paint (LBP) survey identified LBP in older buildings at Eglin AFB (BRAC, 2008). Lead was used as an additive and pigment in paints prior to 1978; therefore, older buildings at the HERD facility that have multiple layers of older paint are potential sources of lead. Eglin has implemented a computerized database system for the management of LBP. Any projects that require alteration or demolition of identified or older structures are reviewed by the Civil Engineering and Bio-environmental Office to determine whether a LBP survey is required. Project designs stipulate appropriate abatement and disposal requirements for LBP. Projects that are likely to crush lead-containing coatings to a form that can be inhaled or ingested are managed in accordance with federal, state, and local transportation, treatment, storage, and disposal requirements. Eglin AFB environmental staff uses the database system to manage LBP in accordance with the LBP Management Plan, which provides specific policy and guidance to identify and address LBP hazards and to protect the public from exposure to these hazards (USAF, 2010d). The plan also provides guidance on proper management/disposal of material containing LBP according to federal, state and local laws (USAF, 2010d).

The Environmental Restoration Program (ERP) is used by the USAF to identify, characterize, clean up, and restore contaminated sites. As of June 2007, a total of 119 ERP sites have been identified at Eglin AFB as containing hazardous material resulting from past disposal activities. All 119 of these contaminated sites have remedies in place. Within the current HERD area, there is one closed ERP site, Spill Site-32, a tetrachloroethylene spill. There are no restrictions to ground disturbance associated with this site. As mentioned above, the area inside the proposed new fence is all clear of ERP sites. Additionally, Eglin AFB has identified 32 locations, grouped around eight sites, where there is suspected contamination associated with the past use of ordnance or munitions. These sites, referred to as military Munitions Response Areas, are undergoing initial investigations to document the extent of any contamination (BRAC, 2008). None of these sites are in the areas of the proposed action for this project. Eglin has implemented an ERP Management Action Plan to track activities and progress associated with contaminated sites on the installation (USAF, 2003a).

3.6 Solid Waste

Solid waste is defined in the Florida Solid Waste Disposal Facility regulations as any sludge (unregulated by the federal Clean Water Act or Clean Air Act), garbage, rubbish, refuse, special waste, or other discarded material resulting from domestic, industrial, commercial, mining, agricultural, or government activities. Solid waste includes wastes commonly referred to as municipal solid wastes (such as garbage and refuse) and construction and demolition (C&D) debris, which consists of discarded materials generally not soluble in water (steel, glass, brick, concrete, asphalt, and so on). Solid wastes include all waste materials that are neither hazardous nor toxic, and which are normally disposed of by landfill, incineration, or recycling/recovery.

The management and disposal of solid waste is regulated by both the state and federal governments. At a Federal level, the Solid Waste Disposal Act (42 USC 3251 et seq.) established guidelines for solid waste collection, transport, separation, recovery, and disposal. RCRA (42 USC 6901 et seq.) amended the Solid Waste Disposal Act to emphasize the recycling and recovery of materials.

The Florida statutes and regulations governing solid waste management include:

- **Florida Solid and Hazardous Waste Management Act (Florida Statutes 29 Chapter 403):** Requires that counties establish and operate solid waste disposal facilities and that each county implement a recycling program to achieve reduction in the levels of solid waste disposed.
- **Florida Resource Recovery and Management Regulations (FAC 67.2):** Establishes local resource recovery and management programs and regulates the collection, transport, storage, separation, processing, recycling, and disposal of solid wastes.
- **Florida Solid Waste Disposal Facility Regulations (FAC 62-701):** Establishes regulations for the construction, operation, and closure of solid waste facilities including landfills.

The FDEP has adopted rules that govern the management of solid waste, enforcing these statutes and regulations. In general, counties in Florida operate solid waste disposal facilities (i.e., landfills) that serve the cities and towns within their jurisdictions. In addition, a portion of the landfills located within the state are privately owned and operated.

The regulations governing solid waste disposal in Florida established three categories of landfills: Class I, Class II, and Class III. Class I and II landfills operate in lined cells and their permitting requirements are the same. Class I landfills are those which receive an average of 20 tons or more of solid waste per day. Class II landfills are those which receive an average of less than 20 tons of solid waste per day. Class I and II landfills receive general, non-hazardous, commercial, industrial, and agricultural wastes, subject to the restrictions on *Rules 62-701.300 and 62-701.520 FAC*. Class III landfills are landfills limited to the disposal of C&D debris or other inert wastes that are generally considered to be nonhazardous in nature or not water soluble. Solid wastes acceptable for disposal at a Class III landfill are limited to materials (concrete, wood, plastic, glass, etc.) that are not expected to produce leachate when disposed.

AF regulatory requirements for the management of solid waste are established by the *AFPD 32-70, Environmental Quality*. This Directive requires compliance with applicable federal, state, and local environmental laws and standards. For solid waste, *AFPD 32-70* is implemented by *AFI 32-7042, Solid and Hazardous Waste Compliance*. *AFI 32-7042* requires that each installation have a solid waste management program that includes a solid waste management plan to address handling, storage, collection, disposal, and reporting of solid waste. *AFI 32-7080, Pollution Prevention Program*, contains the solid waste requirement for preventing pollution through source reduction, resource recovery, and recycling (*BRAC*, 2008).

Collection and disposal of municipal solid waste at Eglin AFB, including the HERD Complex, is handled by contract and administered by the 96th CEG Service Contracts. Environmental Waste Systems hauls refuse to a transfer station in Fort Walton Beach prior to final disposal at a Class I Landfill. Class I landfills utilized are in Santa Rosa and Jackson Counties.

Some C&D debris is also collected as part of this contract; however, the majority of C&D waste is collected and hauled by independent contractors associated with specific construction and/or demolition projects. A majority of the C&D debris at Eglin AFB is taken to Point Center Landfill, a permitted C&D disposal facility located in Okaloosa County (BRAC, 2008).

Available permitted landfills within the immediate area of Eglin AFB include a Class I landfill near Baker, Florida, operated by Okaloosa County, a Class I and Class III landfill near DeFuniak Springs, Florida, operated by Walton County, and two landfills operated by Santa Rosa County, a Class I landfill and Class III landfill. In addition to the landfills operated by the individual counties, three privately owned permitted C&D landfills are located within Okaloosa County (Waste Recyclers, Point Center, and Arena Landfills), four are within Walton County (Coyote East, Coyote West, J&K, and Waste Recyclers Landfills), and four are located within Santa Rosa County (Coyote Navarre, Joiner Fill Dirt, Inc., Persimmon Hollow, and Tower Ridge Landfills). The estimated life expectancy until capacity is reached for these facilities ranges from 18 to 30 years or more (BRAC, 2008).

Federal Regulation 40 CFR, paragraph 246, subpart B mandates that any agency with more than 500 facilities, 100 office workers or producing more than 10 tons of cardboard annually, must recycle all grades of paper, cardboard, glass, and cans. Eglin AFB's Qualified Recycling Program is an important component of the Integrated Solid Waste Management Program designed to meet the recycling requirements under this rule. The recycling program develops and implements policies and procedures designed to preserve landfill space, increase recycling, address revenues and cost avoidance, and promotes Green Procurement.

The AFRL HERD Complex complies with all requirements and guidelines of Eglin AFB's Recycling Program and Recycling Center. Personnel training regarding recycling at the HERD is routinely performed and a recycling culture has been embedded. Receptacles for recycled materials are provided alongside solid waste collection receptacles and signage for recycling processes is clearly posted. Items recycled at the HERD through the Eglin Recycling Program include metal, cardboard, and shredded paper. Plastic and glass are not included in the HERD recycling programs. The Eglin Recycling Facility collects the recyclable materials from the various stations on the HERD weekly on Thursdays and transports the materials to the Eglin Recycling Facility for processing.

Sales of aluminum cans from the Eglin AFB Recycling Program are used for base-wide morale-building activities. Printing toner and ink cartridges are also recycled but managed through the waste management process through the 96th CEG Service Contracts. In this case, Willow Environmental Services periodically collects toner and ink recyclables

3.7 Noise and Vibration

Noise (or sound) is characterized by its intensity, frequency and duration. The intensity is measured in units of decibel (dB). Normal human speech ranges from 60 – 65 dB, while the threshold of pain is approximately 140 dB. Because the human ear is better equipped to hear mid- and high-frequency noise, we find mid- and high-frequency noise more annoying. Therefore, an “A” filter is used to approximate the sensitivity of our ears to a noise, resulting in a unit A-weighted decibels (dBA) (FICAN, 2009). A-Weighted Sound (DNL) is used to assess noise for which audible sound is the concern (continuous noise, such as subsonic aircraft noise, small-arms fire (Table 3-6). C-Weighted Sound (CDNL) is used to assess noise in which vibration and low-frequency components are a concern (impulsive noise, such as sonic booms, high explosive munitions noise). CDNL can be felt as a vibration, in addition to being heard (BRAC, 2008).

Table 3-5. Relation Between Annoyance, DNL and CDNL

CDNL	% Highly Annoyed	DNL
48	2	50
52	4	55
57	8	60
61	14	65
65	23	70
69	35	75

Source: CHABA, 1981.

Theoretically the type of explosions which take place at the HERD complex can cause loud noises, but in reality, noise from the explosions at the HERD complex are not a concern due to the protective noise buffers incorporated into the HERD buildings. The current noise at the HERD complex is characterized by vehicle and aircraft noise. The Eglin Main Airfield is located approximately 3,000 feet east of the center of the HERD complex, and Highway 85 is located approximately 3,000 feet north of the HERD complex. However, the noise from aircraft operations dominates over noise produced by vehicle traffic (Lifestyle, 2008).

The contours of the Joint Strike Fighter Supplemental Environmental Impact Statement September 2010 No Action Alternative noise from the airfield are shown in Figure 3-1. According to these contours; the HERD compound’s annual average noise under the JSF No Action Alternative ranges from 70 to 80 dBA. After the full beddown and training of the Joint Strike Fighter (JSF) begin at Eglin AFB, the HERD compound’s annual average noise will change to between 65 to 80 dBA. Measures to achieve noise level reductions must be incorporated into the design and construction of portions of buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low in accordance with Air Force Handbook 32-7084 Attachment 4 Land Use Compatibility.

Temporary noise levels during takeoff, cruising, approach and airspace for an F-35 aircraft are shown in Table 3-7 as sound exposure level at an altitude of 1,000 feet, with the speed for each condition associated with flight conditions.

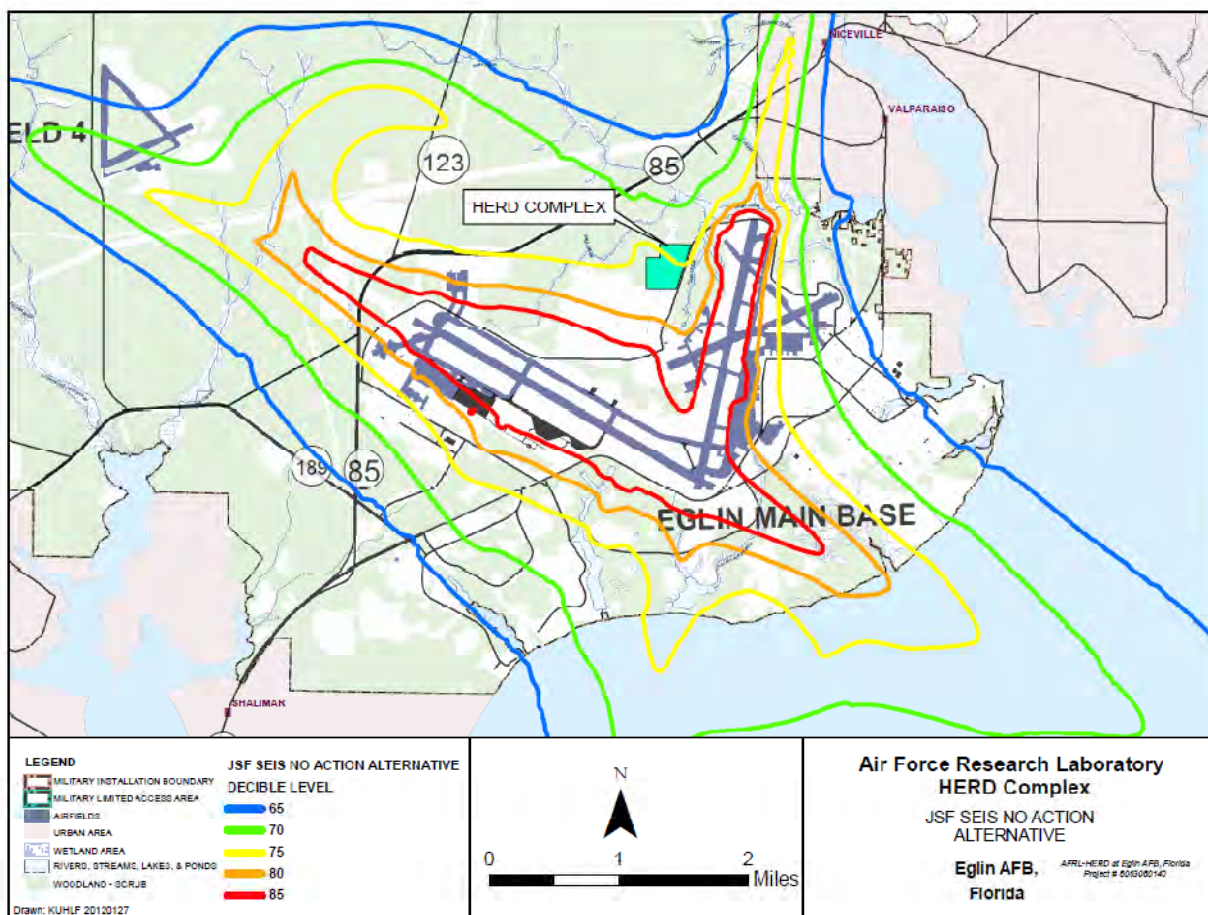


Table 3-6. Sound Exposure Level in dB for F-35

Condition	Power	Speed	Sound Exposure Level
Takeoff	100% ETR	300	121
Cruise	55% ETR	350	107
Approach	50% ETR	170	108
Airspace	Est*	500	121

*Estimated data based on differential of F-16 on takeoff versus airspace conditions and rationed to F-35 conditions.

ETR = engine thrust request

Source: BRAC, 2008.

3.8 Human Health and Safety

Safety is defined as any issue with a potential to increase health risks to military or DoD civilian personnel, developer personnel, or the general public. Ground safety considers issues associated with Operations and Maintenance activities. Specific issues addressed included construction site job safety. A variety of AF regulations address or govern safety, including *AFI 91-301, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards*. Under *Title 29 CFR 1960* series, OSHA standards do not apply to military-unique workplaces, operations, equipment, and systems. However, according to DoD instruction, they apply insofar as is possible, practicable, and consistent with

military requirements. AFOSH standards apply unless specifically exempted by variance or determined to be an acceptable deviation. The Air Force Safety Center is responsible for AF safety programs. The Weapons Safety Division at Air Force Safety Center has primary responsibility for the safety policies that apply to the AFRL HERD programs and facilities at Eglin AFB.

Day-to-day construction and Operations and Maintenance activities conducted by staff at Eglin AFB AFRL HERD compound are performed in accordance with applicable AF safety regulations, published AF technical orders, and standards prescribed by AFOSH requirements. Developers working on the installation are required to prepare appropriate job site safety plans explaining how job safety will be assured throughout the life of the project. Developers are also required to follow applicable OSHA requirements.

HERD currently has procedures in place for the handling of hazardous materials and disposal of hazardous wastes, and generation of pollutant emissions occurs in accordance with the Eglin AFB OB/OD permit.

Programs and facilities at the AFRL HERD complex are generally in compliance with DoD Ammunition and Explosives (AE) Safety Standards (*DoD 6055.9-STD*) in addition to USAF Explosives Safety Standards (*AFMAN 91-201*). In addition to compliance with the standards, these policies require that AFRL HERD have:

- Personnel trained IAW *AFI 91-202*;
- Detailed local OI;
- Personnel/explosive limits;
- Good housekeeping practices;
- Designated smoking areas;
- Safe handling procedures;
- Fire protection-fire drills, fire prevention, etc;
- Withdrawal distances;
- Provide the maximum possible protection to personnel and property;
- Limit the exposure of a minimum number of personnel for a minimum amount of time to the minimum amount of AE consistent with a safe operation; and
- Observe explosive safety practices during all operations involving live explosives.

3.9 Utilities

Electricity

Gulf Power, a subsidiary of Southern Company, currently provides electric service to Eglin AFB, including the AFRL HERD complex. Gulf Power's service territory spans the area from the Alabama border on the west to the Apalachicola River on the east; from the Alabama border on the north to the Gulf of Mexico on the south. Gulf Power serves all of Santa Rosa County and much of Okaloosa County (including the cities of Fort Walton Beach, Cinco Bayou, Destin, Mary Esther, Shalimar, Crestview, Niceville, and Valparaiso). Gulf Power has a total generating capacity of 2,659 megawatts from three wholly-owned generating plants to serve customers in 71 towns and communities in northwest Florida (Gulf Power, 2011).

All HERD complex buildings are presently served by electric utility lines within Eglin AFB. Main supply lines for the HERD complex are supplied from the northeast via power lines along perimeter road. Separate lines from outside of the HERD complex supply electricity to Building 991 (dynamics laboratory) to the far north and Building 1239 (x-ray facilities). A combination of above and below ground electric cables provides electricity to the central portion of the HERD complex.

Natural Gas

Natural gas is provided to Eglin AFB and Hurlburt Field from the Okaloosa Gas District, which supplies natural gas to most of Okaloosa County. The Okaloosa Gas District was created by an act of the legislature in 1953 as an independent special district, with member cities of Crestview, Niceville, Valparaiso and Fort Walton Beach. The original system consisted of six and eight inch transmission lines from Cantonment to Crestview, then south to Fort Walton Beach with distribution systems for Crestview, Duke Field, Niceville, Valparaiso, Eglin AFB, Fort Walton Beach and Mary Esther. Service has since been extended to Destin, South Walton County, Hurlburt Field, South Santa Rosa County, DeFuniak Springs and Whiting Field. Natural gas consumption by Eglin AFB has been generally steady over the last seven years, with a slow decline in usage between 2004 and 2006. The theoretical capacity of the gas pipeline into Eglin Main is a maximum throughput in excess of 68,000 million cubic feet per day (USAF, 2008).

Natural gas supply lines for the HERD complex are primarily isolated to the southwest portion of the complex. No supply lines are present in the northern portions of the project area. Natural gas is supplied from the Okaloosa Gas District via the main distribution line which supplies gas to Buildings 1197 (central utilities), 1200 (explosive propellants lab), and 1206 (explosives operations center).

Communications

Okaloosa County and Eglin AFB are collaborating on infrastructure improvements as part of the Eglin AFB Growth Management Plan, Eglin AFB's Vision 2015, and a growth management plan resulting from the 2005 BRAC Commission realignments. In addition to a joint fiber network, other improvements will include a new and improved waste water treatment plant, a joint fiber optic network, a new telephone cable along Highway 98, new Cox Communications cable, and new cellular towers. Communication services are currently provided on-base through the communications squadron (Rogers, 2009). Communications at the HERD complex are presently linked to the main Eglin AFB communications network. No HERD specific communications utilities or equipment has been identified under existing conditions at the HERD Complex.

Central Utilities

Central utilities at the HERD complex originate from Building 1197, which contains a combination of cooling towers, boilers, chillers, pumps, and other assorted utilities support equipment. The central utilities building provides chilled water, steam, and hot water to HERD buildings. The central utilities also receive condensate from utility lines that serve the surrounding HERD facilities. A majority of the

HERD complex central utilities lines have been installed above-ground, allowing for easier maintenance access than submerged utility lines.

HVAC

Heating, ventilating, and air conditioning (HVAC) systems at the HERD complex have been installed in all of the operational buildings that have not been designated as primary storage facilities. HVAC systems at a majority of the HERD complex buildings rely on chilled water and steam from the central utilities Building (1197) to provide air conditioning. However, several buildings, including the northernmost dynamics laboratory (Building 991), the explosives chemical synthesis building (Building 1202), and the temporary office trailer (Building 1201T) currently rely on separately packaged air conditioning units for their HVAC systems.

Sewer and Wastewater Systems

Domestic wastewater is regulated in Okaloosa County by the FDEP and the NFWFMD in accordance with the Clean Water Act and the Florida Air and Water Pollution Control Act. Discharge from sewage plants at Eglin AFB is regulated by FDEP and is closely monitored by and the installations to ensure continued compliance with applicable environmental laws and regulations. There are no permitted discharges of wastewater effluent to Choctawhatchee Bay due to the use of land made available by Eglin for spray irrigation. At Eglin AFB wastewater is processed at treatment plants operated by the installation. The Water and Utilities Shop (796 CES/CEOUUW) manages, operates, and maintains Eglin's wastewater treatment plants. The 96th CEG, Environmental Compliance Branch (96 CEG/CEVC), manages wastewater treatment facility permits and related compliance requirements, in accordance with applicable AF regulations (USAF, 2008).

HERD complex facilities are primarily served by sanitary sewer, with only one HERD building presently operating on localized septic systems (Building 991, Dynamics Laboratory). Sewer and wastewater utility lines are concentrated primarily around the south and central portion of the existing HERD complex. Sewer and wastewater lines serving the HERD complex are connected to a force main along perimeter road, which transports wastewater from sewer lines near the X-Ray building southwards towards perimeter road.

Water Systems

Water is regulated in Okaloosa County by the FDEP and the NFWFMD in accordance with the Safe Drinking Water Act. At Eglin AFB water is acquired through a series of on base wells operated by the installation. The Water and Utilities Shop manages, operates, and maintains Eglin's water wells. The 96th CEG, Environmental Compliance Branch (96 CEG/CEVC), manages water system permits and related compliance requirements, in accordance with applicable AF regulations.

3.10 Stormwater

Stormwater runoff is rainfall that runs off the ground or impervious surfaces like buildings, roads, parking lots, etc. and drains into natural or manmade drainage ways. Stormwater management practices focus on

reducing stormwater quantity (runoff volume) and improving stormwater quality (preventing potential pollutants from entering the stormwater or treating stormwater to remove potential pollutants). Poor stormwater management can result in flooding, erosion, and water quality degradation. Control measures include structural and non-structural practices that control the volume and/or reduce the pollutant concentration of stormwater runoff.

Well drained soils, like the Lakeland sand at this site, and limited impervious surfaces generally limit stormwater runoff generated within the HERD complex and have not required an extensive stormwater network to convey water away from buildings and roadways. Current control measures at the HERD complex consist of unpaved ditches and storm sewer pipes adjacent and under roadways. A more extensive network of paved and unpaved ditches is present on the eastern end of the HERD complex to convey water towards Tom's Creek.

Lack of vegetation on steep slopes and lack of maintenance of structural controls (i.e. rip-rap around headwalls, asphalt pavement) have resulted in erosion. Additional erosion issues are associated with the recreational use (all terrain vehicle [ATV] traffic, etc.) of the land outside the security fence. Erosion on the site has partially to fully filled some swales and culverts with sediment. Additionally, some swales have an overgrowth of vegetation within the swales and culverts. Both the sedimentation and vegetation have limited the volume of stormwater that the stormwater conveyance and storage structures can handle. This problem is currently resulting in increased sedimentation and unintended ponding after minor storms.

3.11 Natural Resources

3.11.1 Geology

The HERD compound is located in the East Gulf Coastal Plain Physiographic Province. The East Gulf Coastal Plain Physiographic Province consists of a thick sequence of sedimentary deposits that overlay ancient crystalline rocks. The sediments form a wedge that increases in thickness toward the Gulf.

According to the report *Water Quality: Streams and Ponds on Selected Test Areas on Eglin Air Force Base, Florida*, "The bedrock at Eglin AFB consists of limestone with the uppermost limestone bedrock occurring at approximately 400 feet" (AFAL 1977). The construction at the HERD compound would not disrupt local geology unless deep pilings would be required to this depth.

According to the US Geological Survey 2008 National Seismic Hazard Map, the seismic hazard (the hazard associated with potential earthquakes in a particular area) for the HERD facility location is extremely small. The Peak Horizontal Acceleration with 2% Probability of Exceedance in 50 years is less than 4% (USGS, 2008).

