

**FINAL**  
**Report of Environmental Assessment**

**Building 237**

**Construction of an Automated Energetics Processing Facility**  
**TACOM-ARDEC, Picatinny Arsenal**

Dover, New Jersey  
Submitted to:



TACOM-ARDEC

Picatinny Arsenal, New Jersey

Delivery Order Number: DAAE30-03-F-0024

Submitted by:



Tetra Tech EM Inc.

February 2004

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**EXECUTIVE SUMMARY****CONSTRUCTION OF AN AUTOMATED ENERGETIC PROCESSING FACILITY  
WITHIN BUILDING 237**

- (a) **Lead Agency:** U.S. Department of the Army
- (b) **Proposed Action:** To construct an automated Energetic Processing Facility within a building that is currently abandoned, known as Building 237, with all electronics controlling the processing located within the adjacent building known as building 231.
- (c) **Locations:** U.S. Department of the Army-Picatinny Arsenal, Dover, New Jersey.
- (d) **Responsible Officials:** BG L. Clay Newman  
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This environmental assessment (EA) was prepared to evaluate the potential impacts of the proposed action and the no action alternatives on the physical and human environment. The proposed action is comprised of the construction and operation of an automated Energetics Processing Facility within a building that is currently abandoned, known as Building 237. The processing equipment, including various storage tanks, a batch reactor, connecting piping and emissions control equipment will be housed in Building 237. The electronics controlling the processing will be housed in another building, known as building 231, that will be connected to the equipment room of Building 237, via an underground utility vault. The proposed action would be undertaken by the United States Department of the Army (U.S. Army), at the Picatinny Arsenal in Dover, New Jersey (NJ). This document will aid the U.S. Army in making a decision to build or not to build the proposed facilities.

The purpose of the proposed action is to construct, operate, and maintain an automated Energetics Processing Facility within a building (Building 237) that is currently abandoned. This building will be refurbished and newly equipped to reflect the state-of-the-art of energetics processing technology as required by the various US ARMY Research and Development armaments missions. The facilities capabilities will include various energetics batch mixing, energetics recrystallization, formulation and synthesis processes, and fully remote operated Model Based Control (MBC). The following alternatives, designed to meet the purpose and underlying need, are evaluated in this EA. Other alternatives were considered for the placement of the facility; however, they have been rejected for numerous reasons further mentioned in Section 2.2 of this document.

**Preferred Alternative:** The preferred alternative is the proposed action: That the Picatinny Arsenal construct, operate, and maintain an automated Energetics Processing Facility within Building 237, with all electronics controlling the processing housed within Building 231, located directly west of Building 237.

**No Action Alternative:** The no action alternative is that the Picatinny Arsenal would not construct, operate, and maintain an automated Energetics Processing Facility within Building 237.

**Alternatives Considered but Rejected:** Alternatives considered include the placement of the facility off-site from the Picatinny Arsenal; and the use of Building 1033 or Building 1090 within the Picatinny Arsenal. All alternatives were rejected for the proposed activities for reasons discussed in Section 2.2.

The Picatinny Arsenal consists of 6,100 acres and is located in the New Jersey Highlands in Rockaway Township, Morris County, New Jersey, with a small portion located within Jefferson Township. The facility is approximately 32 miles northwest of Newark, New Jersey, and 42 miles west of New York City, New York. The area of interest for the proposed action is situated primarily within the western-northwestern vicinity of the Picatinny Arsenal base, within the Picatinny Arsenal's Secure Area, and the footprint consists of approximately 1,200-square feet of developed property, which is no longer in operation and has been abandoned for an extended period of time.

Analysis of impacts on current land use; air resources; water resources; soil and geologic resources; biological resources; cultural, historical, and aesthetic resources; the socioeconomic environment and environmental justice, and hazardous materials was conducted to determine if the proposed action would adversely impact any of those resources. This EA concludes that the proposed action would not have any significant adverse impacts on the resources examined herein. The proposed action would cause minor adverse impacts on several resources of the proposed site, but those impacts would not be significant and would be reduced through the implementation of a variety of best management practices (BMPs) and mitigation measures. Therefore, the preparation of an environmental impact statement (EIS) is not warranted at this time. This decision will be documented through a finding of no significant impact (FNSI).

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**ACRONYM LIST**

A	Adverse Impact
ACM	Asbestos-containing materials
a	Minor Adverse Impact
AQCR	Air Quality Control Region
AR	U.S. Army Regulation
AST	Aboveground Storage Tanks
ASTM	American Society for Testing and Materials
B	Beneficial Impact
b	Minor Beneficial Impact
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
D	Direct Impact
DA	Department of U.S. Army
DoD	Department of Defense
DPW	Department of Public Works
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FNSI	Finding of No Significant Impact
HMMO	Hazardous Material Management Office
HMMP	Hazardous Material Management Plan
I	Indirect Impact
INRMP	Integrated Natural Resource Management Plan
ICRMP	Integrated Cultural Resource Management Plan
MEDCOM	U.S. Army Medical Command
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NJDEP	New Jersey Department of Environmental Protection
NO <sub>2</sub>	Nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System

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## ACRONYM LIST (continued)

NRHP	National Register of Historic Places
NTNCWS	Non-Transient, Non-Community Water System
O <sub>3</sub>	Ozone
Pb	Lead
PCB	Polychlorinated biphenyls
PCi/L	Pico Curies per Liter
PM	Particulate Matter
PM <sub>10</sub>	Particulate Matter (equal to 10 micrometers in diameter)
PWS	Public Water System
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SA	Significant Adverse Impact
SB	Significant Beneficial Impact
SHPO	State Historic Preservation Officer
SO <sub>2</sub>	Sulfur dioxide
sq. ft.	Square Feet
SVOC	Semi-volatile organic compounds
Tetra Tech	Tetra Tech EM Inc
U.S.	United States
USAF	United States Air Force
UST	Underground Storage Tank
U.S. Army	United States Department of the Army
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
WWTP	Waste Water Treatment Plan

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## 1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

This environmental assessment (EA) was prepared to evaluate the potential impacts of the proposed action and the no action alternatives on the physical and human environment. The proposed action is comprised of the construction, operation, and maintenance of an automated Energetics Processing Facility within a building that is currently abandoned, known as Building 237. The processing equipment, including various storage tanks, a batch reactor, connecting piping and emissions control equipment will be housed in Building 237. The electronics controlling the processing will be housed in another building, known as Building 231, that will be connected to Building 237 via an underground utility vault. This site will be refurbished and newly equipped to reflect the state-of-the-art of energetics processing technology as required by the various US ARMY Research and Development armaments missions. The facilities capabilities will include various energetics batch mixing, energetics recrystallization, formulation and synthesis processes, and fully remote operated Model Based Control (MBC). The proposed action would be undertaken by the United States Department of the Army (U.S. Army), at the U.S. Picatinny Arsenal in Dover, New Jersey (NJ). This document will aid the U.S. Army in making a decision to build or not to build the proposed facility.

This EA was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA), (42 United States Code [U.S.C.] 4321 through 4347); the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] parts 1500 through 1508) for Army Actions; *Protection of the Environment*, Code of Federal Regulations (40 CFR, Part 280); U.S. Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*; AR 200-2, *Environmental Effects of Army Actions*; and AR 200-3, *Natural Resources – Land, Forest, and Wildlife Management*.

The following subsections provide further detail about the proposed action; its purpose and need; decisions to be made and the scope of the analysis to be conducted; and applicable statutes, regulations, and guidelines.

### 1.1 PICATINNY ARSENAL MISSION

The Picatinny Arsenal is residence to the Armament Research, Development, and Engineering Center (ARDEC). In addition to ARDEC, the Arsenal is comprised of several other Department of Defense (DOD) tenant organizations and numerous private contractors.

ARDEC's mission has remained unchanged since 1986 and is outlined by the following objectives:

- Conduct development and product improvements to weaponry and weapons systems;
- Maintain a strong technological base in government, industry, and universities in order to evolve improved product and prevent technological mishap;
- Support production and field-testing;
- Provide life cycle, technical support to U.S. soldiers in the field.

Currently, buildings and various man-made structures on the Arsenal are dedicated for mission effectiveness and completeness. Buildings include administrative offices, housing facilities, ordnance facilities, and laboratories dedicated to research and development.

## 1.2 PROPOSED ACTION

The proposed action analyzed in this EA is to be placed within the Picatinny Arsenal for the purpose of expanding the Picatinny Arsenal mission by providing additional research and development facilities within Building 237 and 231 to be newly equipped with state-of-the-art energetic processing technologies. Although the building is currently abandoned and in need of demolition and refurbishment activities, it was formerly used and structured for processing and pressing explosives; therefore the proposed use is consistent with the Picatinny Arsenal mission as well as historical use of the building.

The U.S. Army is proposing to construct, operate, and maintain an automated Energetics Research and Development Formulation and Processing Facility within Building 237. The processing equipment, including various storage tanks, an air/liquid separation tank, a batch reactor, liquid discharge pumps, vacuum pumps, temperature control units, filters, air compressors, and connecting piping and emissions control equipment will be housed in Building 237. The electronics controlling the processing will be housed in a neighboring building to the west, known as building 231, that will be connected to the equipment room of Building 237 via an underground utility vault. Building 237 will be refurbished and newly equipped to reflect new energetics processing technology as required by the various US ARMY Research and Development armaments missions. The facilities capabilities will include various energetics batch mixing, energetics recrystallization, data acquisition, and will be a fully remote operated Model Based Control (MBC) system. The process involves the use of volatile solvents for the pilot-scale research and development operation, and three processes will take place within Building 237 including recrystallization, formulation, and synthesis. Solvents will be condensed and recovered, minimizing air emissions. Many chemicals will be utilized, stored and disposed of to carry out the proposed processes of the facility within the Building, including various solvents, such as methyl ethyl ketone, cyclohexanone, octane, n-methylpyrrolidinone, ethyl acetate, and ethanol. Additional chemicals include acetone, acetic anhydride, bis-dinitropropyl acetyl/formal, nitric acid, 1,3,3-trinitroazetidine (TNAZ), estane, dioctyl adipate, polyisobutylene, stearic acid wax, polyethylene, cellulose acetate butyrate (CAB), RDX, HMX, nitrocellulose, Viton, 2,3-dimethyl-2,3-dinitrobutane, acetic anhydride, ammonium nitrate, hydrochloric acid, sulfuric acid, tetra acetyl diamino (TADA), and tetra acetyl diformal (TADF).

The proposed effort will include, a thorough decontamination and decommissioning of building 237 from its current condition; refurbishment to a condition suitable for its intended energetics processing use; a structural design for a modular/flexible remotely operated capability, and; the purchase, installation, and integration of all equipment and sub systems except as provided by the government (i.e. the control system and computers already exist and will be transferred from building 252 to control the building 237 systems).

The facility will be placed within the western-northwestern section of the Picatinny Arsenal Secure Area, which requires escorted access with authorized Picatinny personnel. Throughout this document, discussion and analysis of the proposed actions are presented and organized by topic or resource

## 1.3 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed action is for the construction, operation, and maintenance of an automated Energetics Processing Facility within an existing building (Building 237). The proposed action is needed because there currently are no such facilities at Picatinny and the future production of energetics, including utilization of model based controls for energetics formulations, will be based on the technologies being developed at this facility. There currently is an existing facility at Picatinny where lab scale model based control energetics are being developed, however, as this facility is only lab scale, it does not have the capacity to support the production of 60,000 liter batch formulations (other existing

energetics facilities considered for the proposed action are discussed in Section 2.0). In addition, nearly every DOD weapons system uses materials that will be researched, developed and optimized at this facility. Therefore, the proposed action will be supporting the Arsenal's mission and support the overall improvement of weapons systems for the DOD.

#### **1.4 DECISIONS TO BE MADE AND SCOPE OF THE ANALYSIS TO BE CONDUCTED**

This EA supports the U.S. Army decision-making process related to the proposed action. Specifically, the U.S. Army, Picatinny Arsenal must decide whether or not to build the proposed Energetics Processing Facility within Building 237. In addition to the considerations related to the requirements of NEPA and applicable regulations, the U.S. Army must consider the military mission and natural resource management goals of the installation. The primary goals of the natural resource management activities at the installation are to provide training and research facilities for the employees of the proposed installation; as well as maintain the overall biodiversity of the indigenous species and the surrounding forested and wetlands habitats, including environmental protection for soil, water, flora and fauna (particularly threatened, endangered, and sensitive species) and other resources, in compliance with applicable federal and state regulations.

The scope of the analysis set forth in this EA is limited to the proposed tract of land (Building 237 and 231), and the areas in the immediate vicinity of that tract within the Picatinny Arsenal, on which the components of the proposed action would be constructed, operated, and maintained. When applicable and possible, and to facilitate as complete an impact analysis as possible, information about areas outside of the boundaries of the Picatinny Arsenal was included in this analysis.

#### **1.5 STATUTORY BASIS AND COMPLIANCE WITH APPLICABLE STATUTES, REGULATIONS, AND GUIDELINES**

In addition to fulfilling the requirements of NEPA, its associated regulations, and the regulations of the U.S. Army, this EA complies with all applicable environmental, natural resource, and cultural resource statutes, regulations, and guidelines. Such additional statutes, regulations, and guidelines may require permits, approvals, consultations with outside agencies, or implementation of mitigation measures. Those considerations are included in the analyses set forth in this EA. The additional statutes, regulations, and guidelines are discussed below, by resource area.

##### **1.5.1 Air Resources**

Clean Air Act of 1970: Under the Clean Air Act of 1970 (CAA), Congress established procedures for developing national ambient air quality standards (NAAQS) for the protection of human health and public welfare. The Environmental Protection Agency (EPA) published the NAAQS in 1971, and they became effective at that time. The Act also provides for the EPA's delegation of authority to states to conduct air pollution control programs. The 1990 amendments (Public Law 101-549) stress pollution control and prevention.