3.11.2 Soils

The Okaloosa County soil survey map (NRCS, 2008) identifies one soil type at the HERD Complex: Lakeland sand. Lakeland sand is not considered to be prime farmland soil. Lakeland sand consists of very deep, excessively drained, rapid to very rapidly permeable soils on uplands. Lakeland sand typically formed in thick beds of eolian or marine sands, and slopes are dominantly from 0 to 12 percent but can range to 85 percent in dissected areas (NRCS, 2008). Lakeland sand is moderately sorted, fine to coarse quartz sand with varying amounts of silt and clay overlying the Pensacola clay formation. Lakeland sand contains less than one percent organic matter in the top 49 inches of soil and its pH values range from 4.5 to 6.0. Cation exchange capacity values for the top six inches of Lakeland soils were variable (1.5 to 17 milliequivalents per 100 grams soil), which is likely due to variability in sampling sites (e.g., amount of surface organic matter, disturbed versus undisturbed surface). Permeability ratings range from 6 to 20 inches per hour for Lakeland soils and have a bulk or particle density of 1.48 grams per cubic centimeter at the surface. Lakeland sand is not considered a hydric soil (USDA-NRCS, 2009).

Because of the high permeability of soils at Eglin AFB, overland flow and runoff do not typically occur except during rainfall (Eglin AFB, 2010). In addition, the vast majority of the land surface at the HERD complex has slopes of less than 5 percent, with a very small area of 5 to 10 percent slopes towards the northwest near the tributary of Tom's Creek. In general, areas are not considered to have a severe erosion potential unless the slope of the land surface exceeds 10 to 15 percent. However, due to the lack of cohesiveness and limited water holding capacity, Lakeland soils can become eroded, especially due to the difficulty establishing and maintaining vegetation.

3.11.3 Water Quality and Wetlands

3.11.3.1 Surface Water Resources

The major surface waters at the AFRL HERD complex are Tom's Creek and two small unnamed tributaries in the vicinity of HERD which flow into Tom's Creek. Tom's Creek is located within the Choctawhatchee Bay drainage basin, draining into Boggy Bayou which eventually flows into Choctawhatchee Bay, and the Gulf of Mexico. The unnamed tributaries in the vicinity of the AFRL HERD complex are seepage streams. Seepage streams are described as perennial or intermittent, seasonal watercourses characterized by clear to lightly colored water derived from shallow groundwater seepage (Florida Natural Areas Inventory [FNAI], 2009). One tributary is located to the west (western boundary) of the project area flowing northeast, and the other unnamed tributary is located to the east of the project area flowing northeast. Both tributaries flow into Tom's Creek which bounds the northern area of the project site.

Tom's Creek is one of six stream systems in Okaloosa and Walton counties, which support the protected fish species, the Okaloosa darter (*Etheostoma okaloosae*), which is a state and federally listed threatened species (USFWS, 2011b). The preferred habitat of the Okaloosa darter is primarily margins of small seepage streams. Spawning substrate consists of vegetation, woody debris, and root mats

(USFWS, 2011a), more detailed information regarding the Okaloosa darter is located in Section 3.13 of this report.

Water quality monitoring performed in the 1970s indicated that Tom's Creek was meeting its designated use according to FDEP water quality indicators. However, the 2000 FDEP 305(b) report on water quality of Florida watersheds lacked sufficient data on Tom's Creek to make a current determination. Tom's Creek and the unnamed tributary adjacent to the AFRL HERD lands ultimately drain to Choctawhatchee Bay which is on the state's 303(d) list of impaired waters because fecal coliforms exceed thresholds for shellfish harvesting.

3.11.3.2 Groundwater Resources

The groundwater at the HERD site is encountered at approximately 50 to 55 feet below ground surface. A groundwater divide in the extreme western portion of the existing facility results in groundwater flow to the north-northwest in that area. Groundwater in other areas of the site, as well as surface water runoff, flows east toward Beaver Pond and northwest toward an unnamed creek (USAF, 2003b).

The surficial aquifer, as well as the Floridan aquifer underlies Eglin AFB. The surficial aquifer is also known as the sand and gravel aquifer and is an unconfined, near-surface unit separated from the underlying confined Floridan aquifer. Water quality of the surficial aquifer is vulnerable to contamination from surface pollutants due to proximity to the ground surface (USAF, 2003b).

The traditional source for water in Okaloosa County is local groundwater withdrawal from the Floridan and/or Sand-and-Gravel aquifers. The Floridan aquifer is the primary source of water used at Eglin AFB; however, the wells on Eglin tap into both the surficial and Floridan aquifers (USAF, 2003b). There are no water supply wells located on the subject site. Traditional sources in the coastal area of Okaloosa, Santa Rosa, and Walton counties have been determined insufficient to meet projected future needs without causing adverse impacts due to saltwater intrusion of the Floridan Aquifer. The NFWFMD has developed the *Regional Water Supply Plan for Santa Rosa, Okaloosa and Walton Counties* (NFWFMD, 2006). The plan identified current water sources and current and future water demands within the region, providing alternative water supply sources to meet the regions needs. Since the 1940s groundwater withdrawals from the Floridan Aquifer in the coastal area of Okaloosa, Santa Rosa, and Walton counties have caused a significant decline in the potentiometric surface of the aquifer, which threatens the aquifer as a source of potable water by inducing saltwater intrusion. Based on the sustainability model results, it appears that a moderate but reduced degree of groundwater pumpage can be sustained in the coastal area. However, additional future water supplies must be obtained from alternative inland groundwater and surface water sources (NFWFMD, 2006).

3.11.3.3 Wetlands

Within the project area of the AFRL HERD site, wetlands were determined to exist in a narrow margin adjacent to Tom's Creek and the associated unnamed tributaries, collectively known as the Tom's Creek system. In December, 2008 water was observed in Tom's Creek and its unnamed tributary. At that time,

wetland areas were determined primarily by observation of vegetation, with secondary investigation of hydrology and soil. At the time of the site visit there was a distinct change in vegetation, parallel to the unnamed tributary west of the project area, which aided in delineating the wetland boundary. Soil pits were dug in several locations within the project area to verify the presence of hydric soils. Hydric soil indicators were identified in accordance with *Field Indicators of Hydric Soils in the United States* (USDA, 2003) including: organic bodies, the presence of muck, and dark soil surface. Hydrologic indicators observed included inundation, saturation within 12 inches of soil surface, and water marks on trees.

According to the National Wetlands Inventory map for the site, the unnamed tributary bounding the project area to the west is considered a freshwater forested/shrub wetland. Tom's Creek, to the north of the project area, is described as both a freshwater forested/shrub wetland and a freshwater emergent wetland. The tributary to the east of the project area is described as a freshwater pond. The National Wetlands Inventory map also depicts a small palustrine freshwater pond within the developed area of the project site but the walk-over conducted for this project did not confirm the presence of that small pond.

3.12 Biological Resources

3.12.1 Ecological Communities

Eglin AFB uses a classification system based on ecological associations that were developed based on flora, faunal, and geophysical characteristics. These ecological associations are identified and described in the *INRMP* (USAF, 2001; SAIC, 2007) and in the Environmental Baseline Study Resources Appendices (USAF, 1995). The *INRMP* identifies four broad matrix ecological associations to define the floral, faunal and geophysical similarities. Two of these ecological associations occur within the AFRL HERD assessment area: sandhill and wetland. The AFRL HERD compound also has planted turf and other landscaped areas.

Sandhill Community Association

This system is the most extensive natural community type on Eglin AFB, accounting for approximately 78 percent or 362,000 acres of the base (SAIC, 2007). Sandhills are underlain by Lakeland soils, which are deep, sandy, and well drained, creating a dry condition. Longleaf pine sandhills are often characterized by an open, savanna-like structure with a moderate to tall canopy of longleaf pine, a sparse midstory of oaks and other hardwoods, and a diverse groundcover comprised mainly of grasses, forbs and low stature shrubs. Dominant trees include stands of longleaf pine, sand pine, oaks, and magnolia. Low shrubs comprise an important group and include saw palmetto, persimmon, dwarf huckleberry, gopher apple, and various oaks (USAF, 1995). Various grasses, herbs, lichens, and several rare plants can often be found in the understory (USAF, 1995).

The structure and composition was maintained by frequent fires, (every 3-5 years), which controlled hardwood, sand pine and titi encroachment. Longleaf pine sandhills consist of a high diversity of species adapted to fire and the heterogeneous conditions that fires create. Variation within the sandhills is

recognized by the two associations differing in the dominance of grass species (wiregrass versus bluestem). Sandhills are often associated with and grade into Scrub, Upland Pine Forest, Xeric Hammock or slope forests. It is also known as longleaf pine turkey oak, longleaf pine-xerophytic oak, longleaf pine-deciduous oak or high pine. The functional significance of the sandhill matrix is to provide maintenance of regional biodiversity. Additionally, the sandhills, due to their wide coverage on Eglin, are the matrix across which fire carries into the other imbedded fire-dependent systems. Eglin AFB is the largest and least fragmented, single longleaf pine ownership in the world, and has the best remaining old growth longleaf pine. Seepage slopes are a common embedded wetland feature found within Eglin's sandhill matrix (SAIC, 2007).

Wetlands/Riparian Matrix

Wetlands are extraordinarily important contributors to the health and diversity of the Eglin landscape. Riparian areas are generally found along a water feature such as a river, stream, or creek. Great diversity of invertebrate and fish species is found within the streams associated with these watersheds. Streams are perennial, originating in the sandy uplands of the installation and fed by groundwater recharge. Flood events only occur during extreme rain events (e.g., hurricanes), otherwise flows are relatively consistent. Temperatures fluctuate during the year and each day, being more constant near the headwaters. These seepage streams are moderately acidic. Wetland areas are monitored for changes in habitat structure and distribution over time in accordance with AFI 32-7064. NRS uses annual satellite imagery and change analysis to follow the status of these communities. There is no active management that is pursued in this community, although hunting and low-impact missions do occur (SAIC, 2007).

The currently undeveloped area of the AFRL HERD property is bounded to the west by a seepage stream (unnamed tributary) and the associated (adjacent) linear wetland. Several areas along the seepage stream were dominated by titi (*Cyrilla racemiflora*) and swamp tupelo (*Nyssa sylvatica*). Tape grass (*Vallisneria americana*) was observed in the seepage stream.

Turf and Landscaped Areas

Eglin AFB currently has approximately 46,000 acres of semi-improved areas and 14,000 acres of improved areas. Bahia grass (*Panicum notatum*) is the primary turf grass that is used in the semi-improved areas while St. Augustine (*Stenotaphrum secundatum*) and Centipede (*Eremochloa ophiuroides*) grass are the primary turf grasses used in the improved areas. Ground maintenance encourages low maintenance landscaping and uses native plants whenever possible. The Civil Engineer Squadron, Ground Maintenance (796th CES/CEOHG) is the primary point of contact for turf and landscape issues (SAIC, 2007).

Within the AFRL HERD compound, the existing buildings are present within areas that have undergone disturbance from previous construction and clearing activities. Landscaping is minimal to non-existent, with the exception of small areas outside of the Administrative Building (Building #1201). These areas provide habitat for a variety of bird species, which have adapted well to man-made environments. Native blue jay, Northern cardinal, American crow, and the nonnative English house sparrow and European

starling are typical examples of these species. Raccoon, opossum, white-tailed deer, and coyote are also sighted occasionally in landscaped areas (USAF, 2003b).

3.12.2 Wildlife

A wide variety of animal species are reported from Eglin AFB (reviewed in SAIC, 2007). They include migratory and resident birds, small and large mammals, fish, shellfish, sea turtles and terrestrial reptiles. The high quality habitats found throughout the Base support sustainable populations of many of these animals.

The *Migratory Bird Treaty Act (MBTA)* (16 USC 703-712; 1997-Supp) and *EO13186, Responsibilities of Federal Agencies to Protect Migratory Birds*, protect migratory birds and their habitats and establish a permitting process for legal taking. A migratory bird is defined by the USFWS as any species or family of birds that lives, reproduces, or migrates within or across international borders at some point during their annual life cycle. For normal and routine operations such as installation support functions, actions of the DoD may not result in pursuit, hunting, taking, capturing, killing, possession, or transportation of any migratory bird, bird part, nest, or egg thereof, except as permitted. The DoD must address these routine operations through the Memorandum of Understanding developed in accordance with EO 13186 (DoD and USFWS, 2006). Under the 2003 National Defense Authorization Act, the Armed Forces are exempted from the incidental taking of migratory birds during military readiness activities, except in cases where an activity would likely cause a significant adverse effect to the population of a migratory bird species. As detailed in the final rule in the *Federal Register* (50 CFR 21), in this situation the Armed Forces, in cooperation with the USFWS, must develop and implement conservation measures to mitigate or minimize the significant adverse impacts (*Federal Register*, 2007).

Areas of the AFRL HERD compound which are currently developed do not provide quality habitat to a variety of wildlife due to the presence of humans, complex-associated traffic, noise, and land use. However, the land outside the existing HERD compound fence is an undeveloped upland forest which slopes downward toward a seepage stream (unnamed tributary of Tom's Creek) that provides high quality wildlife habitat. This land includes approximately 44 acres of additional land, currently in a forested state, that are under consideration for expanding the HERD compound. A screening-level biological survey was conducted on a portion of the proposed expansion area in December 2008 and included the land west of the existing HERD complex, east of the unnamed tributary to Tom's Creek, south to the proposed fence line, but no further north than the Dynamics Laboratory. Transects were walked throughout this assessment area, while making observations of habitat, evidence of wildlife, and wildlife observations. Wildlife species (or evidence of) observed on the subject site during the daytime site visit conducted in December 2008 included: Northern cardinal, Carolina chickadee, active gopher tortoise burrows, pocket gopher burrows, green anole, cottontail rabbit, white-tailed deer tracks, mammal (unknown species) burrows, and mammal scat.

3.12.3 Vegetation

The majority of Eglin AFB forests are secondary growth forests. Although the reported land use for the project area consists of pine flatwoods and industrial, during the site visit conducted in December 2008, the following land uses were observed within the assessed area of the project site:

- Upland forest (including sandhill, sandhill-scrub, upland pine forest, pine flatwoods);
- Scrub;
- Seepage stream (unnamed tributary); and
- Wetland associated with edge of seepage stream.

The upland forest areas of the assessment area were often dominated by sand pine and long leaf pine. The mixed pine-hardwood areas were also dominated by sand pine, typically followed in abundance by turkey oak (*Quercus laevis*) and myrtle oak (*Quercus myrtifolia*). Upland hardwood forests were dominated by slash pine (*Pinus elliotii*), long leaf pine (*Pinus palustris*), and American holly (*Ilex opaca*). The scrub was dominated by sand pine (*Pinus clausa*), laurel oak (*Quercus hemisphaerica*), yaupon holly (*Ilex vomitoria*), bracken fern (*Pteridium aquilinum*), and gopher apple (*Licania michauxii*). Frequent observations in the upland area, but near the seepage stream included: saw palmetto (*Serenoa repens*), southern magnolia (*Magnolia grandiflora*), sand pine (*Pinus clausa*), laurel oak (*Quercus hemisphaerica*), water oak, long leaf pine (*Pinus palustris*), Arkansas oak (*Quercus arkansana*), British soldier lichen (*Cladonia leporina*), rosemary (*Ceratiola ericoides*), partridge pea (*Mitchella repens*), and variable panicum (*Panicum commutatum*). The vegetation observed in the seepage stream (unnamed tributary) included spiderlily (*Hymenocallis sp.*), American eel grass (*Vallisneria americana*), and mature specimens of swamp tupelo (*Nyssa sylvatica*). Vegetation identified in the wetland area along the unnamed tributary included: water oak (*Quercus nigra*), swamp tupelo (shrub-size), swamp titi (*Cyrilla racemiflora*), sweetbay magnolia (*Magnolia virginiana*) and Florida anise (*Illicium floridanum*), and was often dominated by either swamp titi. Other than mowed grass, landscaping in the industrial land use areas of the project site (the currently active AFRL HERD compound) was generally nonexistent, with the exception of the main administrative office. The main administrative office was minimally landscaped. The active area of the AFRL HERD compound has several roads connecting facility structures; often the areas encompassed or bisected by this road system appear to remain in a natural state. Vegetation identified during the site visit is listed in Table 3-8.

The Eglin AFB Invasive Non-native Species Management Program focuses on invasive non-native plant and animal species that cause or may cause negative environmental impacts to Eglin ecosystems. Key components of the program are identifying problem areas, mapping locations, monitoring changes in populations, and controlling invasive non-native plants and animals. The primary goal of the Eglin Invasive Non-native Species Management Program is to reduce and control the spread of invasive, non-native species (SAIC, 2007).

Table 3-7. Vegetation and Lichens Observed at the AFRL HERD Site, December 9-11, 2008

Scientific Name	Common Name
<i>Andropogon virginicus</i>	Broomsedge bluestem

<i>Aristida stricta</i>	Wiregrass
<i>Callicarpa americana</i>	American beauty berry
<i>Ceratiola ericoides</i>	Florida rosemary or sandheath
<i>Cladonia leporina</i>	British soldier lichen or Jester lichen
<i>Crataegus sp.</i>	Hawthorn
<i>Cyrilla racemiflora</i>	Swamp titi
<i>Dalea pinnata</i>	Summer farewell
<i>Dichanthelium commutatum</i>	Variable panicgrass
<i>Euthamia caroliniana</i>	Slender flat-topped goldenrod
<i>Hymenocallis sp.</i>	Spiderlily
<i>Ilex opaca</i>	American holly
<i>Ilex vomitoria</i>	Yaupon Holly
<i>Illicium floridanum</i>	Florida anise
<i>Juniperus sp.</i>	Cedar
<i>Licania michauxii</i>	Gopher apple
<i>Lygopodium sp.</i>	Climbing fern
<i>Magnolia grandiflora</i>	Southern magnolia
<i>Magnolia virginiana</i>	Sweetbay magnolia
<i>Mitchella repens</i>	Partridge pea
<i>Nyssa sylvatica var. biflora</i>	Swamp tupelo
<i>Opuntia stricta</i>	Prickly pear
<i>Panicum commutatum</i>	Variable panicum
<i>Pinus clausa</i>	Sand pine
<i>Pinus elliotii</i>	Slash pine
<i>Pinus palustris</i>	Long Leaf Pine
<i>Prunus sp.</i>	Scrub plum
<i>Pteridium aquilinum</i>	Bracken fern
<i>Quercus arkansana</i>	Arkansas oak
<i>Quercus geminata</i>	Sand live oak
<i>Quercus hemisphaerica</i>	Laurel oak
<i>Quercus laevis</i>	Turkey Oak
<i>Quercus maragaretta</i>	Sand post oak
<i>Quercus myrtifolia</i>	Myrtle oak
<i>Quercus nigra</i>	Water oak
<i>Quercus virginiana</i>	Live oak
<i>Rhododendron sp.</i>	Azalea
<i>Rubus sp.</i>	Black berry
<i>Selaginella arenicola</i>	Sand spikemoss
<i>Serenoa repens</i>	Saw Palmetto
<i>Smilax sp.</i>	Green brier
<i>Vallisneria americana</i>	American eelgrass
<i>Yucca filamentosa</i> (syn. <i>A. flaccida</i>)	Adam's needle

Climbing fern (*Lygopodium sp.*) was the only invasive, non-native species observed in the assessment area during the site visit conducted December 9th through 11th, 2008 and only a few specimens were observed. Other invasive species that reportedly may occur at Eglin AFB (but were not observed on the subject site) include: Chinese tallow tree (*Sapium sebiferum*), cogon grass (*Imperata cylindrica*), and chinaberry tree (*Melia azedarach*).

3.12.4 Threatened and Endangered Species

Eglin AFB has a remarkable assemblage of biodiversity. This is due primarily to the large size of the installation and its habitat quality and diversity including 34 distinct natural community types ranging from barrier islands to old growth longleaf pine forests. Many of the habitat types found on Eglin are fire-maintained, meaning that they require frequent fire to maintain the natural species composition and structure. This accounts for the exceptional habitat quality in the wooded portions of the installation and the high concentrations of threatened and endangered species in these areas (SAIC, 2007).

There are 106 state-listed, federally listed, and FNAI tracked species found at Eglin AFB (SAIC, 2007). Of these 106 species, there are 12 federally listed threatened and endangered species on Eglin AFB. The 11 federally listed species that are being managed on the reservation include: the red-cockaded woodpecker, bald eagle, piping plover, Okaloosa darter, Gulf sturgeon, flatwoods salamander, Eastern indigo snake, loggerhead sea turtle, green sea turtle, leatherback sea turtle, and Florida perforate lichen. Other federally listed species such as the West Indian manatee, peregrine falcon, and wood stork have been documented on Eglin during seasonal migrations. The American alligator, which is common on Eglin, is also federally listed due to its similarity in appearance with the endangered American crocodile. Nine of the 11 federally listed T&E species have Recovery Plans currently in place (red-cockaded woodpecker, Okaloosa darter, loggerhead, green and leatherback sea turtles, Eastern indigo snake, Florida perforate lichen, bald eagle, and Gulf sturgeon) (SAIC, 2007).

- The only federally listed species known to occur in proximity to the HERD Compound is the Okaloosa darter (SAIC, 2007).

During a pedestrian survey conducted in December, 2008 in the southern part of the subject site, two sand pine trees in a sand pine community were observed with excessive sap on the side of each tree, and on the ground at base of each tree. The presence of sap is somewhat reminiscent of red-cockaded woodpecker (*Picoides borealis*) cavity creation and maintenance activity, although no cavities were observed in either pine tree. The sand pine is not the preferred cavity tree for this protected species; long leaf pine is the preferred cavity tree of the red-cockaded woodpecker. A few specimens of long leaf pine were observed at the HERD complex, but the cavities (or excessive sap) were not observed in these long leaf pine trees.

The Okaloosa darter, *Etheostoma okaloosae*, is a small percid fish that was added to the Federal List of Endangered Wildlife and Plants in 1973 (38 FR 14678). In 2011, the U.S. Fish and Wildlife Service reclassified the Okaloosa darter from the status of endangered to threatened (USFWS, 2011b). Habitat degradation was the primary cause of the limited distribution of the Okaloosa darter (USFWS, 2011a), including erosion effects (siltation) and water impoundment; competition with the introduced brown darter (*Etheostoma edwini*) has also impacted the Okaloosa darter. The Okaloosa darter is small (just less than 2 inches in length at maturity) and feeds primarily on fly, mayfly, and caddis fly larvae. The Okaloosa darter habitat is primarily margins of flowing streams with vegetation, root mats, and detritus. Spawning substrate consists of vegetation, woody debris, and root mats, and spawning season occurs between March and October, peaking in April (USFWS, 2011FWC, undated). According to *The*

Okaloosa Darter Recovery Plan (USFWS, 1998), the Okaloosa darter only occurs in six stream systems located in Okaloosa and Walton Counties, Florida, all draining to Choctawhatchee Bay. Tom's Creek, which forms the northern and western boundaries of the proposed project area, is one of the stream systems inhabited by the Okaloosa darter. Ninety-four percent of the Okaloosa darter's range is under the management of Eglin AFB.

During the December, 2008 site visit, an estimated eight active gopher tortoise burrows, and one inactive gopher tortoise burrow, were observed within the project area (Figure 3-2). The HERD complex and environs was not previously known to support a population of gopher tortoises. The Gopher tortoise (*Gopherus polyphemus*) is listed in the State of Florida as a state threatened species. The preferred habitat of the gopher tortoise is sandy, open scrub habitat. Suitable habitat and food sources (example, gopher apple) were observed in the project area during the December 2008 site visit. The gopher tortoise is considered a keystone species because their burrows serve as important habitat for other protected species such as the federally-protected Eastern indigo snake (*Drymarchon corais couperi*).

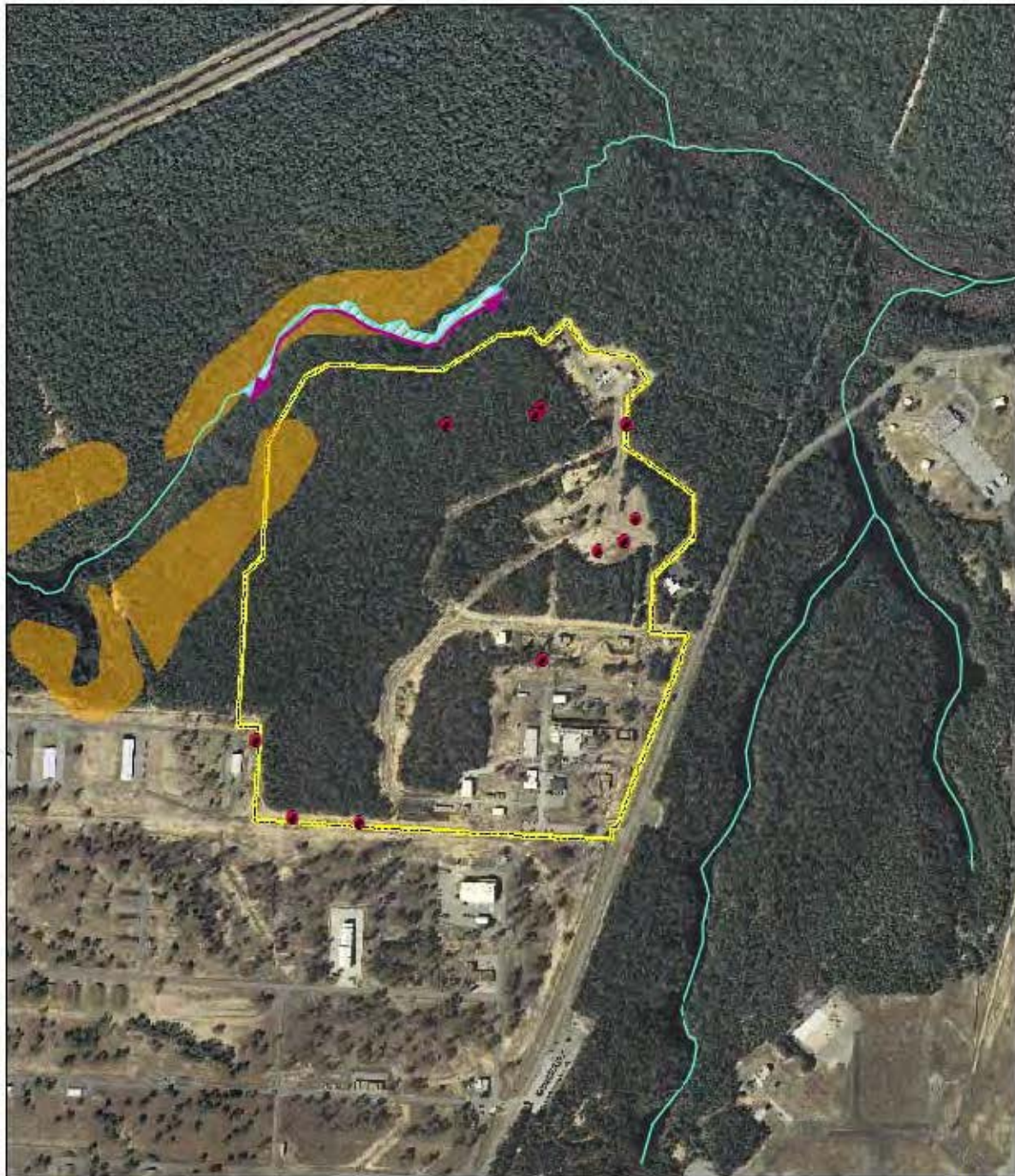
The Arkansas oak (*Quercus arkansana*) is listed in the State of Florida as a threatened species. It is a small tree growing in dry upland hardwood forest communities in the panhandle. The Arkansas oak was observed within the project area during the site visit conducted December 9th through 11th, 2008; primarily in upland areas adjacent to the tributary to the west of the project area.

3.12.5 Sensitive Habitats

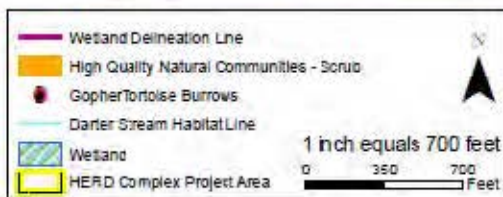
The FNAI has identified High Quality Natural Communities (HQNC) on Eglin AFB; these special landscapes support rare plants (summarized in SAIC, 2007) (Figure 3-2). HQNC are areas distinguished by the uniqueness of the community, ecological condition, species diversity, and presence of rare species (SAIC, 2007). A portion of one of these HQNC (scrub) reportedly enters the west-central area of the project site (Table 3-9). A scrub community is typically composed of sand pine (*Pinus clausa*), myrtle oak (*Quercus myrtifolia*), and sand live oak (*Quercus geminata*) (FNAI, 2009).

Table 3-8. Sensitive Habitats Located On or Within 1 Kilometer (km) of the Proposed Construction Site

Sensitive Habitat or Species	Measured within 1 km Radius	Nearest Distance from Proposed Construction
Tier 1 Scrub Habitat	8.3 acres	1,330 feet
Okaloosa Darter Stream	5,200 feet	1,280 feet
Wetland	62 acres	750 feet



Source: Eglin AFB, 2009; Wetland, MACTEC 2009
 Gopher Tortoise, MACTEC 2009



Air Force Research Laboratory HERD Complex		
Biological Resources at AFRL-HERD Complex		
Drawn: JAT-3/9/2009	Eglin AFB, Florida	 <small>AFRL-HERD at Eglin AFB, Florida Project# 6063080140</small>
Checked: NMG-3/9/2009		
		Figure 3-2

During the site visit conducted December 9th through 11th, 2008, the general area of the proposed fence line (oriented north-south) in the vicinity of the HQNC was observed by pedestrian travel. Vegetation observed in this area included several large, mature trees: e.g. live oak trees (*Quercus virginiana*) with 20 inch diameter at breast height (dbh) trunks, and mature sand pine trees with 14 inch dbh trunks. When compared to other areas of the project site, these live oak trees and sand pine trees were much larger (height and dbh) than those distributed elsewhere on the site. Other plant species observed in the HQNC included laurel oak (*Quercus hemisphaerica*), yaupon holly (*Ilex opaca*), bracken fern (*Pteridium aquilinum*), partridge pea, southern magnolia, and turkey oak. The surface layer included British soldier lichen, scattered bracken fern, oak leaves, and pine straw. Evidence of burning was observed in this area.

3.13 Socioeconomics

Over the last four decades, the civilian population of the counties surrounding Eglin AFB has more than tripled in size (SAIC, 2007). Nearly 20% of Okaloosa County's employment depends on Eglin AFB. AFRL HERD is located in Okaloosa County and contributes to that employment statistic.

There are approximately 60-70 full time employees currently working at AFRL HERD. These positions are filled by both military and civilian personnel.

As described above in Section 3.2, the site is not accessible to non-HERD personnel. However, land outside the existing perimeter fence is accessible to the general base population. That land is currently used as bow hunting area.

4.0 Environmental Consequences

4.1 Land Use

4.1.1 Proposed (Preferred) Action

Under the Preferred Action, the size of the HERD compound will increase from its current size of 79 acres to 123.6 acres (Figure 4-1). Construction of new roadways, parking areas, and new offices and research facilities will increase the existing impervious area of the AFRL HERD complex from 4.54 acres to 14.1 acres. This will occur on land that is within the current fenced area as well as existing forest to the west of the present compound that will be cleared. This enlarged compound will be surrounded by a security fence, and 44 acres of existing forest will be cleared of natural vegetation. Forest land that will remain outside the perimeter fence will decrease to 40.3 acres.

The proposed land use is compatible with the existing industrial land use areas of the project site, but is not compatible with the forested land use of the land that lies outside the current perimeter fence. Additional detail was given to changes in land use outside of the existing HERD complex but inside the proposed perimeter fence, including industrial land use categories assigned for future building footprints and a separate roads category under the preferred alternative design. Additionally, areas of pine flatwoods proposed for clearing of understory scrub were labeled as mixed rangeland land use types to identify the transition from existing pine flatwoods into cleared, wooded areas between the proposed buildings. These changes in land use will occur within the vicinity of the existing HERD complex and will not be significant in terms of the overall land use at Eglin AFB.

4.1.2 Alternative 1

Under the Alternative 1 layout, the size of the HERD compound will increase from its current size of 79 acres to 126.2 acres. Construction of new roadways, parking areas, and new offices and research facilities increases the existing impervious area of the AFRL HERD complex from 4.54 acres to 14.1 acres. This will occur on land that is within the current fenced area as well as existing forest to the west of the present compound that will be cleared. A larger tract of land will be surrounded by a security fence, and 46.6 acres of forest will be cleared of natural vegetation such that 37.7 acres of forest will remain adjacent to the HERD complex. It is not anticipated that adverse impacts will occur to overall land use at the Base as a result of implementation of Alternative 1.

4.1.3 No Action Alternative

Under the no action alternative, there would be no land use changes. Facility maintenance and upgrades would occur, but new facility construction would not. Thus the project footprint would remain the same and no adverse impacts would be expected.



Legend

- Proposed Fence
- Existing Pine Flatwoods
- Existing Industrial
- Proposed Mixed Rangeland
- Proposed Industrial
- Proposed Roads

1 inch equals 700 feet

0 350 700 feet

Source: Aerial - Eglin AFB 2006; Land Use - MACTEC 2009
 Complex Layout - Eglin AFB 2009

Air Force Research Laboratory HERD Complex			
Proposed Land Use Changes			
Drawn: JAT-3/9/2009 Checked: NMG-3/9/2009	Eglin AFB, Florida	 <small>AFRL-HERD at Eglin AFB, Florida Project # 6063080140</small>	Figure 4-1

4.2 Transportation

The impacts of the alternatives were evaluated with respect to the roadway network under both existing and estimated future conditions. Activity on roads in the vicinity of the project area is minimal and is controlled by additional security check points. The level of service has not been quantified for roadways in the vicinity of the project area.

4.2.1 Proposed (Preferred) Action

Under the proposed action alternative, alteration of the transportation infrastructure will only occur within secure, access controlled areas. The purpose of the majority of the approximate 2.36 miles of additional paved roadways is to create access to remote, uninhabited explosive storage and/or testing chambers. Construction and/or renovation of research and administration facilities may lead to limited additional traffic commuting to the AFRL HERD on an infrequently traveled unnamed base road to the east of the project area.

In the short term, during the construction phase of the project, traffic volume would increase due to the influx of construction workers, associated equipment and heavy truck traffic to remove debris from demolished buildings. Construction schedules could be planned to avoid times of higher traffic volumes in order to minimize potential congestion on base roads as a result of large, slow-moving vehicles. Additionally, as access to the project area involves crossing a military aircraft “flightline”, coordination with Eglin air traffic control may be required for passage of any over-sized or slow-moving equipment. Transportation of construction equipment to the project area would not be allowed to limit access to emergency services or adversely impact the ability of the AF to carry out their mission. Construction related traffic may cause a moderate negative impact on base traffic in the short-term.

In the long term, traffic volume along Perimeter Road and an unnamed road which crosses the flightline and passes on the east of project area may increase slightly due to augmentation of personnel assigned to AFRL HERD as a result of the expansion of the research facilities. Additional personnel assigned to AFRL HERD, assumed to be no more than 200 full-time employees, is not expected to create congestion, even during peak hours. The increase in traffic from the larger workforce could result in a minor long-term negative impact on the roads feeding the HERD complex as a result of increased traffic.

Bus, rail service and pedestrian facilities are not currently available on or near the AFRL HERD complex. No public transportation or bicycle facilities are planned for either of the alternatives.

4.2.2 Alternative 1

Impacts to traffic and transportation under Alternative 1 option would be similar to those described above for the Proposed (Preferred) Action.

4.2.3 No Action Alternative

Under the No Action Alternative, no changes to traffic volume are anticipated as the same number of current personnel will likely remain assigned to the AFRL HERD.

4.3 Site Access

4.3.1 Proposed (Preferred) Action

Short-term impacts associated with site access issues include the additional expenses (e.g. background checks) associated with granting site access to construction workers and subcontractors. Additionally, construction related trucks would likely be required to undergo inspection each time base access is required. The activities associated with this increased need for site access may require additional AF security personnel added to daytime shifts.

Additionally, the construction of one non-hazardous operations building, which will house office space and communications hardware for the expanded HERD complex, is proposed for placement outside of the security fenceline. The placement of this building would allow for continual access by all base personnel at any hour of day, although access for entry into the building will likely be limited during non-operating hours.

With the expansion of the research program at AFRL HERD, which could include resident scientists from other federal agencies and academia, a number of site access issues will need to be addressed. At present, only mission essential on-base personnel are allowed to access the AFRL HERD complex, in addition to the restrictions not allowing the general public on Eglin AFB. Under the Proposed Action, the addition of non-base personnel to the research community will require that access policies be reviewed and updated as needed to ensure adequate force protection measures are implemented at HERD. It is expected that necessary security measures can be implemented without adversely impacting Base programs.

4.3.2 Alternative 1

Under this alternative action, site access issues are expected to be similar to those described above for the proposed action.

4.3.3 No Action Alternative

No adverse impacts are anticipated as a result of implementation of the no action alternative.

4.4 Air Traffic and Airspace Analysis

The FAA requires notification of construction which has the possibility of interfering with air traffic. FAA Regulations, Part 77 establishes standards for determining obstructions in navigable airspace and sets forth requirements for FAA notification of proposed construction, which may result in an OE/AAA. These regulations require FAA notification for proposed new construction, or alteration of existing structures, higher than 200 feet above ground level and those with heights lower than 200 feet, but meeting the notification requirements in Table 3-2.

4.4.1 Proposed (Preferred) Action

Because the HERD compound is located in close proximity to the Northwest Florida Regional Airport, it is possible that new construction at the HERD compound may fall within the range requiring FAA

notification. The electronic “Notice Criteria Tool” on the FAA website can be used to determine whether any of the proposed expansion (or renovations to existing buildings) will require FAA notification.

Should the heights and locations of the new construction at the HERD facility require FAA notification, a “Notice of Proposed Construction or Alteration” (form SF 7460-1) must be completed and submitted to the FAA and will include requested information including the following attachments to form SF 7460-1: the type and location of the buildings to be installed/replaced; scaled drawings showing the location of the alteration in relation to nearest runways; the perpendicular distance of the proposed building to the nearest runway centerlines; the distance along centerline (actual or extended) from the end of the runway to the perpendicular intercept point of the building; ground elevation at the site of the proposed building; height of the proposed building, including antennas or other appurtenances; accurate geodetic coordinates conforming to NAD 83; and sketches, drawings, etc. showing the type of building proposed (FAA 2009a). The SF 7460-1 form should be submitted to the FAA within the required timeframe prior to scheduled construction.

The DoD Preliminary Screening tool provides a preliminary review of potential impacts to Long-Range and Weather Radars, Military Training Routes, and Special Airspaces prior to official FAA filing. According to the DoD Preliminary Screening Tool, construction at the HERD compound would have minimal to no impact to Weather Surveillance Radar-1988 Doppler (WSR-88D) weather radar operations and no anticipated impact to Air Defense and Homeland Security radars, though National Telecommunications and Information Administration notification is advised. However, the DoD Preliminary Screening Tool did determine that the construction may fall within the confines of an area of interest and may have an impact on military operations. A more detailed review will be required to identify any additional areas of concern. It is imperative that 46 TW/XPE be kept fully apprised of findings of the more detailed review as well as any impacts on military operations.

Should the FAA conduct their aeronautical study and determine that the proposed buildings do not exceed obstruction standards, the impact of the HERD expansion and renovation on aviation would be minimal (FAA 2009a). Should the FAA conduct their aeronautical study and determine that one or more of the proposed buildings would be acceptable contingent upon implementing mitigating measures (such as marking, lighting, etc), the impact of these buildings on aviation would remain minimal. However, if one or more of the proposed buildings is determined to be a hazard to aviation, it would be considered objectionable by the FAA and changes to the design (location, height, etc) of the improper building(s) would be required.

Under the Preferred Alternative, impacts to air traffic and airspace are not anticipated as the FAA will not allow impacts to occur.

4.4.2 Alternative 1

Impacts associated with this alternative are the same as those described above for the Preferred Alternative.

4.4.3 No Action Alternative

There would be no impact on air traffic or airspace associated with the No Action Alternative.

4.5 Air Quality

4.5.1 Proposed (Preferred) Action

The analysis below was based on a review of existing air quality in the region, information on Eglin AFB air emission sources, projections of emissions from the proposed activities, and a review of the Federal and Florida regulations for air quality. Emissions from construction and operation of the proposed facilities were analyzed.

The proposed expansion of the existing HERD compound to accommodate new lines of research and testing includes the following:

- A significant expansion of the fenced, access controlled area of the compound;
- Future explosives operating, testing and storage buildings;
- Non-explosives research and special purpose buildings; and
- Supporting infrastructure and a central system that distributes steam, chilled water, hot water, and compressed air.

This expansion project would result in the short-term generation of criteria pollutants from grading and excavating operations, heavy equipment, contractor worker vehicles, and heavy trucks driving on paved and unpaved roads. Particulate matter (PM₁₀ and PM_{2.5}) is generated during ground-disturbing activities and during combustion. The FDEP regulates fugitive particulate emissions from ground disturbance activities like C&D projects. The permit includes requirements to prevent by reasonable precautions the emissions of unconfined particulate matter. [Rule 62-296.320(4) (c)2, FAC] Standard dust reduction measures (e.g., watering, minimizing vehicle speeds on exposed earth) will need to be instituted during construction. Emissions from trucks and other equipment used to support construction activities should have no measurable impact on regional air quality. With the implementation of Best Management Practices (BMP), the quantity of emissions from construction activities and equipment should be minimal.

Nonetheless, the emissions and dust from building construction and site preparation activities would have minimal temporary effects on air quality. In accordance with Section 176(c), USEPA promulgated the General Conformity Rule that is codified at 40 CFR 93, Subpart B. The General Conformity Rule ensures actions taken by federal agencies in nonattainment and maintenance areas meet national standards for air quality (USEPA 2009b). Because the HERD complex is located in an attainment area, the AF will not be required to prepare a “conformity determination” for the expansion project.

However, even though a “conformity determination” is not required by the General Conformity Rule, the federal action must still comply with the conformity requirements of Section 176(c). An impact analysis to air quality should be performed comparing the project emission estimates, using USEPA emission factors, to regional air emissions inventories. To be conservative, emissions caused by project activities can be compared to 10 percent of Okaloosa County’s annual emissions. When additional details are

available about the construction requirements (equipment, time-frame, disturbed land area, etc), Urban Emissions Model (URBEMIS) 2007 for Windows® can be used to estimate the quantities per year of volatile organic compounds, nitrogen oxides, carbon monoxide, particulate matter (PM₁₀) and sulfur dioxides. These estimates can then be compared to the Okaloosa County Emission Inventory to verify that the construction activity will not produce more than 10 percent of the County's annual emissions.

However, based on the estimations for the construction of the Energetics Buildings at the HERD complex, the construction would be expected to produce significantly less emissions than the Okaloosa County annual emissions. Any emission effects due to construction would be temporary and minimal.

The proposed updates to the HERD complex will include replacing the current heating and cooling system. The larger HVAC system may result in increased air emissions, due to the increased square footage of buildings requiring temperature control. However, modern design standards and building materials should result in a more energy efficient system in the existing buildings, thereby reducing air emissions to cool existing buildings, which currently have inefficient heating and cooling systems.

The forms of materials to be stored and tested at the new HERD complex will include ultra-fine particles that have at least one dimension in the range of 1 to 100 nanometers. Because particle toxicology suggests that the smaller a particle, the more toxic it is (Borm, 2006) the buildings where ultra-fine particles will be used will be self-contained. It is expected that ultra-fine particles will not be released to the natural environment. In addition, indoor air quality will be monitored closely with special sensors, and personal protective equipment (particularly respiratory protection) designed for ultra-fine particles will be worn by all employees working in these buildings.

4.5.2 Alternative 1

Air quality impacts under the alternative action scenario are expected to be similar to those described above for the Preferred Alternative.

4.5.3 No Action Alternative

Under the No Action Alternative, no adverse impacts to air quality are anticipated. However, there would also be no potential improvements in air quality by updating to a more energy efficient heating and cooling system.

4.6 Hazardous Material and Hazardous Waste Management

4.6.1 Proposed (Preferred) Action

Petroleum products and other hazardous materials (e.g., paints and solvents) will be required during construction/renovation activities. These materials would be stored in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous waste will be reported and resolved according to the Eglin AFB Facility Response Plan (USAF, 2009a) and the Hazardous Waste Management Plan (USAF, 2010c). Should any excess hazardous materials related to construction/renovation activities

require disposal, they will be disposed of according to applicable federal, state and local laws and regulations.

During renovation activities at the HERD complex, ACM may be encountered. Removal and disposal of ACM will be carried out in strict compliance with all applicable federal, state, and local laws, rules, regulations, and standards, and in accordance with Eglin AFB's Asbestos Management Plan (USAF, 2010).

LBP may also be encountered during renovation activities at the HERD complex. Removal and disposal of LBP materials will be carried out in strict compliance with all applicable federal, state and local laws, rules, regulations and standards, and in accordance with Eglin AFB's LBP Management Plan.

One ERP site, is located at the HERD complex, in the vicinity of Building 1197. Planned construction activities would be possible in this area with prior coordination with Eglin AFB Environmental Management Restoration branch. Regardless, should any unusual odor, soil, or groundwater coloring be encountered during development activities in any areas, construction would cease and Environmental Management Restoration would be contacted immediately.

Before a new hazardous material could be used at the HERD facility, including ultra-fine particles and other new compounds that may be used in the advanced energetics research program, it must be added to the HMMS inventory. An approval process would first be required to ensure that it would not pose undue health or environmental hazards. This approval process involves a review by various organizations at Eglin AFB, including Bio-Environmental, Safety, and Environmental. Changes in the overall quantity of hazardous materials used/stored on the installation resulting from the expansion of the research program at HERD will be documented and reported to state and local emergency planning committees/local fire departments using the annual Tier II forms or Form R, as required (BRAC, 2008). It is anticipated that the overall quantity of hazardous materials used/stored at HERD in addition to the amount of hazardous waste generated will both increase as a result of the expansion of the HERD Complex and its associated research programs.

Expansion of HERD explosives operations and facilities will inherently result in a net increase in explosives waste generated at the facility. While increased focus on advanced energetics will be the primary goal of many of the future facilities, conventional munitions development at the HERD complex is not expected to decrease in the future. All HERD explosives waste will continue to follow the specific requirements and operating instructions provided in *Flight Operating Instruction 32-3004* (October 6, 2010). Removal of explosives waste at Eglin will continue to utilize the OB/OD permit maintained by Eglin for disposal of waste. HERD personnel may coordinate specific disposal operations with EOD personnel based on increased explosives operating requirements that may be present under future HERD directives. Although the amount of explosives waste generated at the HERD may increase in the future, no negative impacts are anticipated to the environment through existing ordnance disposal procedures.

Used oil generation at the HERD complex may increase following future HERD expansion due to an increase in operating vehicles and expanded facilities operation. Used oil is currently recycled within Eglin AFB at the used oil yard on Range Road, so an increase in used oil generation at the HERD complex is not anticipated to have negative impacts on the environment. Additionally, used oil and solvent storage bins will also be recycled through the used oil facility, thereby eliminating these storage containers from the solid waste stream of the HERD complex.

Universal wastes at the HERD complex are anticipated to increase following future facilities expansion, particularly from the expansion of office facilities and explosives operating buildings. Universal wastes generated at the HERD complex will continue to be processed as recyclable hazardous waste through Eglin AFB local policy *AACI 32-7003*. Although generation of universal waste is likely to increase under expansion of HERD facilities, no negative impacts are anticipated to the environment through the Eglin AFB universal waste handling and recycling policies and practices.

It is anticipated that these mitigation measures will be adequate to address hazardous material and hazardous waste management issues under the Preferred Action Alternative. Adverse impacts are therefore not anticipated.

4.6.2 Alternative 1

It is assumed that the mitigation measures discussed above for the preferred alternative would be implemented under Alternative 1 as well. Therefore, adverse impacts from hazardous materials are not anticipated under Alternative 1.

4.6.3 No Action Alternative

The HERD Facility currently has procedures in place for the handling of hazardous materials and disposal of hazardous wastes, and generation of pollutant emissions occurs in accordance with an OB/OD permit. No change to current procedures or permits would occur with the No Action Alternative. Therefore, under the No Action Alternative, no additional/new adverse impacts to the local hazardous waste stream are anticipated.