Standards are provided for the following criteria pollutants:

Carbon monoxide (CO)  
Sulfur dioxide (SO<sub>2</sub>)  
Nitrogen dioxide (NO<sub>2</sub>)  
Ozone (O<sub>3</sub>)  
Lead (Pb)

Particulate matter (PM) less than or equal to 10 micrometers in diameter (PM<sub>10</sub>)

### 1.5.2 Water Resources

Federal Water Pollution Control Act, Amendments of 1972: The Federal Water Pollution Control Act, Amendments of 1970 require development and implementation of area wide programs for the management of wastewater treatment.

Clean Water Act of 1977: The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the nation's water. The Act amended the Federal Water Pollution Control Act (FWPCA) and requires Federal agency consistency with state non-point source pollution abatement plans. In 1989, the U.S. Army and EPA reached a memorandum of agreement on federal enforcement of Section 404 of the CWA. The memorandum of agreement stipulates that a permit is required for the removal of less than one-third acre of wetlands.

Safe Drinking Water Act of 1974: This Act amended the Public Health Service Act and specifies a system for the protection of drinking water supplies through the establishment of contaminant limitations and enforcement procedures. The Act requires each state to adopt a program to protect wells within its jurisdiction from contamination. The 1996 amendments (Public Law 104-182) included regulations waiving sovereign immunity for Federal facilities and prohibiting the use of lead in plumbing that carries potable water and the listing of unregulated contaminants which pose a health threat or which are known to occur in public water supplies.

Executive Order 11998, Floodplain Management: Executive Order 11998, Floodplain Management, requires each agency (including military departments) to determine whether any action undertaken would occur in a floodplain.

Watershed Protection and Flood Prevention Act: Compliance with Executive Order 11998, Floodplain Management, would provide for compliance with the Watershed Protection and Flood Prevention Act.

Executive Order 11990, Protection of Wetlands: The intent of Executive Order 11990, Protection of Wetlands, is to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support for new construction in wetlands whenever there is a practicable alternative.

### 1.5.3 Biological Resources

The Endangered Species Act of 1973: The Endangered Species Act (ESA) requires all federal agencies, in consultation with and with the assistance of the secretaries of the Departments of the Interior and Commerce, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened plant/animal species or result in the destruction or adverse modification of the critical habitat of such species. Protected species include threatened and endangered species listed by federal or state authorities.

Migratory Bird Treaty Act of 1918: The Migratory Bird Treaty Act of 1918 protects all migratory birds and their parts (including eggs, nests, and feathers) and requires that the impacts on such birds by federal action to be explored fully in the decision-making process. The law fulfills U.S. commitments under four international conventions for the protection of the shared migratory bird resource.

Fish and Wildlife Conservation Act of 1980: The Fish and Wildlife Conservation Act requires agencies to consult with the U.S. Fish and Wildlife Service (USFWS) and appropriate state agencies, prior to modification of any stream or other body of water, for the purpose of conserving, restoring, or otherwise benefiting nongame fish and wildlife, and their habitat.

Bald Eagle Protection Act of 1940: The Bald Eagle Protection Act of 1940, amended in 1972, prohibits the killing, harassment, take, transport, sale, barter, trade, import, export, and possession of eagles, making it illegal for anyone to collect eagles and eagle parts, nests, or eggs without a permit.

#### **1.5.4 Cultural, Historical, and Aesthetic Resources**

Archeological and Historic Preservation Act of 1974: The Archeological and Historic Preservation Act of 1974 states that, if an activity may cause irreparable loss or destruction of significant scientific, prehistoric, historic, or archeological data, the responsible agency is authorized to undertake data recovery and preservation activities, in accordance with implementing procedures promulgated by the Secretary of the Interior.

National Historic Preservation Act of 1966: The National Historic Preservation Act of 1966, as amended in 1992, requires that responsible agencies taking action that affects any property with historic, architectural, archeological, or cultural value that is listed on or eligible for listing on the National Register of Historic Places (NRHP) comply with the procedures for consultation and comment issued by the Advisory Council on Historic Preservation. The responsible agency also must identify properties affected by the action that are potentially eligible for listing on the NRHP, usually through consultation with the state historic preservation officer (SHPO).

#### **1.5.5 The Socioeconomic Environment and Environmental Justice**

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations: Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs that the programs of federal agencies identify and address disproportionately high and adverse effects on human health and the environment of minority or low-income populations.

#### **1.5.6 Hazardous Materials**

Resource Conservation and Recovery Act of 1976: The Resource Conservation and Recovery Act (RCRA) of 1976 provides for technical and financial assistance for the development of management plans and facilities for the recovery of energy and other resources from discarded materials, and to regulate the management of hazardous materials and waste.

The Emergency Planning and Community Right-to-Know Act of 1986 and the Pollution Prevention Act of 1990: These Acts established programs to protect public health and the environment by providing the public with important information on the toxic chemicals being released into the air, land, and water in their communities by manufacturing facilities.

Occupational Safety and Health Act (OSHA) of 1970: The Act ensures safe and healthy working conditions by authorizing the enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to ensure safe and healthy conditions; and by providing for research, information, education, and training in the field of occupational safety and health.

Toxic Substance Control Act (TSCA) of 1976: This Act provides for the Federal regulation of chemical substances that present a hazard to health or the environment. Such regulations require the testing of new substances and subsequent control of their commercial distribution. The Act also contains specific requirements relative to polychlorinated biphenyls, asbestos, and Radon.

## 2.0 ALTERNATIVES CONSIDERED

This section of the EA provides a detailed description of the alternatives considered, including the preferred alternative (which is the proposed action), the no action alternative, and alternatives considered but not carried forward for analysis and evaluation in this EA.

The main criteria used to determine a suitable location for this proposed action included the following:

1. Land Use; locate the facility where energetics are currently being formulated or developed.
2. Structural considerations; locate the facility within an existing building (if available) suitable for energetics formulation (i.e. reinforced concrete walls with blast wall).
3. Flexibility considerations; locate the facility within an existing building suitable for supporting model based controllers and containing sufficient special dimensions to allow rapid re-configuration of process vessels to accommodate formulation process changes.
4. Environmental Impact; given the overall wealth of natural resources at the Arsenal, locate the facility in an area that minimizes the environmental impact.
4. Beneficial Reuse; locate the facility in an area already developed, preferably not currently in use. This would allow for beneficial re-use of buildings that are in need of repair and may otherwise be considered for demolition.
5. Existing Roads/Infrastructure; locate the facility in an area that can maximize use of existing roads and utilities. This would minimize ground disturbance and associated environmental impacts and also minimize costs associated with constructing new roads and utility lines.

### 2.1 ALTERNATIVES CONSIDERED

The following alternatives were selected for consideration in this EA. Each of the alternatives is discussed in the following subsections.

**Preferred Alternative:** The preferred alternative is the proposed action: That the Picatinny Arsenal construct, operate, and maintain an automated Energetic Processing Facility within a refurbished Building 237, with all electronics controlling the processing housed in Building 231.

**No Action Alternative:** The no action alternative is that the Picatinny Arsenal would not construct, operate, and maintain an automated Energetic Processing Facility within Building 237, with all electronics controlling the processing housed in Building 231.

**Alternatives Considered but Rejected:** Alternatives considered include the placement of the facility off-site from the Picatinny Arsenal; and the use of Building 1033 or Building 1090 within the Picatinny Arsenal. All alternatives were rejected for the proposed activities for reasons discussed in Section 2.2.

#### 2.1.1 The Preferred Alternative

The proposed action analyzed in this EA consists of the construction, operation, and maintenance of a new automated Energetic Processing Facility within a building formerly used for processing explosives, known as Building 237. The tracts of land on which the proposed facility will be constructed are located within the western-northwestern boundaries of the Picatinny Arsenal's Secure Area. The building

selected for the proposed action was considered the best location for the proposed action, given the criteria established as discussed in Section 2.0. The building has historically been used for explosive processing and as a pressing facility dating back to circa 1959 and is currently located in an existing explosives/energetics development land use area. In addition, the building has two-foot thick, steel reinforced concrete walls and has sufficient vertical height for the proposed processes. Therefore, the proposed action will not only be supporting the Arsenal's mission but will allow for refurbishing and reutilizing a building currently not in use but structurally suitable for the proposed action and once used for a parallel purpose.

The U.S. Army is proposing to construct, operate, and maintain an automated Energetics Processing Facility within Building 237, which is located within the Secure Area of the Arsenal. The processing equipment, including various storage tanks, an air/liquid separation tank, a batch reactor, liquid discharge pumps, vacuum pumps, dissolver vessels, temperature control units, filters, air compressors, condensers, and connecting piping, associated plumbing, and emissions control equipment will be housed in Building 237. The electronics controlling the processing will be housed in a neighboring building to the west, known as building 231, that will be connected to Building 237, via a pre-existing underground utility vault. Building 237 will be refurbished into a four-story building and newly equipped to reflect new energetics processing technology as required by the various US ARMY Research and Development armaments missions.

Three (3) processes will take place within the building, including recrystallization, formulation, and synthesis. The facilities capabilities will include various energetics batch mixing, energetics recrystallization, data acquisition, and fully remote operated Model Based Control (MBC). Also, within the building, chemicals used during the operation of the energetic processing facility will be stored within various storage facilities throughout the building. Chemicals to be used within the building include but are not limited to: various solvents, such as MEK, cyclohexanone, octane, n-methylpyrrolidinone, ethyl acetate, and ethanol. Additional chemicals include acetone, acetic anhydride, bis-dinitropropyl acetyl/formal, nitric acid, 1,3,3-trinitroazetidine (TNAZ), estane, dioctal adepate, polyisobutylene, stearic acid wax, polyethylene, cellulose acetate butyrate (CAB), RDX, HMX, nitrocellulose, Viton, 2,3-dimethyl-2,3-dinitrobutane, acetic anhydride, ammonium nitrate, hydrochloric acid, sulfuric acid, tetra acetyl diamino (TADA), and tetra acetyl diformal (TADF).

Additionally, two (2) waste storage tanks (850 gallons each) will be placed within the southwestern section of the basement, underneath the existing loading dock, for the containment of potential leaks and spills within the building during operations, and during the loading and unloading of chemicals from the exterior loading dock. These tanks will also be used to store small quantities of excess water and chemicals resulting from the formulation processes and/or process equipment cleaning. The ingredients from one single formulation process will always be only what is stored in any one of these waste storage tanks at any given time (i.e. there will not be an intermingling of waste streams). The SOPs developed by the proponent will require that the tanks be thoroughly cleaned prior to changing to a different process that is being researched and/or developed. In addition, a waste profile sheet shall be maintained that documents the waste stream contained in the tank. Since, during any process, all the ingredients will be mixed together, the waste will always only contain all these unique ingredients. The facility will not be used to store excess materials; only the materials required for one particular process will be located within the facility.

Sufficient spill containment will be provided by installing secondary containment for the two (2) waste storage tanks that shall have a capacity greater than 10% of the aggregate volume. In addition, tertiary containment is provided because the walls and floor will be coated with a chemical resistant impermeable material. Both tanks will be inspected, daily. To remove wastes from these tanks, piping from the effluent side of each tank will be connected to remote empty quick connection fittings. These fittings will

be installed on the side of the building adjacent to the loading dock and over existing pavement. This will minimize the number of hoses and connections required during waste removal operations performed with a vacuum truck. The lines within the building will be located within the secondary containment area of the tank.

For the transport of heavy equipment within the building, an overhead crane will be installed near the ceiling of Building 237. The third and fourth floors will be constructed with large openings in the floor's surface to allow the crane to transport materials vertically to various floors of the building. For fire protection, an alarm activated sprinkler system will be installed throughout the entire building and two deluge systems will be installed; one on the upper level where 1.1 powder additions are made and one on the middle level where product is handled.

### Construction Activities

The proposed automated Energetics Processing Facility will consist of the refurbishment and utilization of Buildings 237 and 231 (electronic controlling facility), which are located within a previously disturbed area within the Secure Area of the Picatinny Arsenal. A majority of the land has been vacated for an extended period of time, with Building 236 periodically being used for research and development purposes similar to the proposed activities for Building 237.

Minimal amounts of debris is located within the immediate vicinity of the buildings due to the lack of operations and maintenance throughout the years. However it may be necessary to clear a minimal amount of existing overgrown vegetation consisting of weeds, shrubs, and grasses. If this activity occurs within a wetland transition areas, it will be performed in accordance with the New Jersey Department of Environmental Protection Agency Freshwater *Wetlands Protection Act Rules* (NJAC 7:7A). Normal property maintenance is defined as activities required to maintain lawfully existing artificial and natural features, landscaping and gardening and include mowing of lawns, pruning of trees and shrubs, and selective cutting of trees. Although normal property maintenance is not a regulated activity, the vegetation removal must be by hand (not heavy equipment), and the destruction of plant life must be done in a manner which will not alter the character of the wetlands. If selective tree cutting is required, this activity is restricted to between November 15<sup>th</sup> and April 1<sup>st</sup>.

Additionally, minor and temporary disturbances as per NJAC 7:7A and defined as a disturbance caused by the permitted regulated activity that is permanently discontinued within 6 months after they are begun (including the placement of ladders or scaffolding, the removal of human-made debris by non-mechanical means which does not destroy woody vegetation) must not result in adverse environmental effects on transition area

The proposed action does not involve the additional use of land surrounding Buildings 237 or 231; therefore, the removal of forest flora and wildlife habitat will not be necessary during the construction of the proposed facility. Access to the facility originates from a narrow road located to the east-southeast of the facility, known as Phipps Road. Phipps Road extends further to the west-southwest along the northeastern side of Building 231 (Electronic Control Building), and along the eastern-southeastern side of Building 237. Building 237 is at a slight incline from Phipps Road.