4.7 Solid Waste

4.7.1 Proposed (Preferred) Action

Construction activities related to the site area expansion and renovation and construction of buildings at the HERD complex will generate substantial amounts of solid waste such as construction debris, land clearing debris, and soil. These waste streams would be segregated at generation for recycling or disposal at a secure, permitted facility in accordance with *AAC Plan 32-7, Solid Waste Management*. Numerous Class III landfills exist in the region of Eglin AFB with available capacities of 18 to 30 years (*BRAC*, 2008). In order to mitigate impacts of solid waste generated during future construction at the HERD complex, the AF should prohibit all recyclable waste from C&D activities from being landfilled. Contractors performing C&D should segregate recyclable wastes (i.e. copper piping,

asphalt, fluorescent lights, ballasts, concrete, lumber, plastics, ceiling tiles, all scrap metal, etc.). Construction contractors will need to provide separate containers for solid wastes, recyclables, and C&D debris generated directly and indirectly by construction.

It is anticipated that land clearing debris (trees, root wads, etc) may be used to provide additional support structures for the installation of berms used as fragment protection throughout the HERD complex. Previously cleared trees have been used in the past at HERD as base material for berms, which are covered with sand and vegetated to provide stable earthen walls. This waste-reduction measure may be useful in limiting additional debris generated by construction.

Petroleum products and other hazardous materials (e.g., paints and solvents) will be required during construction/renovation activities. These materials will need to be stored in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous waste will be reported and resolved according to the Eglin AFB Facility Response Plan (USAF, 2009a) and the Hazardous Waste Management Plan (USAF, 2010c). Should any excess hazardous materials related to construction/renovation activities require disposal, they will be disposed of according to applicable federal, state and local laws and regulations.

During demolition and/or renovation activities at the HERD facility, ACM may be encountered. Removal and disposal of ACM will be carried out in strict compliance with all applicable federal, state, and local laws, rules, regulations, and standards, and in accordance with Eglin AFB's Asbestos Management Plan (USAF, 2010a).

LBP may also be encountered during demolition and/or renovation activities at the HERD facility. Removal and disposal of LBP materials will be carried out in strict compliance with all applicable federal, state and local laws, rules, regulations and standards, and in accordance with Eglin AFB's LBP Management Plan (USAF 2010d).

One ERP site, a tetrachloroethylene spill, is located at the HERD facility, in the vicinity of Building 1197. Planned construction activities may occur in this area with prior coordination with Eglin AFB Environmental Management and Restoration branch. If construction activities are planned in the area of the ERP site, the activities should be conducted to minimize disturbance of potentially contaminated soil and groundwater. Health and safety of construction personnel should be considered and precautions should be taken not to spread contamination. Regardless, should any unusual odor, soil, or groundwater coloring be encountered during development activities in any areas, construction should cease and Environmental Management and Restoration should be contacted immediately.

If all of the mitigation measures described above are followed and implemented it is anticipated that only minor adverse impacts associated with C&D activities would occur.

The long-term increase in personnel and structural facilities at HERD could potentially result in an increase of 2-4 times the amount of solid waste generated at HERD over the long-term due to an increased number of personnel and operations. Mitigating impacts of solid waste generation with future expansion should focus on expanded recycling programs and increased solid waste collection points within the complex. A majority of future HERD personnel will have offices in the southern end of the complex, which should have an increased density of recycling and solid waste collection points to handle increased waste generation. Increased education and training of employees on the Base Recycling Program should also help to minimize source reduction of solid waste through increased recycling. Long-term environmental impacts associated with the increase in solid waste generation at HERD are expected to be minor.

4.7.2 Alternative 1

Solid waste impacts under the alternative action scenario are expected to be similar to those described above for the Preferred Alternative with the exception that slightly more land clearing would occur which would result in more stumps, soil, and forest debris that would need to be disposed of.

4.7.3 No Action Alternative

Under the No Action Alternative, no adverse impacts to the local solid waste stream are anticipated.

4.8 Noise and Vibration

4.8.1 Proposed (Preferred) Action

The US Department of Transportation's *Standard Land Use Coding Manual* designation for the land at the HERD site is "Chemicals and Allied Products; Manufacturing" (SLUCM Code 28). The land use and related structures are generally compatible with this use with the following restrictions: portions of the site within the 75-79 dB and the 80+ dB noise zones are required to implement measures to receive the same noise level reductions as for facilities in DNL/CNEL 70 – 74 and 75-79 dB range, respectively, for buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low (USAF, 1999). The proponent would be required to construct facilities in the affected areas with proper noise abatement in accordance with the Air Force noise guidelines published in *AFH 32-7084, AICUZ Program Managers Guide*.

Worker exposure to vehicular and aircraft noise will not be significantly reduced by the proposed HERD upgrade and expansion as nearly all of the new construction will occur within the same noise contour as current buildings. Any potential changes in noise from controlled explosions originating at the HERD complex will be mitigated by incorporating noise attenuation measures in building design in accordance with the AF noise guidelines published at *DoDI 4165.57, Air Installation Compatible Use Zones*. One design element that will be incorporated to reduce vibration impacts at HERD is for several operating and storage buildings to be built as "underground" buildings, with earthen walls surrounding the concrete exterior to combat excess vibration from the JSF.

The only environmental impact caused by the proposed HERD upgrade and expansion due to noise could be caused by temporary construction noise. This short-term minor adverse effects due to construction projects include clearing, grading, paving, and building construction activities. Predicted noise levels that may occur as a result of operation of different types of construction equipment is presented in Table 4-1. Construction noise is temporary, lasting only for the duration of the construction project, and is typically limited to normal working hours (7:00 AM to 5:00 PM).

Table 4-1. Predicted Noise Levels for Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)
Clearing and Grading	
Bulldozer	80
Grader	80-93
Truck	83-94
Roller	73-75
Excavation	
Backhoe	72-93
Jackhammer	81-98
Building Construction	
Concrete Mixer	74-88
Welding Generator	71-82
Pile Driver	91-105
Crane	95-87
Paver	86-88

Because the closest residential community is more than 5000 feet away from the HERD complex, the construction noise is not expected to impact residents.

Operators of construction equipment typically wear ear protection when operating machinery. However, because the JSF aircraft will produce significantly louder noise than construction equipment, the temporary construction equipment operators will need to increase their ear protection based on the aircraft noise.

4.8.2 Alternative 1

Noise and vibration impacts under the alternative action scenario are expected to be similar to those described above for the Preferred Alternative.

4.8.3 No Action Alternative

Under the No Action Alternative, no adverse impacts to noise and vibration are anticipated. Noise and vibration impacts from operations of the Joint Strike Fighter would dominate the noise environment.

4.9 Human Health and Safety

4.9.1 Proposed (Preferred) Action

Activities conducted by staff at Eglin AFB AFRL HERD complex are performed in accordance with applicable AF safety regulations, published AF technical orders, and standards prescribed by AFOSH

requirements. Researchers receive special training in safe operation of the equipment, chemicals, explosives, and mixtures that are used at AFRL HERD.

The new AE storage magazines to be built at the AFRL HERD complex will be designed and constructed to comply with the DoD and AFM standards. The earth covered magazines will be designed to protect their contents and prevent propagation of an explosion that may occur in an adjacent magazine. Proper siting of an earth covered magazine, from other potential explosion sites and exposed sites ensures against unacceptable damage and injuries in the event of an accidental explosion.

The research buildings within the AFRL HERD complex will also be designed to meet all DoD and AF safety standards for explosives research facilities. Because of the new novel compounds that are likely to be used in the research the research buildings will include additional safety features. It is expected that the research buildings will be self contained with internal air and water collection and treatment systems for complete capture of ultra-fine particles and other compounds, in addition to decontamination equipment.

An added security measure, mostly imposed as a safety precaution, will be the perimeter fencing around the AFRL HERD compound. This will include a 30 foot cleared swath outside the fence which will provide an additional space buffer should there be any kind of explosion.

Emergency response units are available on Eglin to respond to incidents at the AFRL HERD complex. It is not anticipated that any new or additional emergency response equipment or personnel will be required to support the expanded research program at the compound.

It is anticipated that these mitigation measures will be adequate to address human health and safety issues under the Preferred Action Alternative. Adverse impacts are therefore not anticipated.

4.9.2 Alternative 1

It is assumed that the mitigation measures discussed above for the preferred alternative would be implemented under Alternative 1 as well. Therefore, adverse impacts to health and safety are not anticipated under Alternative 1.

4.9.3 No Action Alternative

Under the No Action Alternative, no adverse impacts to human health and safety are anticipated.

4.10 Utilities

Modification and expansion of utilities at the AFRL HERD complex include expanded electricity, natural gas, central utilities, communications network, and sewer/wastewater services to areas of expansion where future buildings have been identified for construction. In order to supply utilities to these areas many existing utility supply lines within the HERD complex will need to expand to serve outlying areas of expansion where no utility lines are currently present. Based on existing utility services within the

HERD complex and proposed building improvements no major modifications to supplies in the existing complex have been identified, with the exception of areas where buildings will be expanded or constructed in undeveloped portions of the HERD complex. Additionally, utilities supplied by Eglin AFB will likely not require upgrades to utility infrastructure supply lines to continue to supply the HERD complex following expansion, such that utility upgrades for this EA only address utilities infrastructure within the HERD expansion project area. Design, implementation and operation would need to be completed in accordance with *FAC 62-604 (Collection Systems and Transmission Facilities)*.

Expansion of the HERD Communications Network

Existing communications at the HERD complex are provided by Eglin AFB. The expansion of HERD buildings and operations incorporates the design and construction of a communications network within one of the non-hazardous operating buildings to be constructed on the southern end of the HERD complex. Communications infrastructure provided by this expansion includes the installation of remote telephone switching capabilities and an intelligent transportation network hub. This installation is intended to provide central communications infrastructure necessary to support the expansion (including present and anticipated new construction) of the HERD complex.

Because of the unique communications equipment housed at this complex standby electrical power will be required. The communications center will also provide a separate area for the establishment of a HERD Complex Research Network that will be completely separated from the Eglin network. This will facilitate remote (from office) communication with research equipment and computing involving specialized software not authorized on computers that are connected to the Eglin network. The communications center will also include a mechanical room, electrical room, and communications room suitable to support the complete non-hazardous building that will be combined with it, as a single building, in the future.

Expansion of Electrical Utilities

Modification and expansion of utilities at the AFRL HERD complex include expanded electrical utilities to new and expanded buildings in the HERD complex. Because much of the new construction will occur on the northwestern side of the existing compound electrical utilities will likely expand from both the northern dynamics laboratory (Building 991) as well as the central portions of the HERD complex which have existing electrical services. Electrical cable during the expansion may be installed using above ground utility poles or with underground cable as needed for design standards under future HERD facilities operations. Expansion of electrical utilities will not extend beyond portions of the complex with new building construction, so no adverse impacts are expected with expanded electrical services.

Expansion of Natural Gas Utilities

Expansion of natural gas supply lines are not anticipated to occur to much of the project area due to anticipated building operations. Several of the primary research facilities, including the Advanced Energetic Research Laboratory, the Basic Energetics Research Laboratory, and the Energetic Damage Mechanisms Research Center will likely require installation of natural gas lines for ongoing research operations. These facilities are primarily located in the south and central portions of the existing HERD

compound, and are therefore not anticipated to require additional supply capacity from Eglin AFB or extensive supply line expansions constructed within the existing HERD compound.

Expansion of Central Utilities

The expansion of the central utilities building (1197) is also being performed to allow for the installation of new cooling towers, boilers, chillers, and pumps that will serve the future HERD complex facilities. Future design of central utilities supply lines, which primarily carry chilled water, steam, hot water, and condensate to and from the central utilities building, will be designed with a dedicated north and south loop of supply lines to provide for building expansion occurring both south and north-northwest of the existing HERD compound. Expansion of these central utilities supply lines will primarily utilize above ground installation to allow for easier access and maintenance of equipment. Repairs and additional maintenance to existing utility supply lines have also been identified during the HERD expansion, primarily in an effort to minimize leaks and improve conservation of energy and water.

The expansion of utilities under the HERD complex long term plan will impact the project area through the expansion of the central utilities building and construction/installation of new supply lines. While these operations will impact the natural environment within the project area, no additional land area from the currently identified areas of expansion will be impacted through the construction of utilities supply lines or central utilities expansion. Although the demand for and consumption of energy and water will increase following expansion of the HERD complex, upgrades to central utilities infrastructure and supply lines will allow for increased energy savings and efficiency during future operations.

Expansion and Upgrades to HERD HVAC Systems

Upgrades to the central utilities plant, including the installation of new boilers, chillers, and pumps, are intended to provide expanded utilities service to areas which are currently undeveloped. The expansion of these services will allow for future upgrades to HVAC systems in new and existing buildings within the HERD, allowing for reduced reliance of some buildings on separate air conditioning units with a switch to chilled water and steam provided by the central utilities building. The additional capabilities of the new boilers and chillers is anticipated to meet and exceed all operating requirements under the proposed expansion, including expanded HVAC services for a majority of the existing and future HERD buildings.

Expansion of Sewer and Wastewater Utilities

Sewer and wastewater utilities currently extend only as far north as the x-ray building (Building 1239), meaning future expansion of sewer and wastewater utility lines will need to occur to accommodate future building construction. Because of elevation changes in the north and western portions of the HERD complex project area, additional sanitary sewer lift stations may be required to provide adequate flow and transport of waste through sanitary sewer lines. Several buildings which will have lower levels built under the existing ground surface for noise protection, specifically the basic energetic research laboratory, may also require installation of lift stations at strategic locations within the complex to continue to provide sanitary sewer to all operating buildings. The expansion of sewer and wastewater services in the HERD complex will allow all buildings to be served by sanitary sewer systems, eliminating the need for

septic systems serving individual facilities, thereby reducing maintenance, environmental impacts, and cost to the HERD complex under the proposed expansion.

4.10.1 Proposed (Preferred) Action

Energy management and infrastructure improvements to HERD complex utilities are necessary to ensure the capability of HERD facilities to meet future operational requirements. Expansion of the HERD complex will increase demand and consumption of energy and water over the next several years. Implementation of project components will improve AFRL HERD energy management and utility infrastructure in order to increase energy conservation, reliability, and efficiency. The primary components of utility improvements under the proposed action are energy conservation, physical infrastructure improvements, and energy management. Expansion of HERD facilities under the Proposed Action will create additional demand for utility services to a greater number of buildings constructed within a larger area than is currently being served at the HERD complex. Additionally, future changes to HERD operations may place additional demand on energy and water resources to meet AFRL goals and objectives.

The following water conservation and protection measures may be required in order to comply with Safe Drinking Water Act regulations, Eglin AFB Policy on New Irrigation, Consumptive Use Permit conditions, and Northwest Florida Water Management well construction requirements.

Safe Drinking Water Act Regulations:

- An FDEP form 62-555.900(1) *Application for a Specific Permit to Construct PWS Components* is required if the project calls to relocate a fire hydrant which would be the alteration of any Public Water System component.
- An FDEP form 62-555.900(9) *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation* is required to place the system back into operation once the hydrant has been relocated.
- The project shall meet the requirements found in *FAC 62-555*. NOTE: The permit to construct application and the request for clearance (with water sample analysis) should be submitted to 96 CEG/CEVCE for execution to FDEP. Water will not be turned on to facility personnel for drinking or dermal use until written approval from FDEP has been received by 96 CEG/CEVCE.
- The backflow prevention devices in new facility mechanical rooms that protect the water source against installed equipment should be installed between 24 and 36-inches above the floor level. Additionally, they should be located in a position for easy access to accommodate CE water operators with regard to future maintenance and inspections as required under the *Safe Drinking Water Act*.
- The backflow prevention device that services the buildings water supply line should be located outside in a position for easy access and installed between 24 and 36 inches above grades. Additionally, the backflow device must be protected against freezing temperatures by the use of a fiberglass or metal hot box enclosure.

Eglin AFB Policy Letter:

- Policy on Sprinkler and Irrigation Systems, f.(a) states “No further use of the Floridan Aquifer.” **This means that the new landscape irrigation cannot be connected to potable water.**

Consumptive Use Permit Conditions (NO. 20050014):

- Xeriscaping shall be used. A summary of the xeriscaping techniques to be used should be provided to 96 CEG/CEVCE.

NWFWMD:

- Any irrigation wells and/or potable water wells should be installed by a Florida Licensed Well Drilling Contractor. The State of Florida Application to Construct, Repair, Modify, or Abandon a Well should be filled out completely, signed by the well contractor, and submitted to 96 CEG/CEVCE, for execution to the District. The well completion report should be handled the same way.

Hydrants:

- If any contractors need to hook up to a fire hydrant for water use during construction, the contractor is responsible for installing a back flow prevention device and for installing a flow meter to record the amount of water used on the project. The QA for the project is responsible for taking the initial reading of the flow meter and the last reading at the end of the project. This data should be turned over to 96 CEG/CEVCE.

Adverse impacts to local or Base utility services are not anticipated as a result of the proposed action.

4.10.2 Alternative 1

With implementation of the same mitigation measures described above for the Preferred Alternative, no adverse impacts are expected to utilities as a result of implementation of this Alternative Action.

4.10.3 No Action Alternative

Under the No Action Alternative, no adverse impacts to utilities are anticipated. However, the inefficient central utilities and HVAC system will not be upgraded and will continue their inefficient and highly consumptive operations.

4.11 Stormwater

Future expansion of the HERD complex will result in an expansion of impervious surfaces in the form of new buildings and roadways, resulting in increased runoff generation and additional demand for stormwater controls. It is anticipated that the space between the northernmost set of buildings from the expansion would remain “as is” (i.e. natural pine flatwoods). The sites for the buildings to the south would likely be cleared and maintained as cleared land, similar to that which is found in the existing HERD complex. A security fence will be erected around the expanded perimeter and a 30 foot swath will be cleared around the fence for security purposes.

Both on-site and off-site erosion control measures are being designed as part of the expansion. Existing infrastructure would be updated as part of the expansion, including the stormwater management system. New stormwater retention ponds will be constructed as part of the proposed action. Stormwater reuse may occur depending upon infiltration rates. The stored stormwater will be used primarily to establish and maintain vegetation on berms and side slopes for erosion control. The design, construction, and operation of this infrastructure would be done in accordance with the requirements of the state’s ERPs and National Pollutant Discharge Elimination Systems permits (*FAC 62-346* and *62-621* respectively).

The Draft HERD Stormwater Assessment and associated Appendices provide a detailed hydrologic analysis and sustainable stormwater plan for the HERD Complex (AFRL, 2009a) (AFRL, 2009b).

4.11.1 Proposed (Preferred) Action

Under the proposed action alternative, implementation of upgrades and expansion of existing HERD complex stormwater infrastructure will focus on separate control measures addressing stormwater quantity, conveyance, and water quality. By implementing these controls through retrofits and improvements to the existing stormwater conveyance network as well as through future expansion from new construction, the HERD complex may more effectively meet its goal of protecting the natural environment while reducing operating costs associated with maintaining the existing landscape and stormwater infrastructure.

In the short term, temporary stormwater controls would need to be implemented during the construction phase of the project. Clearing and grading operations reduce infiltration and can therefore increase runoff and erosion. Where possible, areas should be left in their natural condition until developed as part of the expansion.

In the long term under the preferred alternative, upgrades and expansion of existing structural stormwater controls in addition to non-structural controls such as inspections and maintenance should control the increased stormwater volume resulting from the expansion and reduce the pollutant concentration, specifically suspended solids, of stormwater runoff. The large dry detention areas that will become part of the finished grade will also minimize stormwater runoff, providing another measure of protection for Tom's Creek and its tributaries.

4.11.2 Alternative 1

Impacts to stormwater under Alternative 1 option would be similar to those described above for the Proposed (Preferred) Action.

4.11.3 No Action Alternative

Under the No Action Alternative, increased stormwater runoff will overwhelm the existing stormwater conveyance system which is inadequate for current demands and is not designed to handle the increased stormwater volumes. The increased stormwater runoff will also enhance erosion which will continue to reduce the capacity of the stormwater conveyance system. The anticipated result is increased flooding and unintended ponding.

4.12 Natural Resources

4.12.1 Geology

4.12.1.1 Proposed (Preferred) Action

The research facilities where test explosions occur are built to withstand the force of the small-scale test detonations. These explosions are not at a scale where geologic resources would be impacted. Because

bedrock is so deep in the area (~ 400 feet), it is not anticipated that any impacts to the geologic resources will occur if the preferred alternative is implemented.

4.12.1.2 Alternative 1

Because bedrock is so deep in the area (~ 400 feet), it is not anticipated that any impacts to the geologic resources will occur if the alternative action is implemented.

4.12.1.3 No Action Alternative

Because bedrock is so deep in the area (~ 400 feet), it is not anticipated that any impacts to the geologic resources will occur if no action is taken at the site.

4.12.2 Soils

4.12.2.1 Proposed (Preferred) Action

Although the high permeability of the Lakeland sand will limit the quantity of potential surface runoff, the lack of cohesiveness of the sand does provide the potential of erosion in large rain events, especially in those areas with steeper slopes. Physiographic features will be subject to limited impacts during the construction at the HERD compound, due to the disturbance of the land associated with such activities, and result in some increase in sediments into stormwater drainage systems north and east of the construction site. Potential impacts to the surface environment include erosion, sedimentation, relocation of soils, and potential loss of mineral resources. Tom's Creek, a darter stream, is not at risk for sedimentation due to the distance from the construction site and the undeveloped woodlands that separate the creek from the construction site (Energetics 2003).

Construction will require the use of heavy equipment, which may disturb vegetative cover, topsoil and shallow subsoils. If soils become exposed during construction activities, engineering controls will be implemented to prevent erosion and sedimentation. In order to minimize the potential for erosion of soils, AFRL/RWME in coordination with 96 CEG/CEVCE will prepare a designed sedimentation and erosion control program as part of a *Stormwater Pollution Prevention Plan (SWPPP)* for the construction at the HERD compound. Exposed soils will be protected during construction by implementing appropriate BMPa, which are typically used for construction projects at Eglin, to reduce the risk of sediments migrating due to both precipitation and wind. Some examples of BMPa are barriers (such as silt fences or hay bales) at the perimeter of the construction site to prevent sediments from being transported offsite. The implementation of these control measures and any others specified in the *SWPPP*, are expected to minimize erosion and sedimentation during construction activities. Implementation of the *SWPPP* will minimize the minor impacts that may occur to landform and geology during construction.

4.12.2.2 Alternative 1

Impacts to soil under this alternative scenario are expected to be similar to those discussed above for the preferred alternative. One minor difference is that the larger footprint will require that additional land be cleared, which will cause more disturbance to surface soils.

4.12.2.3 No Action Alternative

Under the no action alternative there will be no new impacts expected on site soils. Erosion problems will continue to result in loss of soils from the site which could be considered a long-term minor negative impact.

4.12.3 Water Quality and Wetlands

4.12.3.1 Proposed (Preferred) Action

With the exception of the Tom's Creek system, there are no surface water bodies within the project area, and no impacts to surface waters are anticipated under the proposed expansion. Field observations by MACTEC personnel found no wetlands present for the HERD complex outside of areas immediately bordering Tom's Creek to the north. The tributaries and Tom's Creek appeared undisturbed and are surrounded by native vegetation. With the exception of the Tom's Creek system, there are no wetlands within the project area, and no impacts to wetlands are anticipated under the proposed expansion. Impacts to surface water and wetlands caused by soil erosion can be avoided under the proposed expansion with the proper design and use of BMPs.

Because of the rate of infiltration from highly permeable sands in the HERD complex, stormwater ponds intended to serve as wet retention for stormwater reuse will need to be lined with either a low hydraulic conductivity clay layer or high-density polyethylene synthetic liner to reduce water losses from infiltration to groundwater.

If an uncontrolled release of hazardous material occurred at this facility, the potential exists for this material to be carried via run-off toward Tom's Creek and its unnamed tributary. Proper controls to contain such spills will mitigate for this contingency.

Under normal operations, adverse impacts to surface waters, groundwater, and wetlands are not anticipated as a result of implementation of the preferred alternative. Long-term improvement in water quality in Tom's Creek and its unnamed tributary may occur with improvements in the stormwater management system at the existing HERD complex.

4.12.3.2 Alternative 1

Adverse impacts to surface waters, groundwater, and wetlands are not anticipated as result of implementation of Alternative 1, for the same reasons described above for the preferred action.

4.12.3.3 No Action Alternative

Under the No Action Alternative, no new adverse impacts to water quality and wetlands are anticipated.

4.13 Biological Resources

4.13.1 Wildlife

4.13.1.1 Proposed (Preferred) Action

Moderate short- and long-term adverse effects would be expected on wildlife species presently inhabiting the proposed site. Most of the species inhabiting or expected to inhabit the proposed expansion area are mobile generalist species that can survive within wide ranges of food and habitats, and/or are migratory and would use the site seasonally. In the short-term, it is anticipated that most wildlife species would avoid the disturbance during construction activities, and relocate to similar habitat adjacent to the affected area. A phased construction schedule, which is anticipated to be the case at this compound, would provide some relief to resident wildlife that need to relocate. Forest clearing should occur outside of the nesting and migration seasons of bird species that may utilize the on-site forestlands. Additionally, some wildlife species adapted to urban development and noise levels associated with the AFRL HERD complex would be expected to return to the area after the proposed expansion.

The Proposed Action would potentially impact migratory bird habitat and has the potential to cause adverse impacts to the resource. To avoid impacts to migratory birds, land clearing should occur on or after September 1 through March 15 to avoid the nesting season. The Migratory Bird Treaty Act does not contain any prohibition that applies to the destruction of a migratory bird nest alone (without birds or eggs), provided that no possession occurs during the destruction (USFWS, 2005). If clearing occurs before September 1, care would be taken to leave snags in place. If snags need to be removed for construction purposes, they may be removed after September 1. Coordination with 96 CEG/CEVSN is required prior to project initiation to ensure compliance with the Migratory Bird Treaty Act.

Direct adverse effects could occur to smaller, less-mobile species on the site as a result of mortality associated with collisions with construction equipment. The implementation of construction BMPs related to wildlife encounters (i.e. temporarily stop construction activities when wildlife is encountered) would allow less-mobile species to avoid adverse effects from construction equipment. Additional mitigation measures could include providing educational materials and briefing construction personnel on the potential species that might be encountered in the proposed expansion area and ways to minimize damaging encounters.

4.13.1.2 Alternative 1

Impacts and mitigation measures under Alternative 1 would be the same as those discussed above for the Preferred Alternative.

4.13.1.3 No Action Alternative

Under the No Action Alternative, no new adverse impacts to wildlife are anticipated.

4.13.2 Vegetation

4.13.2.1 Proposed (Preferred) Action

Construction of the proposed expansion of the HERD complex would have both direct short-term and long-term adverse effects on approximately 44 acres of undeveloped, natural vegetation currently present in the proposed expansion area. The proposed expansion of the HERD complex includes the construction of several buildings in this natural area which will require clearing and grading for each building. Consideration should be given to retaining the natural vegetation surrounding each building (and within the corresponding blast zone) to the extent practical with respect to the mission goal, to minimize the loss of vegetation (and habitat).

For the vegetation that is remaining, there is the potential for long-term indirect minor adverse effects on adjacent vegetation resulting from impacts with construction equipment and/or root damage. This potential impact can be alleviated with the implementation of BMPs, such as identifying and clearly marking trees, or vegetation areas to retain, and by installing temporary fences around trees (including the root zone) and around vegetation areas to be preserved. Depending upon the timing of the proposed expansion, native seeds (particularly of herbaceous plant material) could be collected prior to construction and used for re-vegetation in areas after construction is completed.

Disturbance to soil and vegetation from land clearing and construction could enhance conditions for the establishment and spread of invasive nonnative plant species. Based on incidental observation, only one non-native species is present within the proposed expansion area for the HERD complex, *Lygopodium* sp. To address concern regarding the potential spread of non-native species, prior to construction (and perhaps concurrent with a gopher tortoise survey), a more detailed survey for non-native species could be conducted. The location of non-native species could be marked in the field with a handheld GPS unit and the treatment of the known invasive, non-native species could be addressed prior to ground disturbance.

Additionally, during the construction phase of the proposed expansion, construction equipment (and other vehicles) should be regularly inspected for the presence of soil or seed material, to avoid the introduction of undesirable plant species to the proposed expansion area.

In accordance with Presidential Memorandum dated 26 April 1994, *Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds*, and Executive Order 13112, regional natives would be utilized for landscaping, which would limit the introduction of nonnative species created by landscaping.

Clearing 44 acres of sandhill community vegetation will be a minor adverse impact on overall vegetation at Eglin AFB since more than 362,000 acres of this community occur elsewhere on Eglin.

4.13.2.2 Alternative 1

Impacts and mitigation measures under Alternative 1 would be the same as those discussed above for the Preferred Alternative.

4.13.2.3 No Action Alternative

Under the No Action Alternative, no new adverse impacts to vegetation are anticipated.

4.13.3 Threatened and Endangered Species

4.13.3.1 Proposed (Preferred) Action

The proposed expansion area of the AFRL HERD compound is bounded to the west by an unnamed tributary and to the north by Tom's Creek; both are recognized Okaloosa darter habitat. The proposed HERD complex expansion will involve the construction of perimeter fencing, and the clearing of a 30 foot swath on the downhill slope outside the proposed fence. Under the proposed action, there is a minor risk of habitat impact caused by sedimentation into the unnamed tributary which bounds the west side of the subject site. The existing perimeter fencing is used by people on ATVs which has created numerous areas of erosion along the fenceline. Under the existing conditions, this is not an issue for the Okaloosa darter habitat, as the existing perimeter fence is never closer than 375 feet from the unnamed tributary (Okaloosa darter habitat), and a natural forested community is located between the existing perimeter fence and the unnamed tributary. Under the proposed action, the perimeter fence would potentially be 175 feet from the Okaloosa darter habitat (western boundary of the project site). Under most circumstances this set-back should be adequate to protect the stream from unintended adverse impacts. However, over-use by ATV vehicles conducting perimeter security patrols could cause unintended water quality impacts to the darter streams. Posting the stream buffer against off-trail travel by ATVs could minimize this potential problem. Proper placement of the proposed perimeter fence, construction of erosion control features, and vigilant monitoring of the proposed perimeter fence and its cleared buffer strip should prevent impacts to this protected species and its habitat.

The gopher tortoise is a state listed threatened species. Active gopher tortoise burrows are known to be currently distributed in upland areas of the land that will be cleared for the preferred alternative. In order to fully assess the size of the gopher tortoise population within the project area, and prior to any construction activities, a gopher tortoise survey of the project area will need to be conducted in accordance with FWC guidelines, preferably during the warmer months of the year. The gopher tortoise is inactive during the winter months and it is often difficult to determine if a gopher tortoise burrow is active, inactive, or abandoned, during the winter months. The *INRMP* (SAIC, 2007) indicates there are currently plans in place for surveying and monitoring the gopher tortoise population on Eglin, including use of a burrow camera in order to obtain more information on over-wintering indigo snakes. To the extent practical, the proposed HERD complex expansion should avoid impacts to the gopher tortoise. In the event the proposed action cannot avoid impacts to gopher tortoises, application for an on-site relocation permit should be made, and the permit obtained prior to construction. The gopher tortoise can be relocated, and silt fencing placed to prevent the tortoise(s) from returning to the original gopher tortoise burrow.

The Eastern indigo snake (*Drymarchon corais couperi*) was listed as a federally threatened species in 1979. The management and recovery of the Eastern indigo snake is closely linked to the gopher tortoise, and management activities that benefit gopher tortoises will likely benefit the indigo snake. Indigo snakes

have been documented at 17 sites across the Eglin reservation. These observations are only incidental sightings and do not correspond to the range on Eglin AFB (SAIC, 2007). The indigo snake utilizes sandhills during the winter months and frequently utilizes gopher tortoise burrows and the burrows of others species for over-wintering. Riparian areas are frequently utilized in the summer. Prior to initiating any new construction activity, the habitat in and around the HERD compound should be surveyed, including use of a burrow camera in order to obtain more information on over-wintering indigo snakes. If indigo snakes are found to be present at AFRL HERD, a consultation with the USFWS will be required. In any case, a Section 7 consultation should be done for the Okaloosa darter, the indigo snake, as well as state listed species such as the gopher tortoise and Florida black bear.

Once the proposed construction activity is completed at the AFRL HERD complex, an educational program regarding the protected status of the indigo snake and gopher tortoise, recognition of them and their burrows should be developed to educate HERD complex staff and visitors. As the project site is developed, there is the potential for creation of new habitat areas for the gopher tortoise as heavily forested areas are cleared for buildings and habitat “edges” are created that may be preferred by the gopher tortoise, which may increase the gopher tortoise-human interface. The gopher tortoise will inhabit areas near the presence of humans if the habitat is desirable, so in the case of the HERD complex, an education program is important for the continued protection of the gopher tortoise.

According to *FAC Rule Chapter 5B-40.005*, the state listed Arkansas oak (*Quercus arkansana*), which is present in the forest area that will be cleared for the expansion of the HERD complex, can be harvested if the land owner is in agreement with the harvest (Personal Communication from Tyson Emery, Florida Dept. Agriculture and Consumer Service, Feb. 2, 2009). Therefore, the contractors and other parties involved in land clearing activities associated with the HERD expansion will need written permission from the AF for the harvest. Scott Hassell, 96 CEV/CEVSNF, (850) 883-1126, should be contacted before tree clearing occurs as trees may be merchantable.

4.13.3.2 Alternative 1

Under this alternative layout, the perimeter fence would get to within 60 feet of the darter stream; and with the additional 30 foot cleared security strip outside the fence, there would only be a 30 foot buffer remaining between the project boundary and the stream bank. It is likely that an *ESA* Section 7 consultation will be needed and would likely require additional stream protection measures should this alternative be implemented.

Under this alternative, impacts to gopher tortoises and indigo snakes are expected to be similar to those discussed above for the Preferred Alternative.

4.13.3.3 No Action Alternative

Under the No Action Alternative, no new adverse impacts to listed species are anticipated.

4.13.4 Sensitive Habitats

4.13.4.1 Proposed (Preferred) Action

Eglin's contribution to habitat conservation is evident in its extraordinary biodiversity and the exemplary quality of its many remnant natural communities. While the greater part of the installation is globally significant due to its biodiversity, specific areas exist that are unique due to their high quality examples of natural communities or presence of rare species. These HQNC areas were identified by the FNAI and are distinguished by the uniqueness of the community, ecological condition, species diversity, and presence of rare species. These high quality areas total 75,266 acres and cover approximately 16 percent of the installation.

HQNC are essential for long-term ecological research and as reference conditions for restoration actions on the base. Therefore, these areas and communities are specifically accounted for in any proposed management activity. The focus of management in these areas is the maintenance of natural processes, such as the fire regime, and abatement of specific threats, such as invasive species (e.g. sand pine and cogon grass). The ecological qualities of these areas require that management be carried out with a higher level of scrutiny, especially with regard to the high quality herbaceous ground cover and high density of rare species.

Eglin's natural resource management staff has developed general management and restoration guidelines and an internal process to review management actions that need a multi-disciplinary assessment. The AFRL HERD complex includes one area considered a High Quality Natural Environment, a scrub ecosystem located in the southwestern area of the site. Under the expansion being considered under the preferred alternative, 3.1 acres of this designated high quality scrub habitat will be adversely impacted by the placement of the perimeter fence and its associated 30-foot wide buffer. However, the small acreage that will be lost as a result of this action is only a fraction of a percentage of the total HQNC that exists on Eglin. Therefore, overall adverse impacts to HQNCs at the base are expected to be minor.

4.13.4.2 Alternative 1

Adverse impacts to HQNC are expected to occur at a level similar to that described above for the Preferred Alternative, in that the perimeter fence would likely cut through 3.1 acres of this sensitive habitat under the alternative layout as well.

4.13.4.3 No Action Alternative

Under the No Action Alternative, no new adverse impacts to sensitive habitats are anticipated.

4.14 Socioeconomics

4.14.1 Proposed (Preferred) Action

The proposed action will result in the creation of new family wage jobs once the facility expansion is completed, perhaps as many as 200 once full build-out is completed. In the interim, a much greater

number of construction jobs would be created. The estimated cost of the new and expanded facilities is expected to be millions of dollars, much of which would likely end up in the local economy.

Under the current conditions, the area outside the perimeter fence is accessible to the general base population and currently is used as a bow hunting area. With the proposed expansion, which will cause the perimeter fence to be moved significantly closer to the Tom's Creek system, consideration should be given to prohibiting access to the general base population from this area. This would result in fewer acres being accessible for these recreational uses. However, other lands are available elsewhere on the Base for people wishing to bow hunt, so no long-term adverse impact to recreation opportunities on the Base is anticipated.

4.14.2 Alternative 1

Positive impacts to the local economy are anticipated with this alternative scenario, similar to those described above for the preferred alternative.

4.14.3 No Action Alternative

Under the No Action Alternative, no impacts to socioeconomics are anticipated.

5.0 Cumulative Impacts and Irreversible and Irreversible and Irretrievable Commitment of Resources

According to CEQ regulations, cumulative impact analysis in an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7).

40 CFR 1508.7 defines impacts or effects as:

- (a) Direct effects, which are caused by the action and occur at the same time and place.
- (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

5.1 Past and Present Actions

The Air Force has not identified any other past or present actions that are relevant to the current proposed Action. The Air Force is currently implementing the *Eglin AFB 2005 BRAC* decision.

5.2 Reasonably Foreseeable Future Actions

An *EIS* has been completed for the 2005 *BRAC* decision to establish the JSF Integrated Training Center (ITC) at Eglin AFB, which would establish an IJTS for joint Air Force, Navy, and Marine Corps JSF training organizations to teach aviators and maintenance technicians how to properly operate and maintain this new weapons system. As part of the plan 200 instructors are relocating to Eglin AFB. The 7th Special Forces Group (Airborne) (7SFG[A]) is currently relocating from Fort Bragg, North Carolina to Eglin AFB. Most of the aspects of the 7SFG(A) beddown are underway, and others, like training, will be implemented in the reasonable foreseeable future. Potential impacts from these programs due to changing mission and additional personnel may include noise, air quality, munitions storage concerns, transportation, and utilities concerns, among others. The 7SFG(A) cantonment and training areas would not have any overlap with the HERD Complex’s Proposed Long Term Upgrade and Expansion. A supplemental *EIS* for JSF runway configurations will analyze options for new runways or reconfiguring existing Eglin runways to accommodate additional aircraft. Some of the alternatives will result in additional noise impacts to the proposed HERD Complex Proposed Long Term Upgrade and Expansion. Analysis, once complete, may yield other potential impacts to the HERD Complex Proposed Long Term Upgrade and Expansion.

5.3 Analysis of Cumulative Impacts

5.3.1 Air Quality

With the projects proposed in this plan, conjoined with the Fort Walton Beach-Niceville Bypass and Eglin AFB BRAC projects, pollutant emissions would increase. This increase in pollutants would be due to construction projects, an influx of people to the area, and introduction of the JSF ITC and associated aircraft. Construction emissions are expected to be the primary cause for increased emissions, which would be a temporary, short-term affect. The increase in population from the BRAC would be a permanent increase in air emissions from personally owned vehicle emissions. These emissions are expected to be minimal as compared to Okaloosa, Santa Rosa, and Walton County emissions. No permanent adverse impacts to regional air quality are expected cumulatively.

Also, the construction activities occurring around the base would cause a temporary net increase in greenhouse gas (GHG) emissions from construction vehicles and worker commutes. Overall these projects are expected to cause temporary increases in regional air emissions. However, based on the analysis presented in the *Eglin BRAC SEIS* and other air emissions associated with the BRAC actions, when considered with the Proposed Action, there would not be a significant adverse impact to regional air quality or GHG emissions from a cumulative perspective.

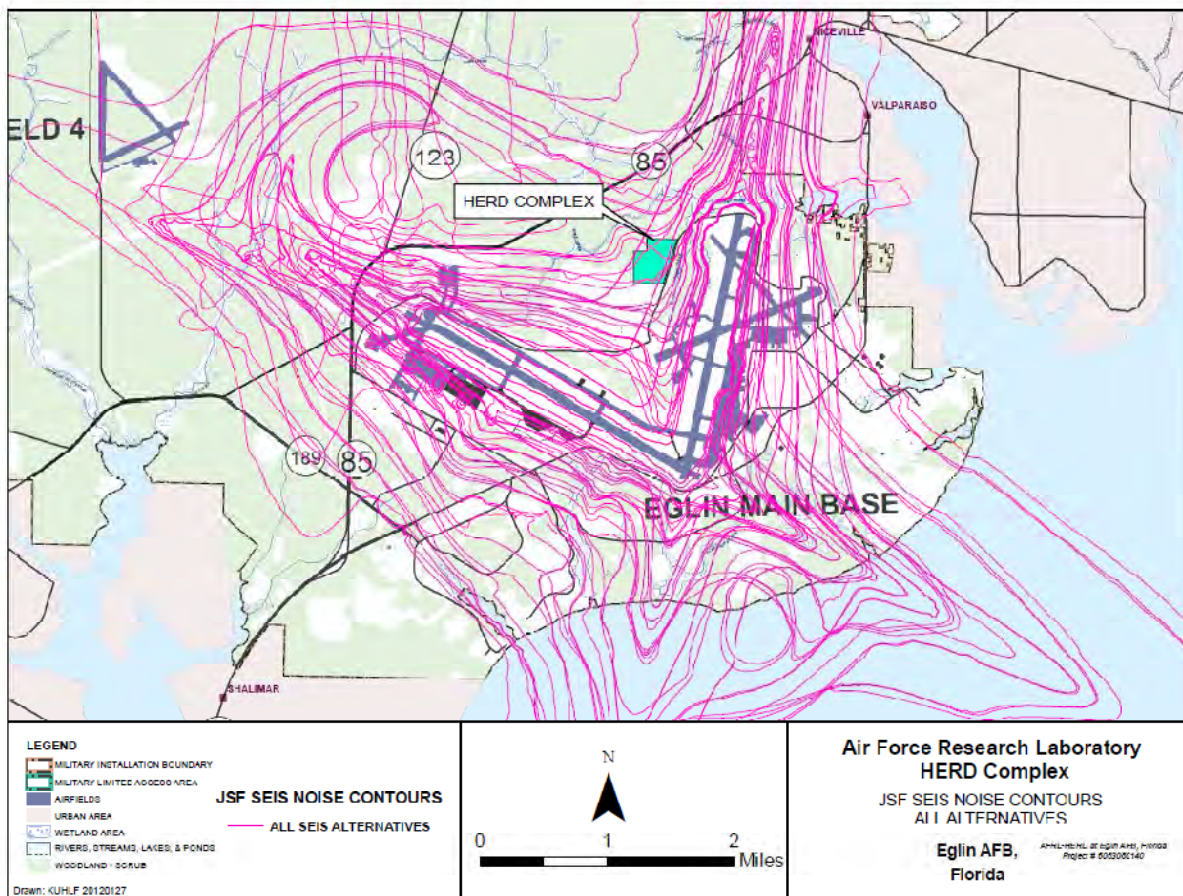
5.3.2 Noise

Cumulative impacts would occur wherever noise impacts from proposed actions would overlap with noise impacts resulting from other reasonably foreseeable actions planned to occur at Eglin AFB. Many of the relevant past and present actions considered in the cumulative impacts analysis involve construction or demolition. Construction noise is temporary, lasting only for the duration of the construction project, and is typically limited to normal working hours (7:00 AM to 5:00 PM). Construction noise impacts associated with these projects are expected to be limited to within the boundaries of Eglin AFB and would be insignificant either separately or cumulatively.

The projects that would have the greatest cumulative noise impacts are the BRAC related actions at Eglin AFB, including the JSF aircraft flight training operations. At this time it is unknown which F-35 alternative would be selected. However, based on analysis in the *Eglin BRAC Supplemental EIS for F-35 Beddown at Eglin AFB* (the “*F-35 SEIS*”), all alternatives could have potentially significant impacts from F-35 noise depending on the *F-35 SEIS* alternative selection and the final siting of GCTS classrooms.

Figure 5-1 visually represents the noise contours associated with each *F-35 SEIS* alternative and their potential impact on alternatives. Revised F-35 operational data and noise modeling in the future may change the resulting noise contours, but the Air Force anticipates that any change will be overall beneficial, not detrimental. Under any of the JSF flight training action alternatives, time-averaged aircraft noise levels at several known noise-sensitive locations would increase to a level that may be considered by the public to be significant. The Proposed Action and Alternative 1 as well as the No Action Alternative would be located in areas exposed to sound levels ranging from 65 to 80 dB DNL for the 59 aircraft scenario where Eglin Main Base is the primary airfield used by the JSF.

The proponent would be required to construct facilities in the affected areas with proper noise abatement. Whenever possible, structures should incorporate noise attenuation measures in accordance with the Air Force noise guidelines published in the *AFH 32-7084, AICUZ Program Managers Guide*.



5.3.3 Biological Resources

There would not be significant cumulative impacts to biological resources. The area potentially affected is comprised primarily of the Sandhills ecological association, the dominant type of habitat found on Eglin AFB. Loss of habitat from the Proposed Action combined with habitat losses from other projects is a cumulative impact, but the natural setting on Eglin AFB is actively managed to ensure sustainability. Prior to activity, Eglin Natural Resources personnel would survey the area for gopher tortoise, and relocate this species as necessary. No significant cumulative impacts to gopher tortoise from this and other actions would occur as a result of this precautionary measure.

5.4 Irreversible and Irretrievable Commitment of Resources

NEPA requires that EAs include identification of any irreversible and irretrievable commitment of resources that would be involved in the implementation of the Proposed Action or Alternative 1. Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the uses of these resources have on future generations. Irreversible effects primarily result

from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the Proposed Action (e.g., extinction of a threatened or endangered species or the disturbance of a cultural site). Implementation of the Proposed Action may result in an irreversible and/or irretrievable commitment of natural resources since currently undeveloped land would be altered, specifically the removal of mature vegetation. However, these areas could be returned to their existing state if the proposed facilities were removed and the areas were allowed to revert back to its present state.

Any environmental consequences as a result of this project are considered short-term and temporary. Construction activities would require consumption of limited amounts of materials typically associated with interior and exterior construction (e.g., concrete, wiring, piping, insulation, and windows). The Air Force does not expect the amount of these materials used to significantly decrease the availability of the resources. Small amounts of nonrenewable resources would be used; however, the Air Force does not consider these amounts to be appreciable and do not expect them to affect the availability of these resources.

5.4.1 No Action Alternative

Under the No Action Alternative, the proponent would continue research and development as occurring currently. No irretrievable or irreversible commitment of resources would occur under the No Action Alternative.

6.0 Management Requirements and Summary of Impacts

The following is a list of regulations, plans, permits, and management actions associated with the Proposed Action. The environmental impact analysis process for this EA identified the need for these requirements, and the proponent and interested parties involved in the Proposed Action cooperated to develop them. These requirements are, therefore, to be considered as part of the Proposed Action and would be implemented through the Proposed Action's initiation. The proponent is responsible for adherence to and coordination with the listed entities to complete the plans, permits, and management actions.

6.1 Regulations, Plans, and Permits

- Eglin's Title V permit
- FDEP Air Construction Permit
- RCRA Permit
- Fugitive Dust Permit
- CZMA Consistency Determination (Appendix A)
- *Erosion, Sedimentation, and Pollution Control Plan*
- NPDES Permit
- Environmental Resource Permit
- FDEP Water Main Extension Permits
- FDEP Wastewater Permits

6.2 Management Actions

The proponent is responsible for implementation of the following management actions.

6.2.1 Land Use

In accordance with section 2.1 of this document, spatial orientation of the buildings will need final explosive siting approval prior to design and final permitting. Specific siting of these new facilities will be contingent upon Explosives Site Plan approvals through the Department of Defense Explosives Safety Board, which will occur in conjunction with the preliminary design process prior to construction. Section 2.1 of this document provides specific layout criteria for the new facilities and areas.