Due to the lack of maintenance to the buildings structure, demolition and refurbishment processes have taken place within Building 237, including the removal of the western wall, the deteriorating asbestos containing roof, the former 750-ton press, lead-based paint surfaces, and a wooden floor located on the former first floor of the building. The initial phase of this project is to decontaminate and decommission Building 237 from its current condition, and refurbish the building for its intended use with new windows, new doors, a new blow out panel on the western wall, a new removable roof, concrete floor in

the basement area and new paint inside and outside of the building. After refurbishment of the building the new process equipment and ancillary interior structures will be placed and equipment testing will be performed.

The building foundation and existing 2-foot thick steel reinforced concrete walls will remain as the supporting foundation of the proposed building structure. Also, the existing eastern section of the building located on the second floor will remain in tact, to be used as an equipment room for housing temperature controlling units and chilling meters, a refrigerated dryer, an air receiver, an air compressor, a deionized water feed pump, and a deionized water storage tank. Additionally, the electronics controlling the processing designed for Building 237 will originate from Building 231, located directly to the east-southeast, and will be routed to Building 237 through an existing underground utility vault, and connected to the proposed equipment room.

The proposed design for the buildings structure includes the construction of four stories within the northwestern section of the building. The first floor will be classified as the basement of the building and will contain a sump and pump, two (2) waste storage tanks underneath an existing concrete loading dock on the southwestern section of the building. The basement of the building will be constructed as an epoxy-lined sump used as a source of secondary containment to control potential leaks and spills of chemicals during the operation procedures within the building. Also, an air/liquid separation tank, liquid discharge pumps, and vacuum pumps will be installed. The second floor of the building will be comprised of the existing loading dock within the southwestern section of the building, to be used for the transport of chemical containing apparatuses to support the various operations of the building. Also, a filter, 50-gallon acetone storage tank, acetone feed pump, and a stairwell will be located within the northeastern section of the building at the same level as the loading dock. The equipment room will be located along the existing eastern section of the second floor. The third floor will contain a reactor, the continuation of the stairwell and additional 30-gallon storage/processing tanks. The fourth floor will contain storage/processing tanks, and a crane attached to the ceiling. The third and fourth floors will be constructed with large openings in the floor's surface to allow the crane to transport materials and equipment vertically to various floors of the building. Also, due to the demolition of the former asbestos containing roof and the western wall of the building, a new roof and new blow-out panel will be implemented into the design of Building 237's proposed structure. During construction, any floor drains observed in the basement will be sealed. Conceptual designs of the proposed improvements to the building are located in Appendix A.

Building 231 will be used as an electronic controlling facility for all operated processes that take place within Building 237. All utilities will originate from Building 231 and routed to the equipment room of Building 237 via an existing underground utility vault. No alterations to the surrounding conditions of Building 231 will be necessary for supporting the building's primary purpose to the proposed action.

For air emissions during processing procedures within the building, an HVAC ventilation system will be implemented into the design of the building's structure. The system will be designed to positively exchange the air within the building a minimum of six (6) times per hour. Emission Controls will not be implemented into the design of the facility, due to an insignificant amount of air emissions being released from the proposed processes. If air emissions exceed the expected amount during operation, proper emission controls should be installed.

Improvements to the loading dock will include a spill protection area constructed with impervious materials, which will serve as spill prevention and spill containment for chemicals loaded and off-loaded at the building. A paved area, beginning at Phipps Road and extending to the loading dock will provide access to the building and allow for vehicular transportation making deliveries to the building, as well as facilitating hazardous waste removal services at Building 237.

During construction activities, vehicle use will be minimal, which will include the use of a crew truck, a heavy lifter, and the occasional use of vehicles for assorted deliveries of construction materials.

### **Operation and Maintenance Activities**

Operational activities to the proposed facility would consist of regular patrols of the facility by the Advanced Energy Armaments Center of ARDEC. Maintenance activities related to the proposed activities would include routine checks of mechanical equipment throughout the proposed facility, thorough housekeeping maintenance, regular mowing, regular pruning of vegetation, and utility maintenance as needed.

#### **2.1.2 The No Action Alternative**

Inclusion of the no-action alternative is prescribed by the Council on Environmental Quality regulations as the benchmark against which Federal actions are to be evaluated. The no-action Alternative is generally either a “no change” or “do nothing” alternative to the proposed action. In this case, Picatinny Arsenal would not construct, operate, and maintain a new automated Energetic Processing Facility within Building 237 for the purpose of an advanced research and development activities with the use of new state-of-the-art energetic processing technologies. The existing deteriorating building structure and surrounding environmental conditions would remain the same and untouched. This alternative would not accomplish the purpose of the proposed action or meet the identified needs for additional research and development within the installation. Specifically, as the the future production of energetics, including utilization of model based controls for energetics formulations, will be based on the technologies being developed at this facility and nearly every DOD weapons system uses materials that will be researched, developed and optimized at this facility, the no action alternative would result in a significant negative impact to the Picatinny energetics processing mission.

#### **2.2 Alternatives Considered But Rejected**

Alternatives were considered for the placement of the facility; however, all alternatives were rejected, due to inconvenient locations, insufficient building structure or suitability for the proposed facility. An off-site location from the Picatinny Arsenal for the facility was rejected, due to the nature of the proposed research and development work and the desired need for the facility to exist within Picatinny Arsenal, where all scientists familiar with the proposed activities are located. Also, other locations were examined, including Building 1033; however, the building was rejected due to it’s older age, extremely large size, remote location, and close proximity to a historical cemetery. By using a larger building, renovation and construction costs would be much higher, creating a negative economic impact. Also, the building is accessed from an unmanned gate, lacking the security necessary for such a facility.

Additionally, Building 1090 was considered; however, the location of the building was within close proximity to a heavily traveled road. By having the proposed facility near such a road, the human impacts, in the event of a spill or explosion, would be much greater in such a location; therefore, Building 1090 was rejected. Building 237 is located within a secure, more secluded area of the Picatinny Arsenal, residing within an area once used for similar processes, and is a sufficient size for the proposed operational procedures without high costs for renovation and construction; therefore, Building 237 was the favored option for the facility location.

### 3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

#### 3.1 SETTING

The Picatinny Arsenal is located in Rockaway Township, Morris County, New Jersey, with a small portion located within Jefferson Township. The main portion of Picatinny Arsenal is located in along, narrow valley between Green Pond Mountain ridge to the west and by an unnamed ridge to the east, comprising of approximately 6,100 acres. The facility is approximately 32 miles northwest of Newark, New Jersey, and 42 miles west of New York City, New York. The Arsenal is located in north central New Jersey, in the New York-New Jersey Highlands physiographic province.

Picatinny Arsenal has integrated development into the natural landscape of the Highlands. The majority of the Arsenal property is undeveloped forest; however, the Arsenal property also contains approximately 2.7 million square feet of indoor area. This area includes numerous administrative offices, warehouses, research and development facilities, residential housing, and institutional and recreational facilities. Figure 1 represents the main portion of Picatinny Arsenal within the Highlands Region.

On March 5, 2003 a site reconnaissance of the interior and exterior environmental conditions of Buildings 237 and 231 took place. Building 237 is currently abandoned and is situated primarily within the western-northwestern vicinity of the Picatinny Arsenal, enclosed within the designated Secure Area of the base. Building 237 occupies approximately 1,200 sq. ft. of land, and is located within an area that is used for similar operations. Building 237 is currently abandoned and remains to be highly deteriorated due to a lack of maintenance and utilization.

The U.S. Army proposes to carry out the research and development mission of the Picatinny Arsenal by constructing, operating, and maintaining a new automated Energetic Processing Facility within Building 237. The proposed project area was formerly used as a facility that processed explosives, similar to the proposed future activities of the Energetic Processing Facility. Former building structures (Building 238 and 236) and roadways remain to exist within the immediate vicinity of Building 237; however they are utilized to a minimal degree. Current conditions of the site consist of abandoned semi-improved grounds with existing impervious asphalt and concrete surfaces, minimal overgrown vegetation, and abandoned underground conduit structures. Adjoining properties to the proposed project area consist of forested, rocky ridges to the north, forested, rocky ridges, an access road, a feeder stream and an abandoned building (Building 238) to the east; forested, rocky ridges and Building 236 to the west; Phipps Road, wetlands habitat, forested land, and existing building structures, including Building 231, to the south-southwest.

In May 2001, the Picatinny Arsenal, U.S. Army Tank-Automotive and Armaments Command Armaments Research, Development and Engineering Center (TACOM-ARDEC), completed the *Integrated Natural Resource Management Plan (INRMP)* in accordance with United States Army Environmental Center Instructions in May of 2001. This document presents a thorough description of the existing environment of the entire Picatinny Arsenal and the surrounding region. Therefore, they are hereby incorporated by reference into this EA. The following subsections are generally derived from these documents; however, conditions surrounding Building 237 and 231 were not specifically discussed within the *INRMP*; therefore, specifications of the proposed subject property were obtained through additional resources and through the site reconnaissance of the property on March 5, 2003. The 2001 *INRMP* provided the following information for the entire Arsenal:

- Historical and current land use, including installation history and mission
- Air resources, including air quality, noise, and odor

- Water resources, including groundwater; surface water; wetlands; and coastal zone management, wild and scenic rivers, and floodplains
- Soil and geologic resources, including topography, soils, and geology
- Biological resources, including flora; fauna; and threatened, endangered, and sensitive species
- Cultural, historical, and aesthetic resources, including historic structures and Native American resources
- Socioeconomic environment, including the local population and economy, transportation, infrastructure, and environmental justice
- Hazardous material handling

### 3.2 HISTORICAL AND CURRENT LAND USE

Historical operations performed in Building 237 consisted of research, development and processing of explosives. Picatinny records show the building was constructed and first used in 1959. The historical operations cited above ceased at an unknown point in time. Due to the current state of disrepair of this building, it is presumed to have been non operational for at least the last 20 years. The structure of the building was built to accommodate the processing activities that took place, including two-foot thick steel reinforced concrete walls, and a vertical height sufficient for supporting such processes. Explosive pressing and PBX mixing took place, and chemicals that were used or stored within the building consisted of powdered explosives and propellants, small quantities of solvents and press oils. A 750-ton press occupied the southwestern portion of the building, and was formerly used for the pressing of explosives. Explosive pressing operations involved hydraulic and isostatic pressing of powdered and molten explosives into bullets. The building was decontaminated for layaway in 1969 using water and solvents. Pyrotechnic contamination may be a potential concern within the area due to past operations.

Currently, Building 237 and Building 238 to the east are abandoned and no longer operating at the site. Building 236 to the southwest continues to operate, however, explosive processing activities within the building are minimal. Building 231 is presently operating as a control room providing underground utilities to Building 236. No additional operations appear to be present within the proposed area of action. Explosive containing magazines are located to the south of the project area; however, their location will not be disturbed by the proposed activities. Current conditions of the site consist of improved grounds with existing semi-impervious asphalt and concrete surfaces, minimal overgrown vegetation, and abandoned underground conduit structures. Adjoining properties to the proposed project area consist of forested, rocky ridges to the north, forested, rocky ridges, an access road, a feeder stream and an abandoned building (Building 238) to the east; forested, rocky ridges and Building 236 to the west; Phipps Road, wetlands habitat, forested land, and existing building structures, including Building 231, to the south-southwest.

### 3.3 AIR RESOURCES

This subsection has three topic resources: air quality, noise, and odor. The resources at the Picatinny Arsenal Stillwell Loop and in the general region are discussed below.

#### 3.3.1 Air Quality

National and New Jersey Ambient Air Quality Standards (AAQS) for six specific air pollutants (“criteria” pollutants) have been established by the Environmental Protection Agency (EPA) to protect the health and welfare of the public. Ambient air quality in Morris County, New Jersey meets the National and New Jersey AAQS for sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), particulates with aerodynamic diameter of 10 microns (PM<sub>10</sub>), lead (Pb), and nitrogen dioxide (NO<sub>2</sub>). Therefore, the county is designated by EPA,

per 40 CFR 81, as an attainment/unclassifiable area for these pollutants. However, ambient air quality in the county and statewide does not meet the National and New Jersey AAQS for ozone (O<sub>3</sub>), and is therefore designated by EPA, per 40 CFR 81, as a severe non-attainment area for ozone. Nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC) are precursors to ozone formation, and are regulated as non-attainment pollutants.

Based on facility-wide potential emission rates, the Picatinny Arsenal is classified as a major source of air contaminants pursuant to the New Jersey Administrative Code Title 7, Chapter 27, Subchapter 22 (N.J.A.C. 7:27-22) and is subject to the federal Title V operating permit program requirements specified in this regulation. As discussed further in Chapter 4, modifications and/or new additions of air emission sources at the Arsenal need to be reviewed in the context of this regulation, the Non-attainment New Source Review (NNSR) regulations codified at N.J.A.C. 7:27-18, and the federal Prevention of Significant Deterioration (PSD) regulations codified at 40 CFR 52.21.

The proposed process in Building 237 is required to be added to the Title V operating permit as a significant source since more than 50 pounds of raw materials, other than air and water, are processed in any one hour. This will require a submittal to the NJDEP to modify the operating permit.

Since New Jersey is a severe ozone non-attainment area, the threshold for a “significant” modification is 25 TPY of any ozone precursor (VOC or NO<sub>x</sub>). For any modification that could increase emissions, Picatinny must review all of the emission increases and decreases during the five years preceding the project implementation (the “contemporaneous period”). Therefore, the potential emissions of VOC from this source will be added to the emissions netting analysis for Picatinny. If the net contemporaneous increase exceeds 25 TPY for either NO<sub>x</sub> or VOC, NNSR is triggered. NNSR is a fairly involved process, but the provisions that would have the most effect at the design stage of a project are the requirements for Lowest Achievable Emission Rate (LAER) and emission offsets. If LAER is required, the new facility must implement the most stringent emission controls that have been achieved in practice, regardless of cost.

Picatinny is currently at approximately 6.5 TPY, leaving plenty of room for new VOC emission sources. Although this threshold is not expected to be exceeded due to the addition of this process, VOC reduction projects (for example, installation of controls on storage tank vents) should be identified to generate sufficient credits to avoid NNSR if at all possible in the future.