6.2.2 Air Traffic and Airspace Analysis

As detailed in section 4.4.1 of this document, the project planner should use the electronic "Notice Criteria Tool" on the FAA website to determine whether any of the proposed expansion (or renovations to existing buildings) will require FAA notification due to proximity to the Northwest Florida Regional Airport and should make the appropriate notifications within the required timeframe prior to scheduled construction. Furthermore, National Telecommunications and Information Administration notification is advised. As explained in section 4.4.1, the DoD Preliminary Screening Tool did determine that the construction may fall within the confines of an area of interest and may have an impact on military

operations. A more detailed review will be required to identify any additional areas of concern. The project manager must keep 46 TW/XPE fully apprised of findings of the more detailed review as well as any impacts on military operations. If one or more of the proposed buildings is determined to be a hazard to aviation, it would be considered objectionable by the FAA and changes to the design (location, height, etc) of the improper building(s) will be required.

6.2.3 Air Quality

In accordance with section 1.7 of this document, research and development activities that are conducted on the Eglin AFB test ranges need to be evaluated to determine if they are within the limits of Eglin's Title V permit. Furthermore, a fugitive dust permit will be required because the area to be impacted by the proposed action exceeds 25 acres. Eglin AFB will take reasonable precautions, such as watering, minimizing vehicle speeds on exposed earth) to minimize fugitive particulate (dust) emissions during any construction activities in accordance with *FAC 62-296.320*. Issuance of an air construction permit from FDEP will be required prior to beginning the proposed construction activities (*FAC 62-210.300*). The buildings where ultra-fine particles will be used will be self-contained. In addition, indoor air quality will be monitored closely with special sensors.

6.2.4 Hazardous Material and Hazardous Waste Management

As described in section 4.6.1, petroleum products and other hazardous materials (e.g., paints and solvents) that will be required during construction/renovation activities will be stored in the proper containers, employing secondary containment as necessary to prevent/limit accidental spills. All spills and accidental discharges of petroleum products, hazardous materials, or hazardous waste will be reported and resolved according to the *Eglin AFB Facility Response Plan* (USAF, 2009a) and the *Hazardous Waste Management Plan* (USAF, 2010c). Should any excess hazardous materials related to construction/renovation activities require disposal, they will be disposed of according to applicable federal, state and local laws and regulations.

In accordance with section 1.7 of this document, the hazardous materials used in the expanded facilities as well as the hazardous wastes generated will likely require a permit under the *Resource Conservation and Recovery Act of 1976 (RCRA)*. As explained in detail in section 4.6.1, before a new hazardous material could be used at the HERD facility, including ultra-fine particles and other new compounds that may be used in the advanced energetics research program, it must be added to the HMMS inventory through an approval process, documented, and reported.

As per section 3.5 of this document, hazardous materials and wastes at the HERD will continue to be managed according to *AFRL/RW OI 32-7001 RW Environmental Management Program*. Furthermore, buildings to be renovated or demolished will be surveyed for asbestos-containing materials and any found will be abated and disposed of in accordance with all applicable federal, state and local laws, rules, regulations and standards and in accordance with the base's *Asbestos Management Plan* (USAF 2010a). Similarly, lead based paint will be managed and disposed of according to all applicable federal, state and local laws, rules, regulations and standards and in accordance with Eglin's *Lead Based Paint*

Management Plan (USAF, 2010d). As detailed in section 4.6.1, all HERD explosives waste will continue to follow the specific requirements and operating instructions provided in *Flight Operating Instruction 32-3004* (October 6, 2010). Removal of explosives waste at Eglin will continue to utilize the OB/OD permit maintained by Eglin for disposal of waste. HERD personnel may coordinate specific disposal operations with EOD personnel based on increased explosives operating requirements that may be present under future HERD directives.

6.2.5 Solid Waste

Solid wastes are to be managed in accordance with requirements as detailed in sections 3.6 and 4.7.1 of this document.

6.2.6 Noise and Vibration

As described in detail in sections 3.7 and 4.8.1 of this document, measures to achieve noise level reductions must be incorporated into the design and construction of portions of buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low in accordance with *Air Force Handbook 32-7084 Attachment 4 Land Use Compatibility*. Additionally, section 2.1 of this document provides specific design criteria for the new facilities to deal with vibration.

6.2.7 Human Health and Safety

As described in section 3.8 of this document, developers working on the installations are required to prepare appropriate job site safety plans explaining how job safety will be assured throughout the life of the project. Developers are also required to follow applicable OSHA requirements. As stated in section 4.8.1, construction equipment operators will need to utilize increased hearing protection based on the JSF aircraft noise. Furthermore, programs and facilities at the HERD complex should be in compliance with standards and policies as detailed in section 3.8. As explained in section 4.5.1 of this document, personal protective equipment (particularly respiratory protection) designed for ultra-fine particles will be worn by all employees working in the buildings where ultra-fine particles will be used. Other human health and safety requirements are detailed in section 4.9.1 of this document.

6.2.8 Utilities

In accordance with section 1.7 of this document, Florida Department of Environmental Protection (FDEP) form 62-555.900(1) *Application for a Specific Permit to Construct PWS Components*; and 62-555.900(9) *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components into Operation* may be required. Likewise, wastewater permits, FDEP Form 62-604.300(8)(a) *Notification/Application for Constructing a Domestic Wastewater Collection/Transmission System* (dependent on design), and FDEP Form 62-604.300(8)(b) *Request for Approval to Place Wastewater System into Operation* may also be required. Other utilities requirements are detailed in sections 4.10 and 4.10.1 of this document. The proponent will ensure that the design engineer coordinates with 96 CEG/CEVC Compliance Engineering (850-882-7660) for utilities extension permitting.

6.2.9 Stormwater

An Environmental Resource Permit (ERP) from the Northwest Florida Water Management District (NFWFMD) is required in accordance with 62-346 of the *Florida Administrative Code (FAC)*. In addition, any construction area larger than one acre would require a National Pollutant Discharge Elimination System (NPDES) General Permit under 40 *CFR 122.26(b)(14)(x)*. A stormwater pollution prevention plan would also be required under the NPDES permit before beginning construction activities. Eglin AFB will submit a notice of intent to use the generic permit for stormwater discharge under the NPDES program prior to project initiation according to Section 403.0885, Florida Statutes. Best Management Practices (BMPs) such as erosion and sediment controls and stormwater management measures will be required to minimize erosion and stormwater runoff, and to regulate sediment control. Other stormwater requirements are detailed in sections 4.11 and 4.11.1 of this document. The proponent will ensure that the design engineer coordinates with 96 CEG/CEVC Compliance Engineering (850-882-7660) for final stormwater design and permitting.

6.2.10 Natural Resources

One closed ERP site is located at the HERD complex, in the vicinity of Building 1197. Planned construction activities are possible in this area with prior coordination with Eglin AFB Environmental Management Restoration branch on the Work Clearance Request. Regardless, should any unusual odor, soil, or groundwater coloring be encountered during development activities in any areas, the construction must cease and Environmental Management Restoration must be contacted immediately. Other natural resources requirements are detailed in sections 4.12.2.1 and 4.12.3.1 of this document.

6.2.11 Biological Resources

In accordance with Section 7 of the *ESA*, consultation with the USFWS has been conducted. Eglin has determined that the proposed action is not likely to adversely affect threatened or endangered species found in or around the project area. Appendix B of this document contains the Biological Assessment with concurrence from USFWS with following avoidance and minimization measures.

- Construction personnel will be provided a description of the eastern indigo snake and its protection under Federal Law. Indigo snake signs will be posted at construction sites. Personnel will be given instructions not to harass, injure, harm, or kill this species.
- Should an indigo snake be sighted, construction personnel will cease activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming activities. Personnel will contact the Eglin Natural Resources Section immediately.
- Use of hay bales and silt fences will be in place prior to and throughout construction to minimize erosion into the stream and lessen any potential downstream impact.
- Construction actions will occur at a minimum of 100 feet outside the darter stream.
- If possible, construction actions with potential to impact the Okaloosa darter (i.e. fence and tree clearing) would be completed between September and February to avoid the spawning season.
- Security Forces will follow the fence line and remain out of surrounding wooded areas and any wet areas during security patrols. If erosion issues occur they must notify the Natural Resources Section immediately.

- In the unlikely event that construction personnel come into contact with a black bear, all activities will cease until the bear has moved away from the area.
- Eglin AFB Natural Resources personnel will perform a gopher tortoise survey prior to any construction or disturbance.
- If a gopher tortoise burrow cannot be avoided, then the tortoise would be relocated in accordance with the Florida Fish and Wildlife Conservation Commission (FWC) protocols.
- Should a gopher tortoise burrow be identified within the proposed path of construction by construction personnel, work would cease until Natural Resources personnel have investigated the burrow and relocated any gopher tortoise or commensals to a suitable location.

Sections 4.13.1.1, 4.13.2.1 and 4.13.3.1 of this document contain additional biological resources requirements.

6.2.12 Cultural Resources

In accordance with section 1.6.1 of this document, if human remains or unexpected resources are encountered during construction activities, work should cease and Eglin's Cultural Resources Branch must be contacted (850-882-8459). Identified resources would be managed in compliance with federal law and Air Force regulations.

6.3 Summary of Impacts

The following table summarizes the expected impacts from the Proposed Action.

Table 6-1. Summary of Expected Impacts

Resource Area	Preferred Alternative	Alternative 1	No Action
Land Use	No significant impact on overall Base land use.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur.
Traffic and Transportation	Minor short- and long-term adverse impacts caused by increased traffic to/from the site.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur.
Site Access	Minor short- and long-term impacts caused by additional security screening needed to monitor non-base personnel at the HERD site.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur.
Air Traffic and Airspace	No impacts are expected to occur.	No impacts are expected to occur.	No new impacts would occur.
Air Quality	Combustive emissions and fugitive dust from construction would have temporary minor adverse impact. Air quality criteria would not be exceeded and the impacts would not be significant.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur.
Hazardous Materials and Wastes	All hazardous materials and wastes will be used and disposed of according to all federal, state, local and AF regulations. Therefore no adverse impacts are expected.	All hazardous materials and wastes will be used and disposed of according to all federal, state, local and AF regulations. Therefore no adverse	No new impacts would occur.

		impacts are expected.	
Solid Wastes	Short- and long-term minor adverse impacts as a result of increase in production of construction debris and other solid wastes. Minor beneficial impact from improved waste recycling program.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur.
Noise and Vibration	Site-related noise would not be significant. The construction site is within existing SLUCM Compatible Use Zone; new construction will need to comply with requirements of AICUZ Program Manager's Guide for noise level reductions. Construction noise would not perceptibly increase the average noise.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur.
Human Health and Safety	No adverse impacts expected.	No adverse impacts expected.	No new impacts would occur.
Utilities	Energy efficient utility upgrades would occur resulting in long-term beneficial impact in existing buildings. Compliance with federal and state laws and AF rules will protect groundwater supplies. New construction will result in increased demands thereby causing long-term negative impact in terms of overall water and energy consumption at HERD.	Impacts would be the same as the Preferred Alternative.	No new impacts expected. Energy inefficient utilities would remain in place.
Stormwater	Impervious surface area would increase resulting in an increase in stormwater runoff. An NPDES construction permit would be necessary.	Impacts would be the same as the Preferred Alternative.	Long-term minor adverse impact from current failing stormwater conveyance and treatment system.
Geology	No impacts are expected to occur.	No impacts are expected to occur.	No new impacts would occur.
Soils	Impacts to soils would not be significant. Erosion would be controlled through construction BMPs.	Impacts would be the same as the Preferred Alternative.	On-going soil erosion would continue resulting in long-term, minor adverse impact.
Water Quality and Wetlands	Wetlands would not be impacted. Water quality in adjacent streams may improve as a result of better stormwater management.	Impacts would be the same as the Preferred Alternative.	On-going stormwater runoff to adjacent streams would continue resulting in long-term minor adverse impact.
Wildlife	Minor impacts to local wildlife expected as a result of habitat destruction.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur
Vegetation	44 acres of native vegetation to be cleared. No impact to overall vegetation on Eglin AFB.	46.6 acres of native vegetation to be cleared. No impact to overall vegetation on Eglin AFB.	No new impacts would occur.
Threatened and Endangered Species	A darter stream located north of the proposed site may be beneficially impacted by improvements in erosion-control and stormwater management systems. Some on-site Arkansas oaks would be logged. Some gopher tortoises may be temporarily impacted by relocation efforts. Potential impacts to Indigo snakes are not anticipated.	Impacts would be similar to those described for the Preferred Alternative, except there is higher potential for minor adverse impacts to the Okaloosa Darter stream from erosion caused by security patrols along the boundary fence.	Stormwater runoff and erosion would continue to adversely impact the Okaloosa darter stream.
Sensitive Habitats	3.1 acres of sensitive scrub habitat will be cleared resulting in long-term negative impact in	Impacts would be the same as the Preferred	No new impacts would occur.

	local area, but no noticeable impact to sensitive habitats on Eglin AFB.	Alternative.	
Socioeconomics	Long-term beneficial impact from creation of new jobs. Short-term benefit from construction contracts. Long-term minor adverse impact on recreation as a result of closure of this area to bow hunting.	Impacts would be the same as the Preferred Alternative.	No new impacts would occur.

7.0 List of Preparers

MACTEC Engineering and Consulting, Inc. (MACTEC)

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Name/Qualifications	Contribution	Experience
Ann Shortelle, PhD Chief Scientist	Project Manager, Principal Reviewer	24 years of experience professional experience in managing, directing, and conducting <i>NEPA</i> studies and documentation.
Judith L. Dudley, PhD Principal Scientist	Principal Scientist, Task Manager, Prepared DOPAA and Effects Summary	25 years of experience in environmental consulting and research.
Angela Vandelay, EIT Project Scientist	Primary author of sections related to Air Traffic, Hazardous and Solid Wastes, Air Quality, Noise, Geology, and Soils	9 years of experience in environmental engineering and education.
Karl Rains Environmental Scientist	Primary author of Traffic and Transportation Sections	9 years of experience as an environmental scientist.
Richard Brown, PE, LEED, AP	Reviewer of text related to Hazardous and Solid Wastes. Conducted site surveys related to hazardous and solid waste handling and storage.	14 years of experience in environmental consulting.
Brandon Jarvis Environmental Scientist	GIS analyst, Prepared Figures, Primary author of sections related to Description of the Proposed Alternative, Stormwater and Utilities. Conducted site surveys related to Utilities and Existing Buildings.	2 years of experience as an environmental scientist and water quality/hydrological modeling.
Shannon McMorro Staff Scientist	Primary author of Water Resources and Biological Resources sections	2 years of experience as an environmental scientist.
Joy Ryan Environmental Scientist	Reviewed text related to Water Resources and Biological Resources. Conducted Site Surveys on Biological Resources and Wetlands.	21 years of experience as an environmental scientist with particular emphasis on field studies.
Marty Goodwin GIS Specialist	Assisted with GIS data analysis and preparation of figures.	7 years of experience in GIS analysis.
Josh Tucker GIS Specialist	Assisted with preparation of figures.	4 years of experience in quality control, data analysis, and GIS.
Matt Diamond Staff Engineer	Conducted site surveys related to Utilities and Existing Buildings.	2 years of experience in environmental engineering.

8.0 List of Contacts

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9.0 References and Applicable Documents

- AFAL, 1977. *Water Quality: Streams and Ponds on Selected Test Areas on Eglin Air Force Base, Florida*. Technical Report.
- AFRL, 2009a. *Draft Appendix A: Hydrologic Analysis and Sustainable Stormwater Planning of the Long Term Infrastructure Plan for the Air Force Research Laboratory (AFRL) High Explosive Research and Development (HERD) Complex*.
- AFRL, 2009b. *Draft Appendix A HERD Stormwater Assessment Appendices*.
- Baker, David E. 1993. "Noise: The Invisible Hazard".
- Borm. 2006. Paul JA Borm, et al. "The potential risks of nanomaterials: a review carried out for the European Centre for Ecotoxicology and Toxicology of Chemicals. Particle and Fiber Toxicology. 3:11. August 14, 2006.
- BRAC. 2008. *Proposed Implementation of the Base Realignment and Closure (BRAC) 2005 Decisions and Related Actions at Eglin AFB, FL Final Environmental Impact Statement*. October 2008
- CHABA. 1981. "Assessment of Community response to High Energy Impulsive Sounds," Committee of Hearing, Bioacoustics and Biomechanics, National Research Council, Wash. D.C., National Academy Press.
- Eglin AFB. 2010. *SR85 and 77th Special Forces Way West McWhorter Rd Overpass Environmental Assessment*. RCS 09-620. Technical Report. 122 pp.
- ESE. 1994. *Environmental Assessment for Construction and Operation of an Experimental Demilitarization Facility at Eglin Air Force Base, Florida, Environmental Science & Engineering, Inc.* February 1994.
- FAA. 2009a. Notice Criteria Tool.
<https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm>
(Accessed on February 18, 2009).
- FAA. 2009b. DoD Preliminary Screening Tool.
<https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showLongRangeRadarToolForm>
(Accessed on February 18, 2009).
- FDEP. 2009. Florida Ambient Air Quality Standards. Personal Communication with Tammy Eagan February 18, 2009.
- FICAN (Federal Interagency Committee on Aviation Noise). 2009. "How Do We Describe Aircraft Noise?"
- FNAI (Florida Natural Areas Inventory). 2009. <http://www.fnai.org>
- Gulf Power, 2011. Background page. Company website. <http://www.gulfpower.com/about/about.asp>
Accessed March 20, 2011.

- Lifestyle. 2008. *Draft Environmental Assessment Addressing an Army and Air Force Exchange Service (AAFES) Lifestyle Center at Eglin Air Force Base, Florida*. September 2008.
- Merriam-Webster. 2009. Merriam-Webster Online Dictionary, www.merriam-webster.com (Accessed February 17, 2009)
- NRCS. Natural Resource Conservation Service. 2008. Soil Survey of Okaloosa County, Florida. <http://soildatamart.nrcs.usda.gov/Manuscripts/FL091/0/okaloosa.pdf>
- Northwest Florida Water Management District (NFWFMD). 2006. *Regional Water Supply Plan for Santa Rosa, Okaloosa and Walton Counties*. Technical Report.
- United States Air Force (USAF). 1995. Environmental Baseline Study Resources Appendices. Prepared by Earthtech for the Air Force Development Test Center, Eglin AFB, Florida.
- USAF. 1999. *AICUZ Program Manager's Guide*. Air Force Handbook 32-7084.
- USAF. 2003b. *Construction of New Energetics Buildings at the High Explosive Research and Development Facility (HERD) Final Environmental Assessment*, Department of the Air Force, Eglin Air Force Base, Florida. RCS 02-427, 02-1102, June 2003.
- USAF. 2007. *Environmental Restoration Program Sites Status Report*. Eglin Air Force Base, Florida.
- USAF. 2009a. *Eglin AFB Facility Response Plan*. Department of the Air Force, Eglin Air Force Base, Florida.
- USAF. 2009b. *Integrated Natural Resources Management Plan (INRMP)*. Department of the Air Force, Eglin Air Force Base, Florida.
- USAF. 2010a. *Asbestos Management Plan, EAFB Plan 32-3*. Eglin AFB, Florida.
- USAF. 2010b. *Hazardous Materials Management, AFI 32-7086, Eglin AFB Supplement*. Eglin AFB, Florida.
- USAF. 2010c. *Hazardous Waste Management, Eglin AFB Instruction 32-7003*. Eglin AFB, Florida.
- USAF. 2010d. *Lead Based Paint Management Contingency Plan, EAFB Plan 32-3*. Eglin AFB, Florida.
- US Department of Agriculture (USDA). 2003. *Field Indicators of Hydric Soils in the United States*.
- USDA-NRCS. 2009. Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
- USEPA. 1971. US Environmental Protection Agency. "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliance". December 31, 1971.
- USEPA. 2009a. National Ambient Air Quality Standards www.epa.gov/air/criteria.html (Accessed February 18, 2009)
- USEPA. 2009b. General Conformity Rule. www.epa.gov/oar/genconform/index.htm (Accessed February 17, 2009)

- USFWS. US Fish and Wildlife Service. 2011a. Okaloosa Darter Fact Sheets.
<http://www.fws.gov/panamacity/okaloosadarter.html> and
<http://www.fws.gov/panamacity/resources/OkaloosaDarterFactSheet.pdf> (Accessed March 20, 2011)
- USFWS. US Fish and Wildlife Service. 2011b. Okaloosa Darter On the Road to Recovery.
<http://www.fws.gov/southeast/news/2011/11-030.html> (Accessed January 12, 2012)
- USGS. US Geological Survey. 2008 United States National Seismic Hazard Maps.
http://pubs.usgs.gov/fs/2008/3018/pdf/FS08-3018_508.pdf

APPENDIX A: CZMA DETERMINATION AND STATE CLEARINGHOUSE COORDINATION

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH AIR BASE WING (AFMC)
EGLIN AIR FORCE BASE FLORIDA

MAR 21 2011

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Chief, Natural Resources Section
96 CEG/CEVSN
501 De Leon Street, Suite 101
Eglin AFB FL 32542-5133

Ms. Lauren Milligan, Environmental Manager
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, Mail Station 47
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Dear Ms. Milligan:

We are submitting the Final U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C for the expansion of the High Explosives Research and Development (HERD) complex research facilities on Eglin Air Force Base, Florida.

The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39. This document provides the State of Florida with the U.S. Air Force's Consistency Determination and pursuant to Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, its implementing regulations at 15 C.F.R. Part 930, this is a Federal Consistency Determination for activities described.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with, or object to, this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b).

If you have any questions regarding this document or require additional information, please do not hesitate to contact Mr. Bob Miller (850) 883-1153 or myself at (850) 882-4164.

Sincerely,

A handwritten signature in black ink, appearing to read "S. M. Seiber", is written over the typed name and title.

STEPHEN M. SEIBER, GS-13
Chief, Natural Resources Section

Attachment:
HERD Facilities CZMA Consistency Determination

FEDERAL AGENCY COASTAL ZONE MANAGEMENT ACT (CZMA) CONSISTENCY DETERMINATION

Introduction

This document provides the State of Florida with the U.S. Air Force's Consistency Determination under CZMA Section 307 and 15 C.F.R. Part 930 sub-part C. The information in this Consistency Determination is provided pursuant to 15 C.F.R. Section 930.39 and Section 307 of the Coastal Zone Management Act, 16 U.S.C. § 1456, as amended, and its implementing regulations at 15 C.F.R. Part 930.

This federal consistency determination addresses the proposed action for the expansion of the existing High Explosives Research and Development (HERD) complex facilities at Eglin Air Force Base (AFB), Florida (Figures 1 and 2).

Proposed Federal agency action:

The proposed action includes a significant expansion of the fenced, access controlled area of the existing HERD complex research facilities at Eglin AFB to accommodate new lines of research and testing, with emphasis on applications of energetic nano-materials in new munitions development (Figures 3 and 4). This expansion would include future explosives operating, testing and storage buildings, non-explosives research and special purpose buildings, the supporting infrastructure for those facilities, and the expansion of the central utilities system that distributes steam, chilled water, hot water, and compressed air to both existing and future buildings. This project proposes the construction of a total of as many as thirty-six new buildings and associated infrastructure (e.g., roads, parking lots, stormwater conveyance, etc.) to support the Air Force Research Laboratory (AFRL) HERD at Eglin AFB.

The proposed expansion would occur mainly to the west of the existing AFRL HERD buildings. The buildings that would be constructed in the western-most portion of the expansion area include both hands-on and remote explosives buildings, and as such, would require installation of large bin walls (tall steel containers filled with earth) for safety purposes. Existing infrastructure would also be updated as part of the expansion, including the stormwater management system, various utilities, and fixtures in existing buildings.

There would be a security fence around the entire perimeter of the expanded HERD compound. A 30-foot swath outside of the perimeter fence would be cleared for security purposes and the forest land to the west of the existing HERD complex between the fence and the creek would no longer be available for hunting or other recreational uses. At present, erosion issues associated with motorized security patrols along the perimeter of the existing security fence occur, and those patrols would continue outside the perimeter fence following expansion. Therefore, off-site erosion control measures are also being

designed as part of the project to protect water quality in the wetlands and streams adjacent the project site.

The sites for the buildings proposed to the south of the existing complex would likely be cleared and maintained as cleared land, similar to that which is found in the existing HERD complex. New stormwater detention basins would be constructed as part of the proposed action to meet stormwater requirements for new construction under the Northwest Florida Water Management District (NFWFMD). Reuse of stormwater and utilities condensate may be implemented on-site to aid in erosion control by establishing and maintaining vegetation on berms and side slopes.