In addition to NNSR for ozone precursors, Picatinny is subject to PSD review for the other criteria pollutants. However, the only other emission from this process is particulates, which will be insignificant and will not subject Picatinny to PSD review.

### 3.3.2 Noise

The three dominant sources of existing noise at Picatinny Arsenal are the 155-mm howitzer range at Building 636, open detonation in the gorge, and the Rail Gun facility at Building 3620 (Stone and Webster Engineering 1997). Noise levels from ordnance testing are monitored at Picatinny Arsenal, and have been determined to be below the residential land-use threshold.

Aside from the aforementioned areas, natural noise levels at Picatinny Arsenal are generally quite low, with variation depending on proximity to human activities. Actual measurements of ambient noise levels in the area have not been taken. Ambient noise levels are assumed to be an average day-night sound level (L<sub>dn</sub>) of 35-45 decibels (dB(A)) when no ordnance testing or detonation activity occurs. In areas subjected to heavy vehicular traffic, ambient noise levels may reach as high as 55 L<sub>dn</sub>. In areas near

detonation and testing sources, sound exposure levels in excess of 110 dB(A) can be experienced (Louis Berger 2000).

Currently, no known records for noise have been documented near Building 237. However, it has been noted that ambient noise levels were low for the area, specifically associated with the existence of wildlife and minimal vehicle traffic.

### 3.3.3 Odor

Odors can be indicative of poor ventilation or air quality. Potential odor sources might include wastewater, animal wastes, food wastes, chemical contaminants, cleaning solutions, biological contaminants, diesel exhaust, petroleum products, molds, and deodorants. Due to the lack of operations within Building 237 for an extended period of time, no odors were encountered at the installation during the March 5, 2003 site visit. Also, no known reports in relation to past odor occurrences have been recorded.

## 3.4 WATER RESOURCES

This subsection has four topic resources: groundwater; surface water; wetlands; and coastal zones, wild and scenic rivers, and floodplains. The resources at the Picatinny Arsenal, Building 237 and in the general region are discussed below.

### 3.4.1 Groundwater

The groundwater located within the confines of Picatinny Arsenal is found in sediments deposited during the Quaternary Period within the last one million years (USGS 1965). At Picatinny Arsenal, there are three major regional water-bearing zones, including a shallow unconfined aquifer, a confined aquifer, and a confined bedrock aquifer (Stone and Webster Engineering 1997). The Arsenal's groundwater resides in the "Upper Rockaway" aquifer. South of Picatinny Lake, the bedrock and glacial sediments are divided into a sequence of six permeable layers and five intervening, low-permeability layers. The groundwater flow regime is influenced by Green Pond Brook, which flows in a southwesterly direction through the center of the Arsenal. Groundwater flow is primarily horizontal and upward in both the unconfined and confined glacial aquifers, and discharges into Green Pond Brook. Currently, there are three water supply wells in use at Picatinny Arsenal, and all are located in the area southwest of Picatinny Lake and are screened from the confined aquifer system (USACE 2000).

Two aquifers were identified at the project area: an unconsolidated aquifer and a bedrock aquifer. For detected groundwater conditions within the project area, four (4) monitoring wells (128MW-1 to 128MW-4) were installed into the unconsolidated unit and no monitoring wells were installed in the bedrock aquifer. Monitoring well 128MW-3 neighbors Building 237 to the north-northeast near Building 238, and 128MW-4 neighbors Building 237 to the southwest, along the front side of Building 236. The other two monitoring wells are located within the surrounding properties; however, they reside outside the immediate project area. The unconsolidated aquifer had a saturated thicknesses ranging from 9 feet at 128MW-3 to 18 feet at 128MW-4. Groundwater was present under unconfined water table conditions. Groundwater elevations associated with the wells set in the unconsolidated aquifer indicate that groundwater flows to the southeast towards Bear Swamp Brook. The depth to groundwater from ground surface was approximately 5.72 feet at 128MW-3. The depth to groundwater for 128MW-4 was not documented.

Water used on the installation is obtained from both on-site and off-site sources. It is used for potable water supply and operations requiring non-potable water. Potable water will be connected to the building in coordination with the Picatinny Arsenal DPW.

### 3.4.2 Storm water

An extensive network of surface and subsurface conduits, sewers, and culverts covers Picatinny Arsenal. Water control structures area located at three dams on the property to control storm drainage. Other storm drainage structures located at the Arsenal include drop inlets with underground conduit, flumes located along road shoulders, and spillways located at the outlets of all lakes and ponds. Steam and electrical utility lines and easements cross numerous storm water management facilities across the installation.

Building 237 contains no identified culverts or catch basins within the property for storm water drainage control. The subject property has a down gradient slope to the south-southwest; therefore, storm water drainage appears to be directed in that direction.

### 3.4.3 Surface Water

Surface water is a major component of the Picatinny Landscape, evidenced by 2 large lakes (Denmark and Picatinny Lake), 18 ponds, 3 perennial brooks (Green Pond Brook, Burnt Meadow Brook, Ames Brook), several intermittent runs, 3 freshet waterfalls, and a few springs and seeps. The Arsenal is an important recharge area within the New Jersey Watershed Management Area #6 comprising the Upper Passaic, Whippany, and Rockaway Watersheds. Watershed Management Area #6 serves as the primary water supply for northern New Jersey.

No known surface waters were identified within the immediate grounds of the Building 237 project area; however, evidence of wetlands habitats are located to the south-southwest, including a small tributary, known as Bear Swamp Brook further to the south, down gradient from the subject property. A feeder stream is located further to the east parallel to a nearby road leading up to the access road (Phipps Road) for the subject property. The identified feeder stream feeds a small wetland located near Building 231 and continues to drain south into Bear Swamp Brook, located further to the south-southeast from the proposed project area. Bear Swamp Brook serves as the main collection point for surface water drainage from the project area and surrounding properties. The original stream channel has been disrupted by installation activities and the brook flows through a series of culverts and underground piping at the site, which further lead to the identified wetlands located directly to the south of Building 237.

Due to the topography of the site, surface water runoff at the site flows down the ridge of Green Pond Mountain into Bear Swamp Brook. Surface water (i.e. storm water from roof drains and runoff from paved areas) from the buildings in the project area and surrounding areas were historically discharged to Bear Swamp Brook, and no current alterations to drainage patterns have been made to prevent those same activities from taking place. Additionally, Bear Swamp Brook flows to the southwest adjacent to the project area and discharges to Green Pond Brook further southwest.

### 3.4.4 Wetlands

The Arsenal contains approximately 1,250 acres of wetlands scattered across the installation, which are primarily composed of forested wetlands and shrublands. Ten recognized cover types within five wetland types in two systems have been identified. There are 36 acres of palustrine marsh on the installation. Wetland types at Picatinny include lacustrine (36 percent), deciduous forest (43 percent), shrubland (18

percent), emergent marsh (3 percent), and man-made wetlands (approximately 1 percent). Most of the wetlands within the Arsenal have been classified as predominant habitat for a majority of the Arsenal's endangered and threatened flora and fauna populations.

During the March 5, 2003 site visit of the proposed subject area, one wetlands habitat was identified within approximately 110-feet from Building 237, and approximately 50-feet from Building 231. The wetland habitat was identified to the south-southeast, down gradient from the building, which is routed to feed the Bear Swamp Brook located further south-southeast of the project area. Due to the slope of the ground surface, storm water appears to drain directly toward the wetlands.

Documentation of specific flora species within the project area has not been previously recorded. Additionally, flora species identification within the wetlands was difficult due to lack of identifiable foliage during winter weather conditions. However, the wetland habitat identified contained hydraulic conditions and hydrophytic vegetation. The identified plants include Phragmites (*Phragmites australis*), Tussock Sedge (*Carex stricta*), and Red Maple (*Acer rubrum*). However, the aforementioned species are based on visual evidence and present a general representation of the flora types present within this wetland.

#### **3.4.5 Wild and Scenic Rivers, and Floodplains**

The only recorded floodplain on the Picatinny Arsenal is the floodplain of Green Pond Brook. Building 237 is not located within close proximity to the Green Pond Brook; therefore, no floodplains have been assigned to the area. Also, there are no designated wild or scenic rivers within the boundaries of the Picatinny Arsenal; therefore, the regulations under the Wild and Scenic Rivers Act are not applicable to the installation and its activities.

### **3.5 SOILS AND GEOLOGIC RESOURCES**

This subsection has three topic resources: topography, soils, and geology. The resources at the Picatinny Arsenal, Building 237 and in the general region are discussed below.

#### **3.5.1 Topography**

The land of which Picatinny Arsenal is located stretches northeast from the terminal moraine deposited at the southern boundary of the furthest advance of the Wisconsin Glaciation. Glacially scarred mountains, the New York-New Jersey Highlands are part of the Reading Prong of the New England uplands and consist of rugged ridges cresting in elevation between 1,000 and 1,400 feet above mean sea level. Picatinny Arsenal is situated in a valley between two ridges of the Highlands, and is depicted mostly on the Dover Quadrangle, as well as on minor portions of the Boonton and Newfoundland Quadrangles. Elevations are generally lower to the south and east and higher to the north and west. The western-northwestern portion of the Arsenal is characterized as rugged, rocky slopes and rough, stony land with little soil, which is representative of the surrounding conditions of the proposed Building 237 project area. The westerly ridge is classified as Green Pond Mountain. Slopes on the southern end of the western range and on the east side of the valley are less rugged, with a series of knobs with summits ranging from 860 to 1,066 feet. (INRMP, 2001)

### 3.5.2 Soils

The Morris County Soil Survey identifies six (6) soil types present within the Building 237 project area and the surrounding areas. Soil types existing within the immediate environment of Building 237 consist of Hibernia Stony Loam (3 to 15 percent slopes, somewhat poorly drained). Within the surrounding areas, soil types consist of Rock outcrop, Rockaway Complex-Steep, Hibernia very stony loam (15 to 25 percent slopes, somewhat poorly drained), Rockaway extremely stony sandy loam (15 to 25 percent slopes, well drained), Urban Land, and Rockaway very stony sandy loam (3 to 15 percent slopes, well drained).

The Urban Land (Ua) soil type is the only soil type that is classified as disturbed by human activity within the surrounding areas of the Building 237. This soil type generally consists of reworked glacial till deposits which are well drained. No known hydric soils have been mapped for the surrounding environment of Building 237. However, the Hibernia soil types are considered non-hydric with hydric inclusions, indicating that small areas of hydric soils are included in the mapping units.

Morris County Soil Surveys identified Adrian Muck hydric soils further to the southwest of Building 237; however, they remain at a far enough distance where they will not be impacted by the proposed activities. These soils are derived from either organic or mineral deposition. The Adrian Muck areas are considered organic hydric soils and commonly occupy the position of former depressions, where the deposition of organic or mineral sediments has partially or completely filled in lakes and ponds. The hydric mineral soils commonly occur in various landscape positions such as outwash plains, kettles, and undrained depressions (INRMP, 2001)

### 3.5.3 Geology

The Picatinny Arsenal is located in the New Jersey Highlands physiographic province, which ranges from 12 to 18 miles and is located between the Appalachian Piedmont physiographic province to the southeast and the Valley and Ridge province to the northwest. The New Jersey Highlands is the southernmost extension of the New England sub-province (Reading Prong) of the Appalachian Highland physiographic province. The area is characterized by broad, rounded, or flat-topped northeast-southwest trending ridges, and deep and generally narrow valleys that are controlled by the northeast-trending folds and faults of the underlying bedrock.

The valley in which the Picatinny Arsenal resides has a broad and relatively flat floor, which slopes gently to the southwest. The valley varies from 1,000 to 4,000 feet in width. Elevations within the valley floor range from approximately 800 feet mean sea level at the northeastern boundary to approximately 700 feet at the southwestern boundary. The main valley of the Picatinny Arsenal is bounded to the northwest by Green Pond and Copperas Mountains and to the southeast by unnamed ridges. Green Pond and Copperas Mountains are rugged and steeply sloped with a maximum elevation of about 1,250 feet. The north-northwestern ridges where Building 237 is located, consists mainly of younger rock formations from the Cambrian and Silurian ages, which includes Green Pond Conglomerate, along the western-northwestern boundaries of the Arsenal which gives rise to many prominent outcrops, resistant cliffs, and talus slopes along the truncated southeastern aspect, and Leithsville Formation, located in a weathered band running southwest from the Picatinny Lake.

Based on previous studies performed in the region, the project area is characterized by unconsolidated sediments overlying Green Pond Conglomerate bedrock. The unconsolidated unit consists of unstratified and unsorted glacial till. It was a continuous unit characterized as primarily sand with varying amounts of clay, silt, and gravel. The till exhibited a coarsening downward lithology with a reduction in the percentage of fine-grained material and an increase in gravel content. Trending from the northeast to the

southwest, the unit tends to contain more fine material at the top of the unit and more gravel at the base of the unit. The thickness of the till ranged from 15 feet at 128MW-3 on the slope of Green Pond Mountain to 25.5 feet at 128MW-4 near the base of the mountain.

The Green Pond Conglomerate bedrock underlies the unconsolidated soil. The conglomerate is primarily composed of well-cemented coarse red and gray sandstone with gravel-size white quartz clasts and accessory chert, shale, and sandstone pebbles and cobbles. The Green Pond Fault and an unnamed fault to the west of the Green Pond Fault have affected the original elevation and slope of bedrock in this area. Bedrock topography mirrors the surface topography, sloping sharply to the south-southwest (Area H RIR, 1999).

### 3.6 BIOLOGICAL RESOURCES

This subsection has three topic resources: flora; fauna; and threatened, endangered, and sensitive species. The resources at the Picatinny Arsenal, Building 237 and in the general region are discussed below.

#### 3.6.1 Flora

The Arsenal installation is approximately 70 percent forested, which are representative of the forest types classified within the New Jersey Highlands Region. Picatinny Arsenal contains terrestrial and aquatic macrophytic species consisting of 626 species of flowering plants and 90 species non-flowering plants (ARDEC 1996). Approximately 70 percent of the Arsenal is forested, encompassing 4,082 acres (USAEC 2001). The forest is a result of ecological succession of land previously farmed or cleared as well as more recent selective logging. Therefore, most of the forested portion is in second-growth stages, having been logged historically. Forest types on Picatinny Arsenal include mixed oak (65 percent), northern hardwood (13 percent), hemlock (8 percent), red and white pine (< 1 percent), red maple (13 percent), aspen/gray birch (< 1 percent), and hemlock wetland (< 1 percent). The installation's woodlands are representative of the forest types in the Highlands Region (USAEC 2001).

There are no major grasslands areas associated with the installation outside of the mowed portions of the cantonment area. Shrublands are associated with the wetlands near Lake Denmark. The principal species of these palustrine shrublands, based on abundance, are: smooth alder (*Alnus serrulata*), swamp azalea (*Rhododendron viscosum*), maleberry (*Lyonia alnifolia*), highbush blueberry (*Vaccinium corymbosum*), swamp loosestrife (*Decodon verticillatus*), buttonbush (*Cephalanthus occidentalis*), meadowsweet (*Spiraea latifolia*), and swamp rose (*Rosa palustris*) (USAEC 2001).

Vegetation within and surrounding the Building 237 has been mapped as non-forested/forested land, which has been developed and improved, and remains to be disturbed. Various species of unknown weeds, shrubs, and grasses exist within the surrounding property of Building 237 and Building 231. Upland tree species within the project area consist of common northeastern hardwood species, including Black Birch (*Betula lenta*), identified as the dominant species within the surrounding project area. Additionally, tree species dispersed within the project area were identified as White Ash (*Fraxinus Americana*), Red Maple (*Acer rubrum*), and Catalpa (*Catalpa bignoniaceae*). One shrub species identified was Mountain Laurel (*K. latifolia*).

Documentation of specific flora species for the Building 237 project area and surrounding environment has not been previously recorded. Additionally, flora species identification was difficult due to a lack of foliage during winter weather conditions. However, the aforementioned species are based on visual evidence and present a general representation of the flora types present on this property. Rare, threatened, and/or endangered plant species are addressed in Section 3.6.3 below.

### 3.6.2 Fauna

Fauna present within the Arsenal include a wide variety of terrestrial mammals, birds, reptiles, amphibians, fish, and insects, typical of those found throughout the northeastern United States. To date, 315 species of vertebrates have been documented on the Arsenal. These include 26 fish species, 21 amphibian species, 19 reptile species, 208 bird species (of which approximately 169 are migrants), and 41 mammal species (ARDEC 1996, USAEC 2001). Appendix A contains a complete list of known species that have been documented at Picatinny Arsenal.

Definitive species surrounding Building 237 have not been observed during the site visit, however documentation exists to indicate their presence. Due to the limited activity and operations within the proposed project area, and the existence of potential wildlife habitat within the immediate project vicinity, wildlife species frequent the site and probably inhabit portions of the project area. Based on discussions with Mr. John Van De Venter, Arsenal Natural Resource Manager, and sited wildlife habitat conditions, wildlife track imprints or wildlife remnants and scat throughout the immediate vicinity, it is apparent that Northern Copperhead (*Agkistrodon contoririx ssp mokasen*), White Tailed Deer (*Odocoileus virginianus*), Eastern Gray Squirrel (*Sciurus carolinensis*), Eastern Cottontail Rabbit (*Sylvilagus floridanus*), Raccoon (*Procyon lotor*), Opossum (*Didelphis marsupialis*), and various bird and rodent species traverse the area.

Rare, threatened, and/or endangered fish and wildlife species are addressed in Section 3.6.3 below.

### 3.6.3 Threatened, Endangered, and Sensitive Species

The diversity of habitats at the Arsenal supports a large population of plant and animal species. The Integrated Natural Resource Management Plan (INRMP) for Picatinny Arsenal (2001) lists and describes endangered and threatened plant and animal species that do occur or may occur at the Arsenal (Appendix A). Although Department of Defense facilities are only required to protect federally listed species, there are a number of state-listed species that occur on the Arsenal. ARDEC has created management plans for many of the above species so that no adverse effects to the species or their habitat occur as a result of ongoing operations.

#### 3.6.3.1 Plants

There are no known federally endangered or threatened plants at the Arsenal, although two listed species, the small whorled pogonia (*Isotria medeoloides*) and swamp pink (*Helonias bullata*) are known to exist in the general area (ARDEC 1996). Two federal species of concern, trailing tick trefoil (*Desmodium humifusum*) and butternut tree (*Juglans cinerea*) may occur at the Arsenal but have not been documented (ARDEC 1996). There are seven state-listed endangered plants that do occur at the Arsenal, four of which are aquatic species found in Lake Denmark: featherfoil (*Hottonia inflata*), Robbin's pondweed (*Potamogeton robbinsii*), small bur (*Sparganium minimum*), and lesser bladderwort (*Utricularia minor*). Slender wood reed grass (*Cinna latifolia*), meadow horsetail (*Equisetum pratense*), and large-leaved holly (*Ilex montana*) are associated with wetlands (USAEC 2001). In addition, there are 14 state species of concern that have a recognized need for conservation (ARDEC 1996, USAEC 2001), as noted in Appendix A.

In reference to Building 237, sitings of aforementioned flora species were not identified during the 5 March 2003 site visit of the project area. However, due to the current winter weather conditions of the site, identification of flora species is limited at this time.

### 3.6.3.2 Fish and Wildlife

One federally listed endangered mammal (Indiana bat) and two federally listed threatened animals (bald eagle and bog turtle) are known to occur on the Arsenal (USAEC 2001). The Indiana bat (*Myotis sodalis*) depends upon forested habitat during the spring and fall for foraging and roosting. The bog turtle (*Clemmys muhlenbergii*) was sighted and confirmed in 1987 in the wetlands associated with the east branch of Green Pond Brook, but no sightings have occurred recently. Although raptors seen from the hawk watch site on the Arsenal hunt over much of the facility and area, the bald eagle (*Haliaeetus leucocephalus*) is a transient species usually observed during migratory flyovers. Although suitable habitat exists in wetlands associated with Green Pond Lake, Lake Denmark, and upland ridges, stopovers are thought to be uncommon (USAEC 2001). There are also five federal species of concern (Appendix A).

Ten New Jersey state-listed endangered species are known to occur on the Arsenal. Only four of these actually reside or breed on the installation: bog turtle, timber rattlesnake (*Crotalus horridus*), red-shouldered hawk (*Buteo lineatus*), and bobcat (*Felis rufus*). The remaining six bird species may use the installation habitats as transients. Twelve state-listed threatened species (one turtle and eleven birds) are known to occur on the Arsenal. Wood turtle (*Clemmys insculpta*) was documented most recently in July 1999. Only three of the birds (Coopers hawk, barred owl, and northern goshawk) use the installation on a regular basis. The remaining eight bird species use a variety of installation habitats during seasonal migrations (USAEC 2001).

During the 5 March 2003 site visit of Building 237, no evidence of Indiana Bat, Bog Turtle, or Bald Eagle habitat was identified within the immediate vicinity of the project area. However, a 21 February 2003 interview with the Natural Resource Manager, Mr. John Van De Venter, revealed that there is definite potential for various wildlife habitats to exist within the immediate area. Although no documented sightings are available for the Timber Rattlesnake (*Crotalus horridus*), the area ranks as potential winter habitat and ranks as medium potential (lesser potential) summer habitat for this species located directly to the north of the building.

Also, Mr. Van De Venter stated that there is high potential habitat for New England Cottontail to exist year-round only in the front of the building; the rear of the building is too talus to support this species.

There is high potential habitat for the Eastern Woodrat (*Neotoma floridana*) to also exist year-round within the talus located at the rear of the building.

Additionally, there is potential for the Bobcat (*Lynx rufus*) to inhabit the west talus slopes of Building 237. Recently, Mr. Van De Venter witnessed the capturing of a female Bobcat within 1 mile of the ridgeline of Building 237. It is possible that this species may roam the surrounding area in proximity to the project area.

## 3.7 CULTURAL, HISTORICAL, AND AESTHETIC RESOURCES

An evaluation has been made on the impacts of the proposed renovation and construction activities at Building 237 of Picatinny Arsenal in relation to the cultural, historical, and aesthetic resources. Army Regulation 200-4, October 1998, mandates the preparation of an Integrated Cultural Resources Management Plan (ICRMP), which is a five-year plan for meeting cultural resources compliance and management requirements and includes a strategy for incorporating the protection and management of cultural resources located within the arsenal. The project area has been identified according to Picatinny Arsenal as disturbed, sloped, and not sensitive with a low likelihood of artifacts. Therefore, it has been

determined that there is a low probability of cultural resources that will be impacted by the renovation and construction activities related to Building 237. The ICRMP however, has identified several sites throughout the arsenal that have cultural, historical, and aesthetic value.

The ICRMP has identified in total 104 actual or potential historic sites within the arsenal, in addition to 46 areas identified as sensitive for the occurrence of prehistoric archaeological sites. Tetra Tech has determined through the ICRMP that none of these sites, areas, or structures was identified within the immediate vicinity of Building 237, and therefore there is no anticipated impact to cultural, historical or aesthetic resources.

An architectural survey of 500 buildings at Picatinny Arsenal was conducted in 1998 (Nolte et al. 1998a). Of the 500 structures, 442 were determined to be ineligible for the National Register of Historic Places (NRHP); the remaining 58 structures were grouped into three historic districts that are eligible for listing on the NRHP. These were the Administration and Research District, the 600 Ordnance District, and the Test Area E-Naval Air Rocket Test Station. The New Jersey Historic Preservation Office has concurred that these districts are eligible for listing on the NRHP, although no formal State or National Register listing has occurred (Louis Berger 2000). Although, the 600 Ordnance District is also located within the Secure Area of the Arsenal to the general northeast of the project area, Building 237 and all surrounding buildings are at a far enough distance from the district to not create an impact from the proposed activities. Therefore, the project area is not located in or near any of the aforementioned districts, and no cultural resources will be impacted by the proposed activities (USACE 2000). Also, via review of the ICRMP, the reevaluated sites that were considered for investigation include a nearby site to the project area, known as Building 256, which was constructed in 1889 and used as a storehouse and later converted to a booster and fuze loading facility using explosives, gear oil, and solvents. The building is presently an active workshop. However, this site was not considered a cultural resource within the Arsenal, therefore no impacts will be placed upon that potential resource.

### **3.8 SOCIOECONOMIC ENVIRONMENT AND ENVIRONMENTAL JUSTICE**

#### **3.8.1 Land Use**

Picatinny Arsenal is comprised of approximately 6,100 acres and contains approximately 800-900 buildings. The land use pattern at the Arsenal is mixed, and includes research and development, residential, institutional, industrial, cultural, and recreational uses and facilities.

Land use at the Arsenal includes improved grounds, semi-improved grounds, and unimproved ground, with the Arsenal divided into six broad land-use categories, including training areas, research, development, and testing areas, administrative areas, housing and community areas, parking areas, and safety clearance zones. The primary population of the Arsenal consists of military and support personnel, known to be either residents or daily Arsenal employees.

Building 237 is classified as a semi-improved parcel of land that has been developed but vacant for a period of time. Operations and personnel occupancies within the subject property are non-existent at the time of the site visit. Surrounding land uses consist of forested, rocky ridges to the north, forested, rocky ridges, an access road, a feeder stream and an abandoned building (Building 238) to the east; forested, rocky ridges and Building 236 to the west; an existing access roadway, wetlands habitat, forested land, and existing building structures, including Building 231, to the south-southwest.

### **3.8.2 Emergency and Medical Services**

There is an occupational health clinic located on base, for military and government employee use. Emergencies are treated at local hospitals. Saint Clare's Hospital, Dover, New Jersey provides emergency and medical services. The hospital is located approximately 5 miles from Building 237.

### **3.8.3 Transportation and Traffic**

Interstate 80 and Route 15 provide highway access to the Picatinny Arsenal from adjacent areas from the south, Interstate 80 and Mount Hope Road/Lake Denmark Road from the east, and Berkshire Valley Road from the west. Direct access into the installation is limited via a secured entrance located off Route 15. Facilities are also available onsite for air transport via helicopter. Transportation within the Arsenal is serviced by a variety of paved roads and gravel tracks for all residents, employees, and personnel.

### **3.8.4 Recreational Facilities**

There are a many recreational and cultural facilities on the Picatinny Arsenal, consisting of a golf course, a baseball field, jogging areas, a fitness club, a childcare center, an officer's club, meeting/seminar buildings. However, no known recreational facilities are located within close proximity to the project area.

### **3.8.5 Environmental Justice**

Executive Order 12989, Environmental Justice in Minority Populations and Low-Income Populations, mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of programs on minority population and low-income populations. A minority population is defined in this document as a group of people or a community experiencing common conditions of exposure or impact that consists of persons classified by the U.S. Bureau of the Census as Negro, Black, or African-American; Hispanic; Asian or Pacific Islander; American Indian, Eskimo, or Aleut; or other non-white persons. A low-income population is defined as a group of people or a community that, as a whole, lives below the national poverty level. The proposed facilities would not be located in or near a residential community or area, including communities of minority or low-income populations.

## **3.9 HAZARDOUS MATERIALS AND HAZARDOUS WASTE**

Picatinny Arsenal receives, produces, and stores hazardous materials during the course of daily operations and activities. The materials include solvents, cleaning materials, pesticides, herbicides, fuels, oils, lubricants, and explosives. Picatinny must abide by numerous federal and state laws and regulations designed to protect both workers and the general public from hazardous waste spills or accidents. Safety training for personnel working with hazardous materials is required, and the installation provides trained spill response teams in the event of accidents.