Federal Consistency Review

Statutes addressed as part of the Florida Coastal Zone Management Program consistency review and considered in the analysis of the proposed action are discussed in the following table.

Pursuant to 15 C.F.R. § 930.41, the Florida State Clearinghouse has 60 days from receipt of this document in which to concur with or object to this Consistency Determination, or to request an extension, in writing, under 15 C.F.R. § 930.41(b). Florida's concurrence will be presumed if Eglin AFB does not receive its response on the 60th day from receipt of this determination.

Florida Coastal Management Program Consistency Review

Statute	Consistency	Scope
Chapter 161 <i>Beach and Shore Preservation</i>	<p>The proposed action would not affect beach and shore management, specifically as it pertains to:</p> <ul style="list-style-type: none"> • The Coastal Construction Permit Program. • The Coastal Construction Control Line (CCCL) Permit Program. • The Coastal Zone Protection Program. 	Authorizes the Bureau of Beaches and Coastal Systems within DEP to regulate construction on or seaward of the states' beaches.
Chapter 163, Part II <i>Growth Policy; County and Municipal Planning; Land Development Regulation</i>	The proposed action would not affect local government comprehensive plans.	Requires local governments to prepare, adopt, and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 <i>State and Regional Planning</i>	The proposed action would not affect state plans for water use, land development or transportation.	Details state-level planning efforts. Requires the development of special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i>	<p>The proposed action would not affect the state's vulnerability to natural disasters.</p> <p>The proposed action would not affect emergency response and evacuation procedures.</p>	Provides for planning and implementation of the state's response to, efforts to recover from, and the mitigation of natural and manmade disasters.
Chapter 253 <i>State Lands</i>	All activities would occur on federal property; therefore the proposed action would not affect state lands.	Addresses the state's administration of public lands and property of this state and provides direction regarding the acquisition, disposal, and management of all state lands.
Chapter 258 <i>State Parks and Preserves</i>	The proposed action would not affect state parks, recreational areas and aquatic preserves.	Addresses administration and management of state parks and preserves.
Chapter 259 <i>Land Acquisition for Conservation or Recreation</i>	The proposed action would not affect tourism and/or outdoor recreation.	Authorizes acquisition of environmentally endangered lands and outdoor recreation lands.
Chapter 260 <i>Recreational Trails System</i>	The proposed action would not include the acquisition of land and would not affect the Greenways and Trails Program.	Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system.
Chapter 375 <i>Multipurpose Outdoor Recreation; Land Acquisition, Management, and Conservation</i>	The proposed action would not affect opportunities for recreation on state lands.	Develops comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for

		additional recreational opportunities, and propose means to meet the identified needs.
Chapter 267 <i>Historical Resources</i>	<p>No known cultural resources exist within the project site, however, in the event that additional archaeological resources are inadvertently discovered during construction, 96th CEG/CEVH, Cultural Resources Branch would be notified immediately and further ground-disturbing activities would cease in that area. Identified resources would be managed in compliance with federal law and Air Force regulations.</p> <p>Therefore, the proposed action would be consistent with the State's policies concerning the protection of cultural resources.</p>	Addresses management and preservation of the state's archaeological and historical resources.
Chapter 288 <i>Commercial Development and Capital Improvements</i>	The proposed action would not affect future business opportunities on state lands, or the promotion of tourism in the region.	Provides the framework for promoting and developing the general business, trade, and tourism components of the state economy.
Chapter 334 <i>Transportation Administration</i>	The proposed action would not affect the finance and planning needs of the state's transportation system.	Addresses the state's policy concerning transportation administration.
Chapter 339 <i>Transportation Finance and Planning</i>	The proposed action would not affect the finance and planning needs of the state's transportation system.	Addresses the finance and planning needs of the state's transportation system.
Chapter 370 <i>Saltwater Fisheries</i>	The proposed action would not affect saltwater fisheries.	Addresses management and protection of the state's saltwater fisheries.
Chapter 372 <i>Wildlife</i>	<p>In accordance with Section 7 of the Endangered Species Act (ESA), consultation with the United States Fish and Wildlife Service (USFWS) will be required. Eglin has determined that the proposed action is not likely to adversely affect threatened or endangered species found in or around the project area.</p> <p>Activities proposed in and around threatened and endangered species would be performed in accordance with applicable USFWS guidelines. All mitigation measures resulting from the Section 7 consultation would be followed.</p> <p>Prior to project initiation a gopher tortoise survey is required. If a gopher tortoise burrow cannot be avoided, then the tortoise would be relocated in accordance with the</p>	Addresses the management of the wildlife resources of the state.

	<p>Florida Fish and Wildlife Conservation Commission (FWC) protocols.</p> <p>Therefore, the proposed action would be consistent with the State's policies concerning the protection of wildlife and other natural resources.</p>	
<p>Chapter 373 <i>Water Resources</i></p>	<p>Eglin's Water Resources Section, 96th CEG/CEVCE, would coordinate all applicable permits in accordance with the Florida Administrative Code (FAC).</p> <p>The proposed action would increase the potential for impact from the increased rate and volume of stormwater runoff, due to an increase in impervious surface area and altered storm water flows. An Environmental Resource Permit (ERP) from the Northwest Florida Water Management District (NFWFMD) would be required. Best Management Practices (BMPs) such as erosion and sediment controls and stormwater management measures would be implemented to control erosion and stormwater runoff.</p> <p>Applicable permitting requirements would be satisfied in accordance with 62-346 of the FAC and National Pollutant Discharge Elimination System (NPDES). Eglin AFB would submit a notice of intent to use the generic permit for stormwater discharge under the NPDES program prior to project initiation according to Section 403.0885, Florida Statutes (FS).</p> <p>Therefore, the proposed action would be consistent with Florida's statutes and regulations regarding the water resources of the state.</p>	<p>Addresses the state's policy concerning water resources.</p>
<p>Chapter 376 <i>Pollutant Discharge Prevention and Removal</i></p>	<p>Any construction area larger than one acre would require a NPDES General Permit under 40 CFR 122.26(b) (14) (x). A stormwater pollution prevention plan would also be required under the NPDES permit before beginning construction activities.</p> <p>Therefore, the proposed action would be consistent with Florida's statutes and regulations regarding the transfer, storage, or transportation of pollutants.</p>	<p>Regulates transfer, storage, and transportation of pollutants, and cleanup of pollutant discharges.</p>
<p>Chapter 377 <i>Energy Resources</i></p>	<p>The proposed action would not affect energy resource production, including oil and gas, and/or the transportation of oil/gas.</p>	<p>Addresses regulation, planning, and development of oil and gas resources of the state.</p>

Chapter 380 <i>Land and Water Management</i>	The proposed action would not affect development of state lands with regional (i.e. more than one county) impacts. The proposed action would not include changes to coastal infrastructure such as capacity increases of existing coastal infrastructure, or use of state funds for infrastructure planning, designing or construction.	Establishes land and water management policies to guide and coordinate local decisions relating to growth and development.
Chapter 381 <i>Public Health, General Provisions</i>	The proposed action would not affect the state's policy concerning the public health system.	Establishes public policy concerning the state's public health system.
Chapter 388 <i>Mosquito Control</i>	The proposed action would not affect mosquito control efforts.	Addresses mosquito control effort in the state.
Chapter 403 <i>Environmental Control</i>	<p>Eglin's Water Resources Section, 96th CEG/CEVCE, would coordinate all applicable permits in accordance with the FAC.</p> <p>Air quality impacts from the Proposed action would be minimal. Eglin AFB would take reasonable precautions to minimize fugitive particulate (dust) emissions during any construction activities in accordance with FAC 62-296.320. Eglin AFB has a Title V permit; issuance of an air construction permit from FDEP would be required prior to beginning the proposed construction activities (F.A.C. 62-210.300).</p> <p>Therefore, the proposed action would be consistent with Florida's statutes and regulations regarding water quality, air quality, pollution control, solid waste management, or other environmental control efforts.</p>	Establishes public policy concerning environmental control in the state.
Chapter 582 <i>Soil and Water Conservation</i>	<p>All applicable BMPs, such as erosion and sediment controls and stormwater management measures would be implemented to minimize erosion and storm water run-off, and to regulate sediment control.</p> <p>Therefore, the proposed action would be consistent with Florida's statutes and regulations regarding soil and water conservation efforts.</p>	Provides for the control and prevention of soil erosion.

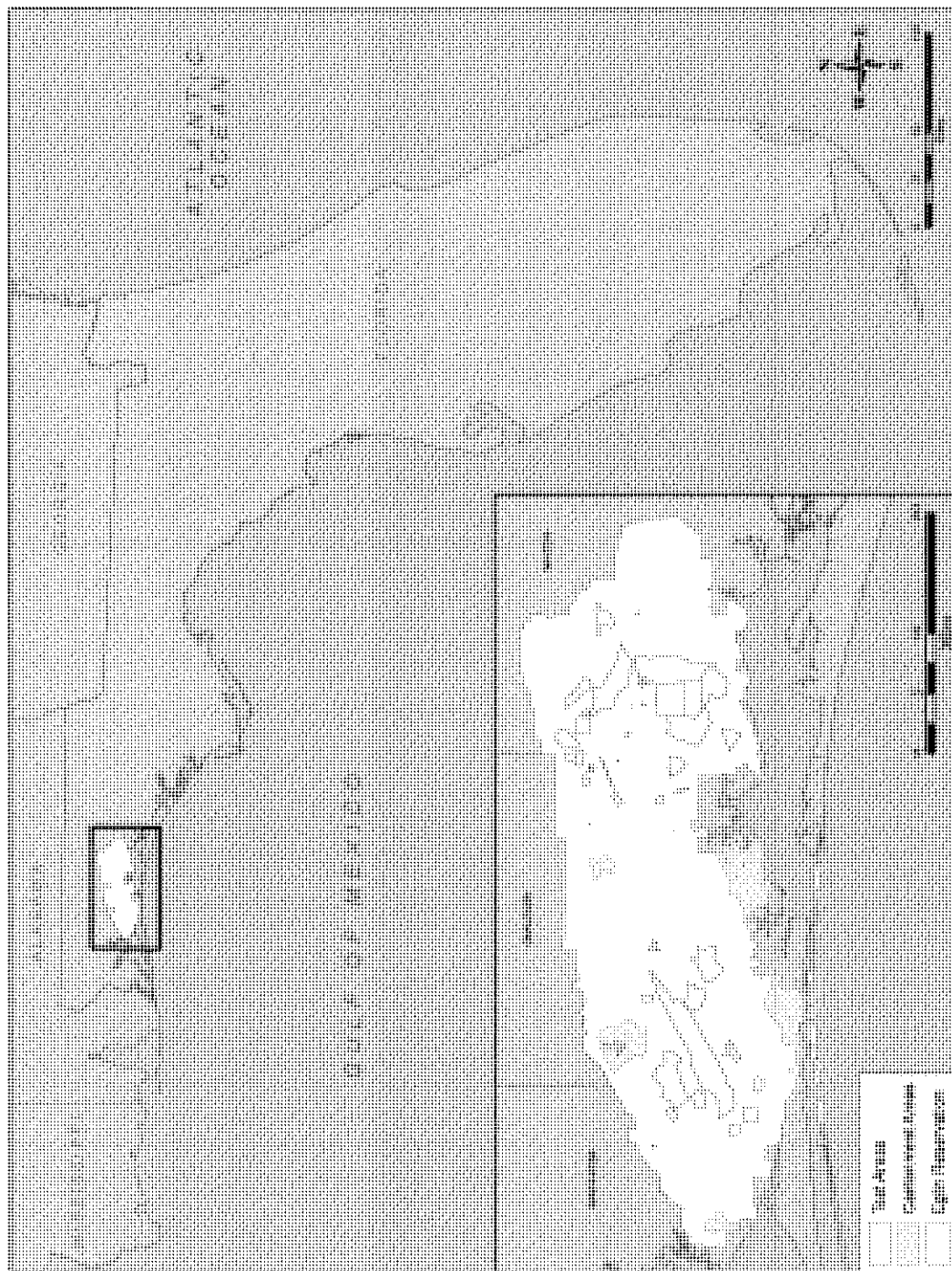


Figure 1. Eglin AFB, Florida

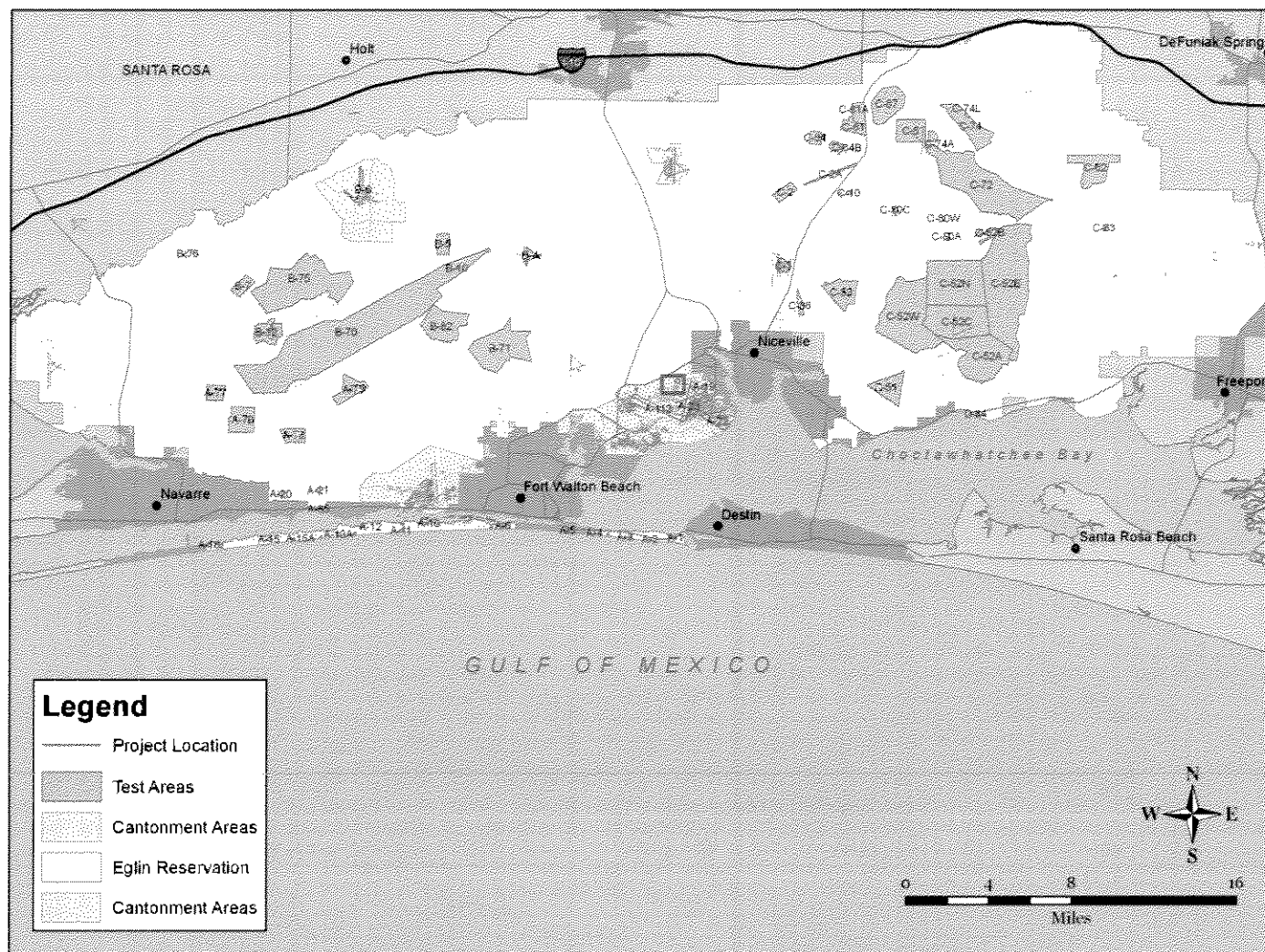
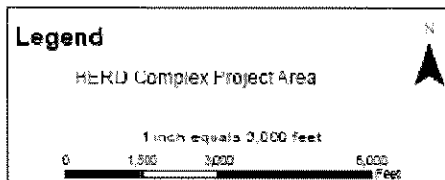


Figure 2. Location of Project Area on Eglin AFB



Source: Aerial - Eglin AFB 2008



Air Force Research Laboratory HERD Complex			
Location of AFRL-HERD Complex			
Drawn: JAT-3/9/2009	Eglin AFB, Florida	MACTEC AFRL-HERD at Eglin AFB, Florida Project # 102.003142	Figure 1-2
Checked: NMG-3/9/2009			

Figure 3. Project Location of HERD Complex

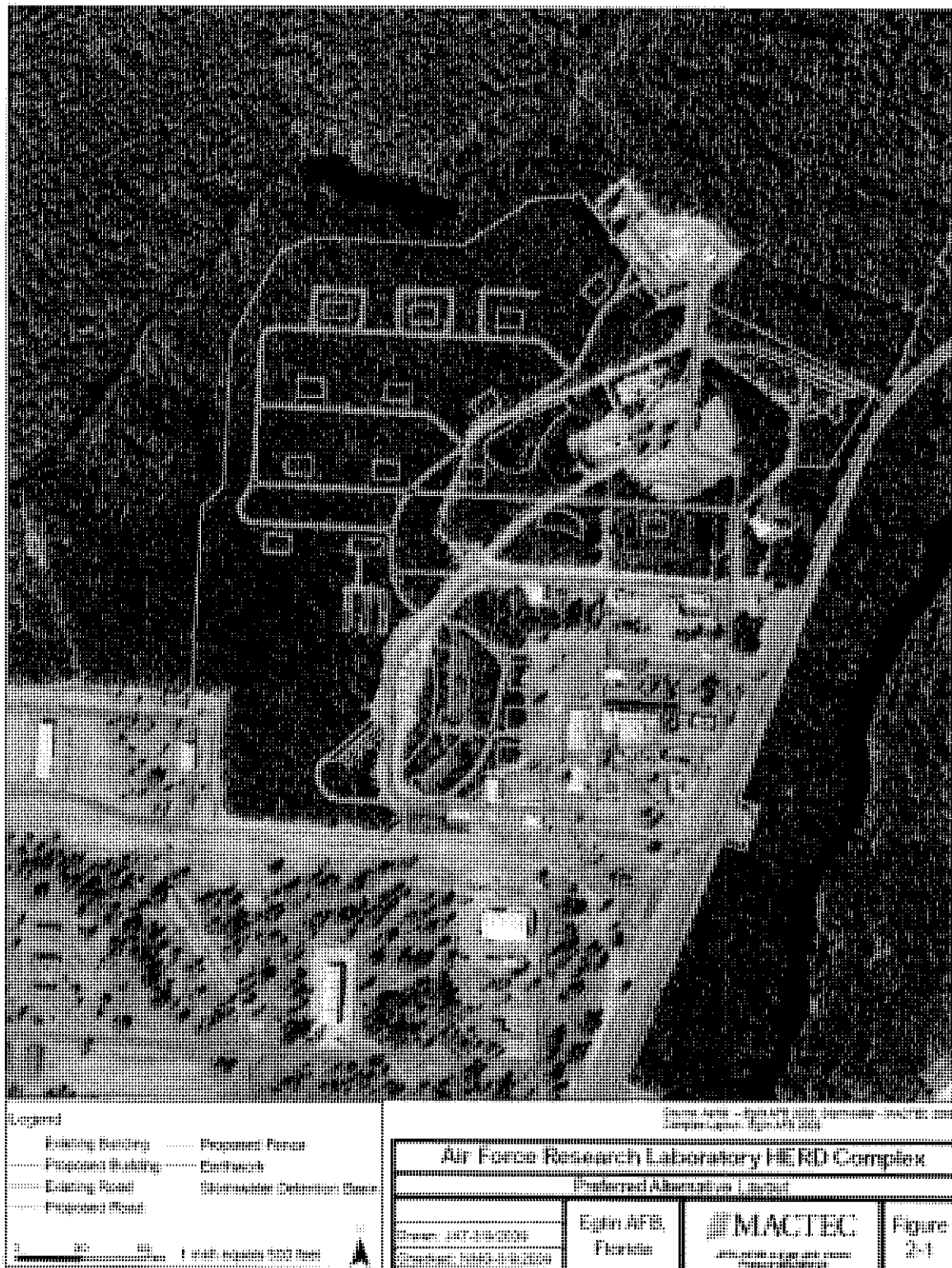


Figure 4. Potential Layout of HERD Complex



Florida Department of Environmental Protection

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

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

June 7, 2012

Mrs. Melinda A. Rogers
Department of the Air Force
96 CEG/CEVSP
501 DeLeon Street, Suite 101
Eglin AFB, FL 32542-5133

RE: Department of the Air Force – Draft Environmental Assessment for the High Explosive Research and Development (HERD) Complex’s Proposed Long Term Upgrade and Expansion, Eglin Air Force Base – Okaloosa County, Florida.
SAI # FL201204126193C

Dear Mrs. Rogers:

The Florida State Clearinghouse has coordinated a review of the referenced Draft Environmental Assessment (EA) under the following authorities: Presidential Executive Order 12372; § 403.061(42), *Florida Statutes*; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

The Florida Department of Environmental Protection’s (DEP) Northwest District Office in Pensacola advises that the proposed project activities affect jurisdictional waters of the state associated with Tom’s Creek and associated tributaries and, therefore, will require an environmental resource permit (ERP) under Chapter 62-346, *Florida Administrative Code* (F.A.C.), for any wetland impacts and stormwater management. Please contact Mr. Scott Casey at (850) 595-0574 for further information and assistance with the state’s ERP application requirements.

The Florida Fish and Wildlife Conservation Commission (FWC) notes that Eglin AFB has made commitments that will minimize or avoid impacts to threatened and endangered species from the proposed action, including: create construction setbacks from Okaloosa darter habitat in area creeks; provide instructions to construction personnel to prevent harm to Eastern indigo snakes; survey for, avoid and relocate gopher tortoises within the construction area; and avoid and cease construction if Florida black bears are found in the area. Please refer to the enclosed FWC letter for further details.

Mrs. Melinda A. Rogers

June 7, 2012

Page 2 of 2

Based on the information contained in the Draft EA and enclosed agency comments, the state has determined that, at this stage, the proposed federal activities are consistent with the Florida Coastal Management Program (FCMP). To ensure the project's continued consistency with the FCMP, the concerns identified by our reviewing agencies must be addressed prior to project implementation. The state's continued concurrence will be based on the activity's compliance with FCMP authorities, including federal and state monitoring of the activity to ensure its continued conformance, and the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process in accordance with Section 373.428, *Florida Statutes*.

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

Yours sincerely,



Sally B. Mann, Director
Office of Intergovernmental Programs

SBM/js
Enclosures

cc: Darryl Boudreau, DEP, Northwest District
Scott Sanders, FWC



Florida

Department of Environmental Protection

"More Protection, Less Process"



Categories

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Project Information	
Project:	FL201204126193C
Comments Due:	05/25/2012
Letter Due:	06/10/2012
Description:	DEPARTMENT OF THE AIR FORCE - DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HIGH EXPLOSIVE RESEARCH AND DEVELOPMENT (HERD) COMPLEX'S PROPOSED LONG TERM UPGRADE AND EXPANSION, EGLIN AIR FORCE BASE - OKALOOSA COUNTY, FLORIDA.
Keywords:	USAF - DEA, HERD COMPLEX UPGRADE AND EXPANSION - EGLIN AFB, OKALOOSA CO.
CFDA #:	12.200
Agency Comments:	
FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION	
The FWC notes that Eglin AFB has made commitments that will minimize or avoid impacts to threatened and endangered species from the proposed action. These include: create construction setbacks from Okaloosa darter habitat in area creeks; provide instructions to construction personnel to prevent harm to Eastern indigo snakes; survey for, avoid and relocate gopher tortoises within the construction area; and avoid and cease construction if Florida black bears are found in the area. Please see the enclosed FWC letter for further details.	
NORTHWEST FLORIDA WMD - NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT	
No Comments Received	
ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	
The DEP Northwest District Office in Pensacola advises that the proposed project activities affect jurisdictional waters of the state associated with Tom's Creek and associated tributaries and, therefore, will require an environmental resource permit (ERP) under Chapter 62-346, F.A.C., for any wetland impacts and stormwater management. Please contact Mr. Scott Casey at (850) 595-0574 for further information and assistance with the state's ERP application requirements.	
STATE - FLORIDA DEPARTMENT OF STATE	
No Comment/Consistent	
WEST FLORIDA RPC - WEST FLORIDA REGIONAL PLANNING COUNCIL	
No Comments Received	
OKALOOSA - OKALOOSA COUNTY	
No Comments	

For more information or to submit comments, please contact the Clearinghouse Office at:

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

Visit the [Clearinghouse Home Page](#) to query other projects.