In order to manage and control hazardous materials (HM), Picatinny Arsenal has developed a centralized repository to control hazardous materials and waste. This facility known as the HAZMART orders, receives, stores, distributes, disposes of and tracks hazardous materials used in the Installations operations. In operation of the HAZMART, the Hazardous Substance Management System (HSMS) is used as a management tool. HSMS is an automated hazardous substance tracking system designed not only to provide "cradle-to-grave" tracking of hazardous materials stored at an installation, but also the

chemicals constituents of those material. The HSMS was selected as the Department of Defense (DOD) standard hazardous material tracking system. The system provides full functionality and legal reporting requirements to satisfy Executive Order 12856 "Federal Compliance with Emergency Planning and Community Right-to-Know Laws and Pollution Prevention Requirements," and now Executive Order 13148 "Greening the Government through Leadership in the Environment." Building 237 will become a HAZMART customer, and all hazardous materials utilized at Building 237 will be entered into the HSMS system for material tracking.

Hazardous wastes are managed by personnel at the generating activity, the Environmental Office. The Safety Office implements the Occupational Safety and Health Administration (OSHA) training for all Picatinny Arsenal personnel. The Safety Office assures that OSHA training is current for all workers. The Environmental Office is responsible for the management of the handling, transport, storage, and disposal of all hazardous wastes generated at the Arsenal. All hazardous waste handling and storage must conform to the *Hazardous Waste Management Plan*, February, 2001 and Best Management Practices (BMP) for Spill Prevention and Control and include the Spill response and notification procedures. The wastes are manifested and transported off base and disposed of at federally permitted disposal facilities.

Picatinny Arsenal has developed an Installation Spill Contingency (ISC) Plan that was updated in March 2001, and is reviewed every 5 years. This Plan provides instructions and protocol for response to hazardous materials spills or releases, and designates emergency contacts, response procedures, reporting requirements, personnel training, and equipment needs in the event of an emergency incident. The ISC Plan also identifies outside emergency resources, such as local community fire, police, and medical centers, and notification procedures to be used in the event of spill emergencies.

### 3.9.1 Asbestos, Lead Based Paint, and Mercury Lighting

A visual assessment for asbestos building materials, lead-based paint surfaces, and mercury light fixtures at Building 237 and 231 took place on March 5, 2003. In order to conduct the visual assessment, report documentation was provided by Mr. Tim DeWald of Picatinny Industrial Hygiene Department for the project area.

Mr. Tim DeWald and Mr. Timothy Miller were contacted to obtain information as it pertains to asbestos building materials for Buildings 237 and 231. No information was available for these facilities and therefore the findings identified in this section are a result of the visual assessment.

Bulk sampling was not conducted during the site visit; therefore Tetra Tech presumed the following materials within Building 237 to contain asbestos:

- Green corrugated galbestos siding on the north wall
- Remaining roofing material and debris on ground
- Pipe insulation on exterior steam lines of building
- Interior window glazing/caulking in the equipment room
- Interior ceiling sheetrock in equipment room
- Drummed and bagged debris in the basement
- Cloth wrap on wires in duct bank

Due to the visual observations of the aforementioned materials, the following should be adhered to: remove all asbestos containing materials in accordance with 40 CFR 61 and lead based paint in compliance with the Occupational Safety and Health Administration (OSHA) construction standards (29 CFR1926). Procedures to comply with the standards identified in 1926.1101 (Asbestos) and 1926.62 (Lead Paint) should be followed, as well as the New Jersey Department of Community Affairs (NJ DCA).

The National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations are followed for environmental protection.

Building 231 has been recently renovated and no suspect asbestos containing materials were identified. The roof may potentially contain asbestos; however it is not subject to be impacted under the Building 237 renovation plans and therefore does not pose a concern to this project.

Lead-based paint for Building 237 was sampled by the Picatinny Industrial Hygiene Department on July 8, 2002. The results of the sampling indicate that the green doors on the south and east entrances contain lead above the United States Environmental Protection Agency standard. Accuracy of this inspection was observed during the March 5, 2003 site visit and two other areas were identified similar in color that should be considered to contain lead-based paint.

- Green steam closet in west corner building
- Green door frame on the west side of the building

There was no information available for lead-based paint surfaces within Building 231. During the March 5, 2003, site visit there was gray flaking paint identified on the north wall, which is hidden by a studded sheetrock wall. Although there are no plans for renovations within this building, due to common occupancy of the building, sampling to identify the lead content of the painted surface should be performed before construction activities take place. There were no other areas of concern pertaining to lead-based paint within Building 231.

Additionally, several light fixtures were identified, which, based on age and design, were suspected to contain mercury. The manufacturer (Crouse Hinds Company) of these fixtures was contacted and confirmation was made that the light fixtures and bulbs do not contain mercury and are comprised of copper casings, neoprene gaskets, and incandescent light. Therefore, there is no environmental concern in relation to the light fixtures identified in Building 237 and 231.

### **3.9.2 Petroleum Products, Other Contaminants, and Storage Tanks**

Lubricating oil/waste oil remnants stored within a 55-gallon drum were identified within the basement of Building 237, associated with former operations involving the use of hydraulic oil for the 750-ton hydraulic press within the building. No other petroleum products, storage tanks, or contaminants were identified during site investigations, and no known documentation of such materials has been reported.

### **3.9.3 Polychlorinated Biphenyls (PCBs)**

No evidence of PCBs was identified within the project area during the site investigation. New pole-mounted transformers identified at the site suggest that PCB containing transformer may have been located within the past, however, due to Picatinny Arsenal currently replacing all PCB-containing electrical transformers at the installation, the old transformer were removed. Therefore, there will be no impact on PCBs due to the proposed action.

### **3.9.4 Radon**

An existing radon mitigation system was identified along the exterior northern wall of Building 231. Because Building 237 is located within close proximity to Building 231, there is potential for similar radon conditions to exist within the project area.

Mr. Tim Miller of Picatinny Arsenal was contacted to obtain radon information for the project area. He further directed us to call Mr. Harry Chu, Picatinny Radiation Protection Office, to discuss radon documentation. According to Mr. Chu, radon sampling was performed in 1991 for Building 237 and

detected levels of 5.5 picoCuries per liter (pCi/L). EDR data on concentrations of radon was acquired through the EPA National Radon Database. The EPA data list Morris County in EPA Radon Zone 1, which indicates an indoor average level greater than (>) 4 pCi/L. Because of these previous radon levels, retesting and radon mitigation requirements will need to be evaluated.

### **3.9.5 Ammunition and UXO**

The presence of ammunition and unexploded ordnance from the 1926 explosion restricts or precludes redevelopment opportunities in many areas of the installation. No known investigations have taken place within the project area to identify any existing ammunition or UXO; therefore, such materials have the potential to exist within the property. During the March 5, 2003 site visit of the Building 237, evidence of ammunition or UXO was not identified.

### **3.9.6 Pesticides, Herbicides, and Fertilizers**

No known pesticides, herbicides, and fertilizers are currently being used within the project area; however, past uses of such materials are unknown. Due to past operations within the area and possible maintenance activities taking place within the area, there may be potential for the use of the aforementioned materials, however, no such evidence was identified during the March 5, 2003 site visit of the property.

### **3.9.7 Potentially Contaminated Areas**

Picatinny Arsenal has been designated a National Priority List (NPL) site by the USEPA per the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980. To date, 175 Defense Site Environmental Restoration Tracking System sites have been identified at the installation (USACE 2000). The most widespread contaminants of concern at Picatinny Arsenal include volatile organic compounds, semi-volatile organics, metals, trichlorethylene, polychlorinated biphenyl, benzo(a)pyrene, nitroaromatics, explosives, unexploded ordnance, propellants, radiological material, and pesticides. Media of concern at Picatinny Arsenal include groundwater, soil, and sediment.

Two (2) monitoring wells are located to the north and southwest of Building 237 known as 128MW-3, located slightly up-gradient near building 238 and 128MW-4, located down gradient along the front side of building 236. Analytical results of monitoring well 128MW-3 shows the existence of pesticides, heavy metals (i.e. aluminum, barium, calcium, lead, manganese, sodium, strontium, and zinc), chloride, phosphates, sulfates, and radiological parameters detected in the groundwater. Also, monitoring well 128MW-4 detected volatiles, various heavy metals, chlorides, and nitrates.

Also, approximately nine (9) surface soil samples were collected within the surrounding properties of Building 237, however, two (2) samples were collected within the immediate area of Building 237. Although, no analytical results were specifically identified for the nearby samples aforementioned above, a summary of total analytical results for the entire sampled area include the existence of 1,2-dichloroethene, TCE, and trichlorofluoromethane (Area H RIR, 1999).

Additionally, documentation in reference to the entire area surrounding Building 237, known as Area H, Site 128, revealed that a Phase II remedial investigation was conducted for the neighboring buildings 235 and 236. Phase II activities included a radiological survey and the collection of groundwater and soil samples. The radiological survey revealed that several locations with gross alpha activity in excess of the project-specific administrative limit were identified. Also, lead in the groundwater was also found to be at an up-gradient background monitoring well and SVOCs and arsenic in soils at concentrations in excess of LOCs. Additional remedial investigation work was completed in 2000; presenting groundwater samples containing no elevated lead levels, and delineation of arsenic contamination was completed with

no need for further investigation. However, further information pertaining to radiological contaminants is currently unknown for this area; therefore, further investigation may be required (IAP, 2002).

Due to the proposed project area being located within a designated explosive area, past operations within the immediate and surrounding properties may have generated hazardous wastes such as scrap explosives, cleaning solvents (acetone), hydraulic oils and other explosives, which may have been the point source(s) of contamination. Although, all wastewater from current operations within this area are drummed and manifested for off-site disposal; historically, wastewater was discharged directly from the buildings, down gradient to Bear Swamp Brook. Due to these occurrences in the past, the topography of project area, and the analytical results of samples collected within the immediate area, the groundwater and surface soils of Building 237 are potentially contaminated (Area H RIR, 1999).

#### 4.0 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

This section describes in detail the potential effects or impacts of the alternatives considered in this EA. Potential impacts associated with the construction, operation, and maintenance of a new Automated Energetics Processing Facility, as well as the no action alternative, are analyzed. Potential impacts are presented in the order in which the alternatives were discussed in Section 2, are described for the specific resource areas that were discussed in Section 3, and are summarized in Table 2. Table 2 presents the potential impacts for both components of the proposed action. Where appropriate, information is presented separately for each component; however, in many instances, no differentiation is required because the impact information pertains to both components. Mitigation measures, when applicable, also are discussed. Potential unavoidable adverse impacts, the irreversible and irretrievable commitment of resources, the relationship between short-term uses and long-term productivity, and potential cumulative impacts also are analyzed.

The potential impacts have been coded according to a predefined coding system that denotes the characteristics of the potential impacts and indicates whether certain undesirable features could be mitigated. For this analysis, the codes are defined by the components of the action, which consist of the significance of the potential impact, the type of potential impact (direct, indirect, or cumulative), and the duration of the potential impact. Each of those components is described below.

##### 4.1 SIGNIFICANCE OF THE POTENTIAL IMPACTS

The significance of the potential impacts is a qualitative assessment of the degree that the alternatives would impact a particular resource. This qualitative assessment is the primary criteria used to determine if there are any significant impacts; if any significant impacts are identified, an environmental impact statement (EIS) may need to be prepared. The significance of a potential impact is defined on a spectrum ranging from no impacts to significant impacts. The potential impacts could be either beneficial or adverse for a particular resource.

The qualitative assessment is based on a review of the available and relevant reference material and is based on professional judgment and standards that include consideration of the permanence of an impact or the potential for natural attenuation of an impact; the uniqueness or replaceability of the resource; the abundance or scarcity of the resource; and the potential that mitigation measures can offset the anticipated impact. Each impact is described by one of the following codes and their respective definitions:

**Significant Beneficial Impact (SB):** Represents a highly desirable outcome in terms of improving the existing quality of the environmental resource or extremely enhancing that resource.

**Significant Adverse Impact (SA):** Represents a highly undesirable outcome in terms of degrading the existing quality of the environmental resource or extremely disrupting that resource.

**Beneficial Impact (B):** Represents a positive outcome in terms of improving the existing quality of the environmental resource or enhancing that resource.

**Adverse Impact (A):** Represents a negative outcome in terms of degrading the existing quality of the environmental resource or disrupting that resource.

**Minor Beneficial Impact (b):** Represents a minor improvement in the existing quality of the environmental resource or a minor enhancement of that resource.

**Minor Adverse Impact (a):** Represents a minor degradation of the existing quality of the environmental resource or a minor disruption of that resource.

**No Measurable Impact (0):** Represents an expectation that no measurable impact would affect the environmental resource as a result of the project or action.

**Not Applicable (NA):** Represents a determination that the environmental resource is not applicable or not relevant to the proposed project.

Table 1: Summary of Impacts of the Preferred Alternative (the Proposed Action)

(Page 1 of 8)

Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Land Use	Building 237 resides within an improved, developed parcel of land that has been abandoned for an extended period of time. Evidence of overgrown vegetation, and lack of maintenance and operations exist within the site	Not Significant (a, D, 1, N)	Land use at the proposed site would not be highly impacted due to limited construction taking place along the surrounding environment of Building 237. Alterations to the land will be minimal during construction.	Not Significant (a, D, 1, N)	Land Use of the facility would not be significantly impacted due to reutilizing property that is currently not being utilized. The property has already been developed, but currently not operating or being maintained.
Air Quality	The Picatinny Arsenal is located in an attainment area for all pollutants except for ozone.	Not Significant (a, D, 1, Y)	Air quality would be impacted by exhaust and possible dust from construction vehicles and activity; the area would remain classified as an attainment area for all pollutants except for ozone.. Minimizing the number of vehicles and trips to and from the site during construction would mitigate air impacts.	Not Significant (a, D, 1, N)	Due to the extensive nature of the proposed alterations and operations of the property and the need for regular maintenance activities, The area would remain classified as an attainment area for all pollutants except for ozone.

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Table 1 (continued): Summary of Impacts of the Preferred Alternative (the Proposed Action)

Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Noise	Low levels of noise exist within the project area.	Not Significant (a, D, 1, Y)	Noise levels in the immediate area of the proposed sites would slightly increase due to the proposed construction activities of the project area. The number of construction days would be minimized to mitigate the noise impacts.	Not Significant (a, D, 1, N)	The levels of noise within the project will remain minimal. Operations that are proposed to take place within the facility will not generate high noise level within the area; therefore mitigation measures are not necessary for this resource.
Odor	No identified odors or sources of odors are present on the proposed site or in areas adjacent to the proposed site.	Not Significant (a, D, 1, Y)	Odor levels may rise due to construction vehicle exhaust during construction activities. The number of construction days and the number of vehicles and trips to and from the site will be minimized to mitigate the odor impacts.	Not Significant (a, D, I, Y)	Odor levels may slightly increase due to the proposed operations for the facility, and the storage of various chemicals within the building.
Groundwater	Potential groundwater contamination has been detected within the immediate vicinity of the project.	Not Significant (a, )	Penetration to the ground surface will take place at a minimal degree; therefore, groundwater at the project area would not be impacted by the construction phase of the proposed action.	0	The rate of water consumption would be limited during operation of the facility; therefore, groundwater will not be impacted.

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Table 1 (continued): Summary of Impacts of the Preferred Alternative (the Proposed Action)

Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Surface Water	No major surface waters are located within the project area. A nearby wetland, which feeds into Bear Swamp Brook is located south-southeast of Building 237.	Not Significant (a, I, 2, Y)	Indirect impacts could affect nearby surface water resources during construction because of the possibility of increased runoff and erosion from the facility into the nearby wetlands. Temporary or permanent secondary containment would be installed near the loading dock of the building to mitigate the impacts.	Not Significant (a, I, 2, Y)	Storm water runoff and the migration of hazardous spilled materials from the loading dock during loading/unloading activities could occur. By using temporary or permanent secondary containment near the loading dock these impacts would be mitigated.
Storm water	Storm water flow travels from the north to the south. All storm water appears to be directed to a nearby wetland, which feeds into Bear Swamp Brook south-southeast of Building 237.	Not Significant (a, D, I, N)	Indirect impacts created by storm water runoff could affect nearby surface water resources during construction. Temporary or permanent secondary containment would be installed near the loading dock of the building to mitigate the impacts. All floor drains will be sealed	Not Significant (a, D, 2, Y)	Storm water runoff and the migration of hazardous spilled materials from the loading dock during loading/unloading activities could occur. By using temporary or permanent secondary containment near the loading dock these impacts would be mitigated.

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Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Potential Wetlands	There are no jurisdictional wetlands on the proposed project area; however, there is identified wetlands habitat within the immediate southern vicinity.	Not Significant (a, D, 1, Y)	The proposed construction could impact wetlands to the south, due to construction activities occurring at a higher elevation from the wetlands habitat, however, impacts would be insignificant due to the limited disturbance and alterations of the surrounding environment of Building 237. Temporary or permanent secondary containment would be installed near the loading dock of the building to mitigate the impacts of any surface water or storm water upon the wetland habitat.	Not Significant (a, D, 1, Y)	Storm water runoff and the migration of hazardous spilled materials from the loading dock during loading/unloading activities could enter into the wetlands habitat. By using temporary or permanent secondary containment near the loading dock these impacts would be mitigated.
Floodplains	The proposed site is not located in or near an area designated as a floodplain.	0	Due to the area not being located within a designated floodplain, the proposed construction activities would not create an impact on the project area	0	Due to the area not being located within a designated floodplain, the proposed operation and maintenance activities would not create an impact on the project area
Topography	The project area has a downward gradient extending from the north to the south-southwest.	0	The topography of the potential site would not be impacted by the construction phase of the proposed action, due to the project area being already disturbed and no alterations being made to the land use of the project area.	0	The topography of the potential site would not be impacted by the operational phase of the proposed action, due to operations taking place within Building 237.

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Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Soils	Soils are disturbed due to past and current improvements placed on the area. Soil contamination for the surrounding properties has been documented.	Not Significant (a, D, 2, Y)	Construction activities will provide a minimal impact to the soils of the project area due to the limited alterations of the soils surface. The construction of paved surfaces near the loading dock may slightly impact the soils, however impacts would be insignificant. All excavated soils will be managed in accordance with the Picatinny Soil Management SOP, as well as BMP's (Soil and Sediment Control Plan) to limit impacts on soils.	Not Significant (a, D, 2, Y)	Due to chemicals being used, stored, and transported to and from the building, there is potential for the soils to be impacted by spills or leaks of hazardous materials. By using temporary or permanent secondary containment near the loading dock these impacts would be mitigated.
Geology	Unconsolidated sediments overlying Green Pond Conglomerate characterize the area	0	Geological formations would not be removed from the project area; therefore no impacts would be created by construction activities.	0	The geology of the potential sites would not be impacted by the operational phase of the proposed action.

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Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Flora	Vegetation in the area is characteristic of upland forested species.	Not Significant (A, D, 2, Y)	The overgrown vegetation on the proposed sites would be maintained; however will not be impacted. The area maintained would be minimized to reduce potential erosion and to sustain as much natural foliage as possible.	Not Significant (A, D, 1, Y)	The vegetation within the proposed facility would be impacted by mechanical management (cutting).
Fauna	Species typical of the northeastern United States are present in the area.	Not Significant (a, I, 1, N)	Wildlife species would be impacted temporarily during construction activities due to noise generated during construction activities	Not Significant (a, D, 1, N)	Wildlife species will not be impacted during operations and maintenance due to limited operations taking place along the exterior of the building
Threatened, Endangered, or Sensitive Species	Threatened, endangered, or sensitive species have been documented on or near the proposed sites; however, no sightings have been observed within the area.	Not Significant (a, D, 1, N)	The wildlife habitat surrounding Building 237 may be temporarily impacted due to traffic and noise generated during construction activities.	0	Although habitat for threatened, endangered, or sensitive species may potentially exist, no impacts will be placed on the surrounding environment of Building 237, due to all operations remaining within the building

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Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Cultural and Historic Resources	There are no culturally or historically sensitive resources on the proposed sites.	0	If artifacts of cultural or historic significance were found during construction, proper consultation with the SHPO would be necessary.	0	No impacts will place on any cultural resources due to none existing within or near the site.
Aesthetic Resources	No aesthetic value has been given to the project area.	0	There would be no impacts on aesthetic resources during construction activities.	0	There would be no impacts on aesthetic resources during the operation and maintenance of building 237
Socioeconomic Environment	The project area is currently abandoned with limited operations, no employment opportunities, no recreation opportunities, and has limited socioeconomic value.	Not Significant (b, D, 1, N)	The proposed action would bring an economic benefit to the Arsenal by creating construction jobs.	0	The socioeconomic environment would not be impacted by the operational phase of the proposed action. The proposed operations will enhance the Arsenal for research and development activities, and provide employment opportunities during the operational life of the building

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Table 1 (continued): Summary of Impacts of the Preferred Alternative (the Proposed Action)

Environmental Resource	Existing Quality	Construction Phase		Operation and Maintenance	
		Potential Impacts	Resultant Quality	Potential Impacts	Resultant Quality
Environmental Justice	There are no current environmental justice concerns related to the proposed site.	0	Environmental Justice will not be impacted due to being non-existent within the project area.	0	Environmental Justice will not be impacted due to being non-existent within the project area.
Hazardous Materials	Asbestos containing materials have been identified within the Building. Radon has been formerly detected within the building, exceeding 4 pico/li.	Not Significant (B, D, 2, Y)	Removing all asbestos containing materials, detected lead based paint surfaces, and implementing a radon mitigation system, would mitigate the impacts within the building during construction.	Not Significant (a, D, 2, Y)	Due to chemicals being used, stored, and transported to and from the building, spills and leaks of hazardous materials into soil and groundwater could occur. Maintain impermeable coating on floor and walls for secondary containment. By using temporary or permanent secondary containment near the loading dock these impacts would be mitigated.

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#### 4.1.1 Timing and Proximity of Potential Impacts

Direct, indirect, and cumulative impacts are defined at 40 CFR 1508.7 and 1508.8, and these definitions are presented below. These categories are used to describe the timing and proximity of potential impacts on the affected area only. They do not have any bearing on the significance of the potential impacts, as previously described, and are only used to describe or characterize the nature of the potential impacts. Potential direct and indirect impacts are denoted using the following codes and their respective definitions. Cumulative impacts are defined below, and are discussed in Section 4.1.12.

**Direct Impact (D):** Represents a potential impact caused by the proposed action or project that occurs at the time and place of the action.

**Indirect Impact (I):** Represents a potential impact caused or induced by the proposed action or project that occurs later in time than the action or is removed in distance from it, but are still reasonable foreseeable.

**Cumulative Impact:** The impacts on the environment that result from the incremental effect of the proposed action added to other past, present, or reasonably foreseeable future actions.

#### 4.1.2 Duration of Potential Impacts

The duration of the potential impact can be defined as either temporary or permanent and indicates the period of time during which the environmental resource would be impacted. In general, the impacts of construction activities undertaken to implement a proposed project would be temporary in nature, while the impacts of the structures constructed would be permanent in nature. The duration of each potential impact is denoted according to the following codes and their respective definitions:

**Temporary Impact (1):** Represents a potential impact of short duration, relative to the proposed project and the environmental resource.

**Permanent Impact (2):** Represents a potential impact of long duration, relative to the proposed project and the environmental resource.

#### 4.1.3 Mitigation Measures

Mitigation measures are actions that could be implemented or undertaken in conjunction with a proposed action that may reduce or eliminate the potential impacts on the resources resulting from the proposed action. In addition to the codes for specific potential impacts, discussed above, there are codes that identify potential mitigation measures, as follows:

**Mitigation Measure Used (Y):** Some type of mitigation measure would be used to reduce or avoid a minor adverse, adverse, or significant adverse impact.

**Mitigation Measure Not Used (N):** No mitigation measures would be used, or none are available to reduce or avoid a minor adverse, adverse, or significant adverse impact.

## 4.2 THE PREFERRED ALTERNATIVE

The following subsections describe the potential impacts of the preferred alternative and mitigation measures for those impacts for current land use; air resources; water resources; soil and geologic resources; biological resources; cultural, historical, and aesthetic resources; the socioeconomic environment and environmental justice; and hazardous materials. Potential unavoidable adverse impacts, the irreversible and irretrievable commitment of resources, the relationship between short-term uses and long-term productivity, and potential cumulative impacts also are analyzed. A summary of mitigation measures associated with the preferred alternative also is presented.

### 4.2.1 Potential Impacts on Current Land Use

The proposed construction would cause long-term changes in land use at the proposed construction sites because the sites would no longer remain a vacant semi-improved parcel of land and would become a fully operating research and development automated Energetic Processing Facility. However, construction of the proposed project would not significantly alter or impact the property, due to most of the construction and refurbishing activities taking place within the building, rather than creating disturbance to the surrounding environment of Building 237. Exterior disturbances to the project area may only consist of minimal paving for vehicular transportation and loading/unloading activities near the loading dock, which will include the installation of a containment basin or drainage system for potentially leaking or spilled hazardous materials created during loading and unloading activities of containers in and out of the building. The facility will be used on a permanent basis, however, operating personnel will remain at a minimum do to electronics independently designed for controlling the processing from Building 231. No changes will be made to the landscape of the area to suit the proposed actions, because no alterations are necessary to the surrounding environment for all proposed activities to function successfully. Therefore, these impacts would be minor adverse, direct impacts due to the property being constructed for permanent utilization, with minor changes to the project area's landscape. No federal or special use areas (for example, wilderness areas) would be impacted by the proposed action because the proposed facilities are not located within such areas.

### 4.2.2 Potential Impacts on Air Resources

This section has three topic resources: air quality, noise, and odor. The potential impacts on each of these resources are discussed below.

#### 4.2.2.1 Potential Impacts on Air Quality

The proposed construction would cause minor adverse, direct, temporary impacts on air quality in the areas immediately adjacent to the proposed site. During construction, exhaust and possibly dust, dispersed by construction vehicles, would impact the air quality periodically in the immediate area of the proposed site. It is expected that traffic from construction vehicles will be minimal at this site. The air quality would not be permanently degraded and the temporary impacts would not affect the status of the region as an attainment area under the CAA because the impacts would affect only the immediate vicinity of the site. Therefore, the impacts on air quality would not be significant. The impacts would be mitigated by minimizing the number of vehicles used during construction and the number of trips the vehicles would make to and from the site.

There will be research and development process equipment installed in Building 237. The main process equipment to be installed will consist of storage tanks for volatile organic compounds (VOC), a 30-gallon

dissolver kettle, a 50-gallon reactor kettle, a filtering system with an air/liquid separation tank using a vacuum pump, and two (2) waste storage tanks. The dissolver and reactor kettles are each equipped with an agitator and condenser using a mixture of ethylene glycol and water as the cooling medium to control any vapors coming off of the kettles. The operation of the proposed processes to be conducted within Building 237 would cause minor, adverse, direct, temporary impacts to the immediate vicinity of the proposed facility due to the exhaust of VOC vapors from the process. There are several emission points throughout the process, including, VOC storage tanks, dissolver condenser vent, dissolver particulate feed, reactor condenser vent, air/liquid separation tank vacuum pump, and the waste storage tanks. An air permit is required for the source since it involves more than 50 lbs of raw material use in one hour. Because of the air permit requirement, it will require Picatinny Arsenal to modify or amend the installation's Title V permit. If Picatinny Arsenal were to exceed 25 tons per year of VOC or NO<sub>x</sub> emissions, significant modifications will be due to Ozone non-attainment area. Presently, Picatinny is at 6.5 tons per year VOC, leaving plenty of room for additional sources emitting VOC. NNSR (Non-attainment New Source Review) might be triggered if VOC or NO<sub>x</sub> thresholds were exceeded. At the design stage, LAER (Lowest Achievable Emission Rate) and emission offsets may be required.