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and Wildlife
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Commission**

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Karen Ventimiglia
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of people.

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Hearing/speech-impaired:
(800) 955-8771 (T)
(800) 955-8770 (V)

MyFWC.com

May 21, 2012

Ms. Lauren P. Milligan
Environmental Manager
Florida State Clearinghouse
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 47
Tallahassee, FL 32399-3000
Lauren.Milligan@dep.state.fl.us

Re: SAI #FL201204126193C, Department of the Air Force, Draft Environmental Assessment, Long term upgrade and expansion of the High Explosive Research and Development (HERD) complex, Eglin Air Force Base, Okaloosa County, Florida

Dear Ms. Milligan:

Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed the draft Environmental Assessment (DEA), and provides the following comments and recommendations in accordance with the Coastal Zone Management Act, Florida's Coastal Management Program for your consideration.

Proposed Action

The proposed action includes an expansion of the fenced, access controlled area of the HERD complex to the west and south of the existing HERD campus. Expansion will include future explosives operations, testing, and storage buildings; non-explosives research and purpose buildings; supporting infrastructure for existing and future facilities; and expansion of the central utilities system which distributes steam, chilled water, hot water and compressed air to existing and future buildings. In total, the expansion of the HERD complex may include the construction of as many as thirty-six new buildings and associated infrastructure, including roads, parking lots, and a stormwater conveyance network.

Potentially Affected Resources

The DEA, Section 4.13.3.1, describes the threatened and endangered biological resources that could be affected by the project. These include the Okaloosa darter, *Etheostoma okalossae* (Federally-Threatened (FT)) and its habitat, Eastern indigo snake, *Drymarchon corais couperi* (FT), gopher tortoise, gopherus polyphemus (State-Threatened (ST)), and the Florida black bear, *Ursus americanus floridanus* (ST).

Comments and Recommendations

Eglin made commitments, under Section 7 of the Endangered Species Act, that will minimize or avoid impacts from the proposed action. These commitments are identified

in Section 6.2.11 of the DEA. The proposed expansion area of the HERD compound is bounded to the west by an unnamed tributary and to the north by Tom's Creek; both are recognized Okaloosa darter habitat. Under the proposed action, perimeter fencing would be located approximately 175 feet from the Okaloosa darter habitat (on the western boundary of the project site). This setback along with construction of erosion controls should adequately protect the stream from unintended adverse impacts.

The DEA states that indigo snakes have been documented at 17 sites across the Eglin reservation. Eglin has committed to providing construction personnel a description of the eastern indigo snake and instructions not to harass, injure, harm, or kill indigo snakes. Should an indigo snake be sighted, construction personnel will be instructed to cease activities to allow the eastern indigo snake sufficient time to move away from the site on its own before resuming activities.

Active gopher tortoise burrows were observed within the project area, as depicted in Figure 3-2 of the DEA. Eglin has committed to 1) perform a gopher tortoise survey prior to any construction or disturbance; 2) if a gopher tortoise burrow cannot be avoided, then the tortoise would be relocated in accordance with the FWC protocols; and, 3) should a gopher tortoise burrow be identified by construction personnel within the proposed path of construction, work should cease until Natural Resources personnel have investigated the burrow and relocated any gopher tortoise or their commensals to a suitable location.

Finally, Eglin has indicated that in the unlikely event that construction personnel come into contact with a black bear, all activities will cease until the bear has moved away from the area.

FWC concurs that the commitments identified in Section 6.2.11 of the DEA will serve to minimize or avoid impacts to fish and wildlife resources and that the proposed project is consistent within our authorities under Chapter 379 Florida Statutes. If you need any further assistance, please do not hesitate to contact Jane Chabre either by phone at (850) 410-5367 or at FWCConservationPlanningServices@MyFWC.com. If you have specific technical questions regarding the content of this letter, please contact Theodore Hoehn at 850-488-8792 or by email at ted.hoehn@myfwc.com.

Sincerely,


for, Scott Sanders, Director
Office of Conservation Planning Services

ss/bg/th

Eglin AFB High Explosive Research and Development_16159_052112
ENV 1-3-2

COUNTY: OKALOOSA

Sch-106-USAF-EG
2012-2175

DATE: 4/11/2012

COMMENTS DUE DATE: 5/25/2012

CLEARANCE DUE DATE: 6/10/2012

SAI#: FL201204126193C

MESSAGE:

STATE AGENCIES

ENVIRONMENTAL
PROTECTION

FISH and WILDLIFE
COMMISSION

X STATE

WATER MNGMNT.
DISTRICTS

NORTHWEST FLORIDA WMD

OPB POLICY
UNIT

RPCS & LOC
GOVS

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

DEPARTMENT OF THE AIR FORCE - DRAFT ENVIRONMENTAL ASSESSMENT FOR THE HIGH EXPLOSIVE RESEARCH AND DEVELOPMENT (HERD) COMPLEX'S PROPOSED LONG TERM UPGRADE AND EXPANSION, EGLIN AIR FORCE BASE - OKALOOSA COUNTY, FLORIDA.

To: Florida State Clearinghouse

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

EO. 12372/NEPA Federal Consistency

☒ No Comment

☐ Comment Attached

☐ Not Applicable

☒ No Comment/Consistent

☐ Consistent/Comments Attached

☐ Inconsistent/Comments Attached

☐ Not Applicable

From:

Division/Bureau: HISTORICAL RESOURCES/HISTORIC PRESERVATION

Reviewer: S. Edwards

Lance R. Kammeyer

Date: 5/15/2012

Deputy SHPO

5/16/2012

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MAY 21 2012

DEP Office of
Intergovt'l Programs

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HISTORIC PRESERVATION
2012 APR 19 P 1:39

APPENDIX B: BIOLOGICAL ASSESSMENT WITH USFWS CONCURRENCE

Note: In 2011, the Okaloosa darter was downlisted from Endangered to Threatened.



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 96TH AIR BASE WING (AFMC)
EGLIN AIR FORCE BASE FLORIDA

Mr. Stephen M. Seiber
Chief, Natural Resources Section
96 CEG/CEVSN
501 De Leon Street, Suite 101
Eglin AFB FL 32542-5133

JUN 4 2009

Ms. Janet Mizzi
U.S. Fish and Wildlife Service
1601 Balboa Avenue
Panama City FL 32405

Dear Ms. Mizzi:

The following information is being submitted to fulfill requirements under Section 7 of the Endangered Species Act (ESA). This biological assessment addresses potential impacts to the eastern indigo snake and Okaloosa darter associated with the expansion of the existing High Explosives Research and Development (HERD) complex facilities at Eglin Air Force Base (AFB), Florida (Figures 1 and 2). Additionally the Florida black bear and gopher tortoise are considered.

Description of the Proposed Action

The proposed action includes a significant expansion of the fenced, access controlled area of the existing HERD complex research facilities at Eglin AFB to accommodate new lines of research and testing, with emphasis on applications of energetic nano-materials in new munitions development (Figures 3 and 4). This expansion would include future explosives operating, testing and storage buildings, non-explosives research and special purpose buildings, the supporting infrastructure for those facilities, and the expansion of the central utilities system that distributes steam, chilled water, hot water, and compressed air to both existing and future buildings. This project proposes the construction of a total of as many as thirty-six new buildings and associated infrastructure (e.g., roads, parking lots, stormwater conveyance, etc.) to support the Air Force Research Laboratory (AFRL) HERD at Eglin AFB.

The proposed expansion would occur to the south and west of the existing AFRL HERD buildings. The buildings that would be constructed in the western-most portion of the expansion area include both hands-on and remote explosives buildings, and as such, would require installation of large bin walls (tall steel containers filled with earth) for safety purposes. Existing infrastructure would also be updated as part of the expansion, including the stormwater management system, various utilities, and fixtures in existing buildings.

There would be a security fence around the entire perimeter of the expanded HERD compound. A 30-foot swath outside of the perimeter fence would be cleared for security purposes and the forest land to the west of the existing HERD complex between the fence and the creek would no longer be available for hunting or other recreational uses. At present, erosion issues associated with motorized security patrols along the perimeter of the existing security fence exist, and those patrols would continue outside the perimeter fence following expansion. Therefore, off-site erosion control measures are also being designed as part of the project to protect water quality in the wetlands and streams adjacent to the project site.

The sites for the buildings proposed to the south of the existing complex would likely be cleared and maintained as cleared land, similar to that which is found in the existing HERD complex. New stormwater detention basins would be constructed as part of the proposed action to meet stormwater requirements for new construction under the Northwest Florida Water Management District (NFWFMD). Reuse of stormwater and utilities condensate may be implemented on-site to aid in erosion control by establishing and maintaining vegetation on berms and side slopes.

Biological Information

One federally listed endangered (E) species is known to occur within the project area and one federally threatened (T) species may occur within the project area. Additionally, the Florida black bear and gopher tortoise may occur within the project area. The following list indicates those federally listed species considered for this action:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Federal Status</u>
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T
Okaloosa darter	<i>Etheostoma okaloosae</i>	E

These state-listed species are considered:

<u>Common Name</u>	<u>Scientific Name</u>
Florida black bear	<i>Ursus americanus floridanus</i>
Gopher tortoise	<i>Gopherus polyphemus</i>

Eastern Indigo Snake

The eastern indigo snake (*Drymarchon corais couperi*) is listed as a federal and state threatened species and is the largest nonvenomous snake in North America. The primary reason for its listing is population decline resulting from habitat loss and fragmentation. Movement along travel corridors between seasonal habitats exposes the snake to danger from increased contact with humans. Indigo snakes frequently utilize gopher tortoise burrows and the burrows of other species for overwintering. The snake frequents flatwoods, hammocks, stream bottoms, riparian thickets, and high ground with well-drained, sandy soils. The indigo snake could occur anywhere on Eglin AFB because it uses such a wide variety of habitats (U.S. Air Force, 2006).

The species is extremely uncommon on Eglin AFB with the sighting of only twenty-nine indigo snakes throughout Eglin AFB from 1956 to 1999. No sightings have been reported since 1999 (Gault, 2006). Most of these snakes were seen crossing roads or after being killed by vehicles. It is difficult to determine a precise number or even estimate the numbers of these snakes due to the secretive nature of this species (U.S. Air Force, 2006).

Okaloosa Darter

The Okaloosa darter (*Etheostoma okaloosae*) is considered a federally and state-listed endangered species. Spawning occurs from March to October, with the greatest amount of activity taking place during April (USFWS, 1998). The entire global population of this species is found in the tributaries and main channels of Toms, Turkey, Mill, Swift, East Turkey, and Rocky Creeks, which drain into two bayous of Choctawhatchee Bay. These seepage streams have persistent discharge of clear, sand-filtered water through sandy channels, woody debris, and vegetation beds. The Eglin Range contains 90 percent of the 457-square-kilometer (176-square-mile) drainage area. The remaining portions of the watershed are within the urban areas of Niceville and Valparaiso (U.S. Air Force, 2006).

The most immediate threat to the Okaloosa darter is loss of habitat through degradation of stream water quality from soil erosion into streams. The areas of high soil and sediment erosion probability are from borrow pits, clay roads that cross streams, and on a few test area sites from vegetation maintenance methods on slopes using choppers. A 1992 study identified erosion from borrow pits and roads as a major contributor to the degradation of darter habitat. Mission activities could avoid further degradation of stream quality by keeping vehicle activity and troop movement confined to rails, bridges, and roads and conducting ground disturbing activities only outside of a 300-foot buffer around Okaloosa darter streams. These procedures are available to minimize sediment erosion into the darter watersheds and to avoid a consultation process under Endangered Species Act regulations (U.S. Air Force, 2006).

Due to a recovery plan that Eglin AFB implemented for the Okaloosa darter in 1998, the darter is currently under federal status review for potential downlisting from endangered to threatened. To ensure downlisting of the Okaloosa darter, Eglin AFB is:

- Protecting instream flows and historical habitat through management plans, conservation agreements, easements, and/or acquisitions.
- Implementing an effective habitat restoration program to control erosion from roads, clay pits, and open ranges.
- Demonstrating that the Okaloosa darter population is stable or increasing and that the range of the Okaloosa darter has not decreased at all historical monitoring sites.
- Seeing that no foreseeable threats exist that would impact the survival of the species.

Other Species Considered:

Florida Black Bear

The Florida black bear (*Ursus americanus floridanus*) is currently listed as a state threatened species except in Baker and Columbia counties and Apalachicola National Forest. Florida black bear populations are currently found in Florida and Georgia, as well as a small population in Alabama. Reasons for population declines throughout Florida and Georgia include loss of habitat due to urban development and direct mortality due to collisions with vehicles. Eglin AFB is considered to be the smallest population, with an estimated sixty to one-hundred individuals; however, Eglin's black bear population has shown signs of increase since the early 1990s. Black bear in Florida breed in June/July, and young are born in January/February. Most black bears within Eglin AFB utilize the large swamps and floodplain forests in the southwest and northern portions of Eglin AFB, where they feed on fruits, acorns, beetles, and yellow jackets. Black bear sightings have occurred at numerous locations throughout Eglin AFB, the majority of which have been within the interstitial areas (U.S. Air Force, 2006).

Gopher Tortoise

The gopher tortoise (*Gopherus polyphemus*), a state-threatened species, is found primarily within the Sandhills and Open Grassland ecological associations on Eglin, where it excavates a tunnel-like burrow for shelter from climatic extremes and refuge from predators. The primary features of good tortoise habitat are sandy soils, open canopy with plenty of sunlight, and abundant food plants (forbs and grasses). Prescribed fire is often employed to maintain these conditions. Nesting occurs during May and June and hatching occurs from August through September. Gopher tortoise burrows are important habitat for many species, including the federally-listed indigo snake (U.S. Air Force, 2006).

Determination of Impacts

Eastern Indigo Snake

The potential impact to the eastern indigo snake is from direct physical impacts associated with construction activities. Incidental contact with personnel and equipment could result in trampling or crushing of individual species. However, this occurrence is considered unlikely, as the snake would most likely move away from the area if it sensed a general disturbance in its vicinity. Should an indigo snake be sighted during construction, personnel would cease activities until the snake has moved away from the area before resuming work. Eglin NRS has determined that the Proposed Action is **not likely to adversely affect** the eastern indigo snake if the following avoidance and minimization measures are followed:

- Construction personnel would be provided a description of the eastern indigo snake and its protection under Federal Law. Indigo snake signs would be posted

- at construction site. Personnel would be given instructions not to harass injure, harm, or kill this species.
- Should an indigo snake be sighted, construction personnel would be directed to cease any activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming such activities. Personnel would contact the Eglin Natural Resources Section immediately.

Okaloosa Darter

Direct physical impact to the darter stream from equipment or personnel is unlikely to occur, as no work is planned in the darter stream. Excess sedimentation is the major threat to stream habitats of the federally endangered Okaloosa darter; therefore, minimization of erosion in Okaloosa darter watersheds is extremely important. To minimize impacts, best management practices (BMPs) such as the use of hay bales and silt fences would be in place prior to, and throughout construction to minimize erosion into the stream and lessen any potential downstream impact. Construction actions would occur at a minimum of 100 feet outside of the darter stream. If possible, construction actions with potential to impact the Okaloosa darter (i.e. fence and tree clearing) would be completed between September and February to avoid the spawning season.

At present, erosion issues associated with motorized security patrols along the perimeter of the existing security fence occur, and those patrols would continue outside the perimeter fence following expansion. Therefore, off-site erosion control measures are also being designed as part of the project to protect water quality in the wetlands and streams adjacent the project site. Eglin NRS would coordinate with personnel to ensure erosion control measures are followed during security patrols. Therefore Eglin NRS has determined that with proper erosion control BMPs in place, the Proposed Action is **not likely to adversely** affect the Okaloosa darter.

Other Species Considered:

Florida Black Bear

Any potential impact to Florida black bear would be from incidental contact with the animal, or disruption of its behavioral habits. In the unlikely event that construction personnel come into contact with a black bear, all activities would cease until the bear has moved away from the area. Therefore Eglin NRS has determined that the Proposed Action is **not likely to adversely affect** the Florida black bear.

Gopher Tortoise

The potential to impact the gopher tortoise is from direct physical impacts associated with construction activities. Incidental contact with personnel and equipment could result in trampling or crushing of individuals or their burrow. Eglin NRS would conduct a gopher tortoise survey prior to construction activities. If a gopher tortoise burrow is identified within the proposed path of construction, Natural Resource personnel would investigate the burrow and relocate any gopher tortoise or commensals that may be

occupying the burrow. All gopher tortoise or commensal relocation would be performed in accordance with the Florida Fish and Wildlife Conservation Commission (FWC) protocols. In the unlikely event that construction personnel come into contact with a gopher tortoise, all activities would cease until the tortoise has moved away from the area. Eglin NRS has determined that the Proposed Action is **not likely to adversely affect** the gopher tortoise if the following avoidance and minimization measures are followed:

- Prior to project initiation a gopher tortoise survey is required.
- If a gopher tortoise burrow cannot be avoided, then the tortoise would be relocated in accordance with the FWC protocols.
- Should a gopher tortoise burrow be identified within the proposed path of construction by construction personnel, work would cease until Natural Resources personnel have investigated the burrow and relocated any gopher tortoise or commensals to a suitable location.

Conclusion

Potential impacts to federally listed species from the proposed expansion of the existing HERD complex research facilities are minimal with the implementation of the avoidance and minimization measures; therefore Eglin NRS has determined that the Proposed Action is **not likely to adversely affect** the eastern indigo snake or the Okaloosa darter.

Eglin AFB would notify the USFWS immediately if it modifies any of the actions considered in this Proposed Action or if additional information on listed species becomes available, as the USFWS may require a reinitiation of consultation. If impact to listed species occurs beyond what Eglin has considered in this assessment, all operations would cease and Eglin would notify the USFWS. Prior to commencement of activities, Eglin would implement any modifications or conditions resulting from consultation with the USFWS. Eglin NRS believes this fulfills all requirements of the ESA, and no further action is necessary.

If you have any questions regarding this letter or any of the proposed activities, please do not hesitate to contact either Mr. Bob Miller (850) 883-1153 or myself at (850) 882-8391.

Sincerely,

STEPHEN M. SEIBER, YF-02
Chief, Natural Resources Section

Attachments:
Figures 1- 4

REFERENCES:

- Florida Fish and Wildlife Conservation Commission (FWC), 2007. Web based document accessed April 26, 2007 at: <http://myfwc.com/imperiledspecies/petitions/gopher-tortoise.htm>
- Gault, K. 2006. Personal communication between Kathy Gault, Eglin Natural Resources Section, Wildlife, and Stephanie Hiers, SAIC. August 2006.
- U.S. Air Force, 2006. Threatened and Endangered Species Component Plan for Eglin AFB, FL. 96 CEG/CEVSN.
- U.S. Fish and Wildlife Service (USFWS), 1998. Okaloosa darter (*Etheostoma okaloosae*) recovery plan (revised). U.S. Fish and Wildlife Service, Atlanta, Georgia. 42 pp.



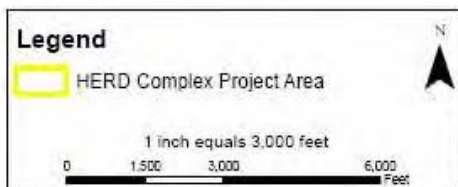
Figure 1. Eglin Air Force Base, Florida



Figure 2. Location of Project Area on Eglin AFB



Source: Aerial - Eglin AFB 2005




Air Force Research Laboratory HERD Complex			
Location of AFRL-HERD Complex			
Drawn: JAT-3/9/2009	Eglin AFB, Florida	MACTEC AFRL-HERD at Eglin AFB, Florida Project # 0003000140	Figure 1-2
Checked: NMG-3/9/2009			

Figure 3. Project Location of HERD Complex




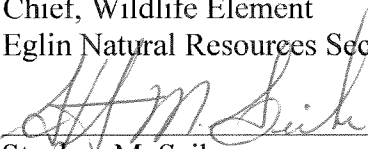
Figure 4. Potential Layout of HERD Complex

INFORMAL CONSULTATION REGARDING
IMPACTS TO FEDERALLY LISTED SPECIES
RESULTING FROM THE EXPANSION OF THE EXISTING HERD COMPLEX
RESEARCH FACILITIES AT EGLIN AIR FORCE BASE, FLORIDA

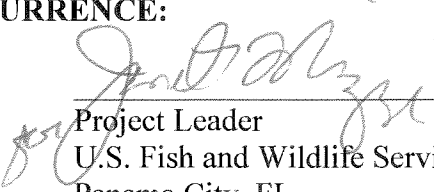
Prepared by:  5/29/09
Date
Kelly Knight
Environmental Scientist, SAIC
Eglin Natural Resources Section

Reviewed by: _____
Bob Miller
Endangered Species Biologist
Eglin Natural Resources Section
Date

 6-2-09
Date
Bruce Hagedorn
Chief, Wildlife Element
Eglin Natural Resources Section

 6-3-09
Date
Stephen M. Seiber
Chief, Eglin Natural Resources Section

USFWS CONCURRENCE:

 6-9-09
Date
Project Leader
U.S. Fish and Wildlife Service
Panama City, FL

FWS Log No.

41410-2009-I-0192

APPENDIX C: PUBLIC REVIEW PROCESS

PUBLIC REVIEW PROCESS

The public review process provides an opportunity for the public to comment on federal actions addressed in NEPA documents. A public notice was published in the *Northwest Florida Daily News* announcing the availability of the Draft EA and FONSI for public review and comment. A copy of the publication as it ran in the newspaper on April 19, 2012 is shown below. No public comments were received.

PUBLIC NOTIFICATION

In compliance with the National Environmental Policy Act, Eglin Air Force Base announces the availability of a Draft Environmental Assessment (EA) and Finding of No Significant Impact for the High Explosive Research and Development Complex's Proposed Long Term Upgrade and Expansion Eglin Air Force Base, Florida for public review and comment.

The Proposed Action of the High Explosive Research and Development Complex's Proposed Long Term Upgrade and Expansion would include construction of new explosives operating, testing and storage buildings, non-explosives research and special purpose buildings, the supporting infrastructure for those facilities, and the expansion of the central utilities system that distributes steam, chilled water, hot water, and compressed air to both existing and future buildings.

The action includes 1. Construction of the Energetic Damage Mechanisms Research Center. 2. Construction of the Advanced Energetics Research Laboratory which will house separate laboratories for ultra-fine particle research and development. 3. Construction of the Ultra-fine Particle Energetics Basic Research Laboratory. 4. Construction of three new explosives storage buildings to the east of the existing igloos. 5. Construction of the Advanced Munitions Complex. 6. Construction of the HERD Complex Communications Center which will provide the necessary communications infrastructure to support the long term HERD complex expansion. 7. Construction of six new explosive storage igloos to facilitate expanded HERD explosive operations under the long term complex expansion. 8. Construction of five hands-on explosives operations buildings and ten remote explosives operations buildings in areas proposed for expansion to the west of the HERD complex.

Your comments on this Draft EA are requested. Letters and other written or oral comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided, including private addresses, will be used only to identify your desire to make a statement during the public comment period or to compile a mailing list to fulfill requests for copies of the Final EA or associated documents. However, only the names and respective comments of respondent individuals will be disclosed; personal home addresses and phone numbers will not be published in the Final EA.

The Draft Environmental Assessment and Finding of No Significant Impact are available on the web at www.eglin.af.mil/environmentalassessments.asp from Apr. 19th, 2011 until May 3rd, 2012. For more information, contact Mike Spaits, 96th Air Base Wing Environmental Public Affairs, 501 De Leon Street, Suite 101, Eglin AFB, Florida 32542-5133 or email: mike.spaits@eglin.af.mil. Tel: (850) 882-2836; Fax: (850) 882-3761.

For more information or to comment on the Proposed Action, contact Mike Spaits using the contact information given above. Comments must be received by May 5th, 2012.

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