Project proponents should be aware of air permit requirements (permit to construct and permit to operate). These permits should be secured in a timely fashion to allow the NJ Department of Environmental Protection sufficient time to process applications and issue the permits.

Additionally, based on the estimated emission rates prior to the control devices (condensers in this process are assumed to be considered control devices as opposed to process equipment), VOC emissions will have to be controlled in accordance with NJAC 7:27-16 which may involve the implementation of state-of-the-art (SOTA) control (95% removal efficiency).

The equipment to be installed in Building 237 will be used for pilot-scale research and development of three (3) types of operations: recrystallization, formulation, and synthesis. Recrystallization involves the use of acetone to dissolve RDX explosive and water to recrystallize the RDX. Recrystallization of the explosive results in smaller and more uniform size distribution making a more stable explosive material. Acetone is not considered a volatile organic compound (VOC) by definition, as it does not react photochemically in the atmosphere to assist in the formation of harmful ground-level ozone. Nevertheless, acetone is a safety hazard as it is a flammable material. Acetone vapors that are generated should be monitored to prevent excess concentrations that could approach the lower explosive limit (LEL) of 2.5% by volume.

Approximately 20 gallons of acetone is charged from a 55-gallon drum into a storage tank, which is equipped with a conservation vent to minimize breathing losses. The acetone is then charged into the dissolver kettle, heated to approximately 130 F, and agitated to dissolve RDX in the acetone. These emissions are estimated to be about 4 pounds per batch.

After the RDX is dissolved in the acetone after about an hour, the mixture is charged to the reactor tank where approximately 20 gallons of water has been added. The water causes the RDX to recrystallize and precipitate out of solution. The presence of the water would decrease the volatility of the acetone and thus, result in decreased emissions estimated to be about 0.4 lb/batch.

When the recrystallization is complete, after about an hour, the mixture is filtered with the use of a vacuum pump. The pump pulls a vacuum on the filter and air/liquid separation tank, and discharges to the atmosphere. Because there is no control device at the discharge, worst-case emissions of acetone will result during the filtering step, which takes about a half hour. Acetone emissions from filtering are estimated to be about 7 lb/batch. The filtrate is then pumped to one of two waste storage tanks.

Total acetone emissions are estimated to be less than 10 lb/batch. Assuming 50 batches per year, would give a total emission of 0.25 ton/year. Particulate emissions, which will only occur during the charging of RDX into the dissolver, are expected to be very minimal, less than 0.005 lb/batch or 0.00005 ton/year.

Although specific process information for the formulation and synthesis processes are not yet available, it is suggested by Picatinny personnel that the process steps are similar to that of the recrystallization process. However, instead of using acetone or other non-VOC solvents, these processes use VOC solvents including ethanol, ethyl acetate, methyl ethyl ketone, cyclohexanone, octane, and n-methylpyrrolidinone. Other materials to used include 1,3,3-trinitroazetidine (TNAZ), cellulose acetate butyrate (CAB), bis-dinitropropyl acetylformal (BDNPAF), viton, estane, dioctal adipate, polyisobutylene, stearic acid wax, polyethylene, 2,3-dimethyl-2,3-dinitrobutane, acetic anhydride, nitric acid, ammonium nitrate, hydrochloric acid, sulfuric acid, tetra acetyl diamine (TADA), tetra acetyl diformal (TADF), HMX, CL-20, and nitrocellulose.

Because acetone is the most volatile of the solvents to be used, we can use the emission numbers calculated based on acetone as an upper limit for the maximum potential batch solvent emissions for all processes. Even though acetone is not considered to be a VOC, using the emission numbers generated by using acetone gives us worst-case emissions for the purposes of this analysis. It also gives the arsenal the flexibility to use a VOC solvent with similar volatility. Using the estimated emissions of 10 lb/batch and multiplying by the expected 150 batches per year for all processes (about 50 batches for each process), would give about 0.75 ton per year of solvent emissions. Discounting the acetone emission contribution, since it is not considered a VOC, would give about 0.5 ton/year or less of VOC emissions. Nevertheless, the addition of these emissions will add to the 6.5 tons/year netting emission increase for the arsenal, but will not cause it to exceed the 25 ton/year NNSR threshold. The potential impact from these emissions would most likely be localized and would not affect the region's status as an attainment area under the CAA, which could be confirmed by performing air dispersion modeling. Because these emissions will be exhausted directly to the outside atmosphere, they should not adversely affect any employees working within the building. Particulate emissions only occur during the charging of solids into the dissolver kettle and are estimated to be minimal (less than 0.005 lb/batch and 0.0002 ton/year).

Additionally, a potential increase in vehicle traffic for the delivery of chemicals to the building would cause minor adverse, direct, temporary impacts due to a potential rise in vehicle exhaust levels. These potential impacts would be localized and would not affect the region's status as an attainment area under the CAA.

This analysis conforms to the applicable federal and state implementation plans for attainment of air quality goals for the region.

#### **4.2.3 Potential Impacts on Noise**

Noise related to the proposed construction would cause minor adverse, direct, temporary impacts on the areas in the immediate vicinity of the proposed sites. The use of construction machinery and the slight increase in vehicle traffic at the sites during construction would cause an increase in noise to a level slightly above the current level of noise at the sites. The impacts would affect the sites only during construction. The impacts related to noise would not be significant due to the localized nature and temporary duration of the noise. The impacts would be mitigated by minimizing the number of vehicles used during construction, minimizing the number of days during which construction would take place, and minimizing the number of trips the vehicles would make to and from the sites.

The operation and maintenance of the proposed Energetic Processing Facility would not increase the ambient noise levels of the installation. The operation and maintenance of the proposed facility would

cause minor, adverse, direct, temporary impacts to the immediate area around the proposed facility. These impacts would be caused by the slight increase in traffic to this area of the installation. The impacts would be temporary, as the vehicles would move to and from the area, and therefore, the noise would diminish as the vehicles traveled away from the proposed facility. Minimizing the number of vehicles required in the area could mitigate the impacts.

#### **4.2.4 Potential Impacts on Odor**

No impacts on odor would result from the proposed construction activities, because there are no odors or sources of odor existing on the proposed sites. Potential new sources of odor could be created due to the proposed use of various chemicals for operating procedures, which may result in a release of emissions to the air. Also, operation and maintenance of the proposed facility would cause a slight increase in the potential for vehicle exhaust odor in this specific part of the installation, as vehicle traffic associated with these operations would move to and from the proposed facility. These potential impacts from operation and maintenance activities would be minor adverse, direct, temporary impacts.

#### **4.2.5 Potential Impacts on Water Resources**

This section has four topic resources: groundwater; surface water; wetlands; and coastal zones, wild and scenic rivers, and floodplains. The potential impacts on each of these resources are discussed below.

Although there is a 2 inch water service line connected to Building 237, there is no potable water connection.

##### **4.2.5.1 Potential Impacts on Groundwater**

The proposed action would not cause any impact on the groundwater at the proposed sites. Although minimal disturbances to the ground surface may take place while installing a paved area for vehicular movement and loading/unloading activities on the building's loading dock, no impact will be placed on the groundwater due to the depth of the proposed pavement not reaching the depth of the groundwater. The operation and maintenance associated with the proposed facility would not create an impact to groundwater. The facility would be tied into existing well infrastructure, but would not cause an increase in water consumption.

##### **4.2.5.2 Potential Impacts on Surface Water**

There would be no impacts placed on surface water resources related to the proposed construction because no such resources exist within the project area. However, a small wetlands habitat is located to the south, down gradient from the proposed facility, which may be temporarily impacted during construction activities. Indirect impacts could affect nearby surface water resources during construction because of the possibility of increased runoff and erosion from the facility.

Installing an awning over the loading dock would keep rainwater out of the loading dock where drum handling will be done, therefore aid in mitigating the potential from small chemical spills entering the storm water runoff which could impact the wetlands habitat. The overall water quality in the region would not be impacted in any manner regulated under the CWA, the Federal Water Protection Act, or the Federal Water Pollution Control Act. As a further mitigation measure, the proponent of the action shall require waste removal vehicles (vacuum truck) to supply temporary spill containment under the transfer hoses and connections during waste removal operations. The waste removal will consist of evacuating

the wastes directly from the tanks by connecting the transfer hoses to a remote empty quick connection fittings on the outside of the building. As discussed in Section 2.1.1., the fittings will be adjacent to the loading dock over existing pavement. The quick connect fittings will be locked at all times except during waste removal. The piping to the effluent port of the waste tanks will be located within the secondary containment area of the tanks. The impacts would not be significant and could be mitigated through the use of BMPs during construction, including the use of concrete barriers along the borders of the loading dock, and paved driveway to minimize surface water runoff and potential drainage of leaks and spills, and through the use of any other applicable BMPs.

There would be adverse, indirect, temporary impacts associated with the operation and maintenance of the Energetic Processing Facility because operations will take place within the interior walls of Building 237 and 231. Runoff and the amount of storm water during inclement weather would increase in the immediate area because the area has been cleared and developed, which would create potential storm water runoff to the south. This runoff would primarily flow onto adjacent properties, due to the nature of the topography of the area and the location of the proposed action, causing increased erosion and sediment load into a nearby wetlands habitat and neighboring properties. Depending upon the amount of runoff flow, this has the potential to impact the overall water quality in the region. The CWA and associated permits, would have to be examined to determine if any additional permitting actions were necessary.

#### **4.2.5.3 Potential Impacts on Wetlands**

Indirect storm water runoff impacts on a wetlands habitat may result from the proposed action because wetlands are located adjacent to the proposed site to the south-southwest, at a down-gradient slope from the Building 237.

The construction, operation, and maintenance of the proposed automated Energetic Processing Facility would cause adverse, indirect, permanent impacts to the potential wetlands of the area, along the southern boundary of the installation, near a permanent wetlands habitat. Any spills, leaks, or storm water runoff would travel down gradient from the loading dock to the south-southwest. The natural topographic slope of the area would allow for migrating materials to travel in front of Building 236, which is located to the southwest of Building 237. In front of Building 236, a monitoring well and a low-lying area filled with silt exist, which may be connected to a drain directly leading to the wetlands. Therefore, any spilled or leaking materials, or runoff could eventually migrate into the nearby wetlands habitat and further to Bear Swamp Brook.

The installation of a containment basin or drainage system near the loading dock could mitigate these impacts by preventing chemical and storm water runoff from entering the nearby wetlands habitat.

#### **4.2.5.4 Potential Impacts Wild and Scenic Rivers, and Floodplains**

No impacts on any coastal zones or wild and scenic rivers would result from the proposed action, because there are no coastal zones or wild and scenic rivers near the proposed sites. No construction activities regulated by the Rivers and Harbors Act would be undertaken at the proposed sites. Further, no impacts would affect any areas designated as floodplains because the proposed sites would not be located in such areas. This analysis complies with the requirements of the CZMA; the Rivers and Harbors Act; the Wild and Scenic Rivers Act; Executive Order 11998, Floodplain Management; and the Watershed Protection and Flood Prevention Act.

#### **4.2.6 Potential Impacts on Soil and Geologic Resources**

This section has three topic resources: topography, soils, and geology. The potential impacts on each of these resources are discussed below.

##### **4.2.6.1 Potential Impacts on Topography**

The proposed action would have no impacts on the physical topography of the proposed sites, as the existing slope will not be altered during construction, operation, and maintenance activities of the proposed facilities.

##### **4.2.6.2 Potential Impacts on Soils**

The proposed construction activities would cause minor, adverse, direct, permanent impacts on the soil of the proposed sites. Impacts would include compaction caused by the use of construction vehicles, the installation of concrete pavement near the loading dock for vehicular movement and loading/unloading activities, and the mixing and removal of soil layers during construction of facilities. The impacts would be mitigated through the proper construction of the paved areas, and by minimizing the number of construction vehicles used. The mitigation measures would help stabilize the soils after construction activities are completed. None of the construction impacts on the soils of the site would be significant.

The proposed operation and maintenance activities for the site could cause impacts to the soil during loading and unloading procedures, which could create the release or spill of various chemicals, and through the improper use and storage of chemicals.

##### **4.2.6.3 Potential Impacts on Geology**

The proposed construction, operation, and maintenance activities would cause minor impacts to the geology of the proposed site resulting from the installation of a paved driveway near the loading dock for loading and unloading of materials to and from the building. However, the impacts to the geology of the area would be minimal and limited to that aforementioned exterior area of the building. The depth of pavement would be minimized to mitigate the impacts to the geology of the area. No additional impacts would be placed upon the surrounding geological formations.

#### **4.2.7 Potential Impacts on Biological Resources**

This section has three topic resources: flora; fauna; and threatened, endangered, and sensitive species. The potential impacts on each of these resources are discussed below.

##### **4.2.7.1 Potential Impacts on Flora**

The proposed construction, operation, and maintenance activities of the proposed automated Energetic processing facility would cause minor adverse, direct, impacts on the vegetation of the project area, due to the majority of the construction and operations taking place within the building. No major alterations will be placed upon the surrounding vegetation of the building, other than the removal of overgrown vegetation, periodic maintenance activities, and potential application of herbicides, in accordance with the Installation Pest Management Plan to the area. Due to a lack of significant disturbance to the exterior conditions of the building, no significant impacts will be placed upon the surrounding vegetation.

#### **4.2.7.2 Potential Impacts on Fauna**

The proposed construction and operation of the facilities would cause minor adverse, indirect, temporary impacts on wildlife in the vicinity of the proposed sites. The noise generated by construction and operation activities would temporarily displace wildlife in the area. Such displacement would be temporary because, when the noise stopped, wildlife would return to the vicinity of the site. All alterations that are proposed to take place along the exterior of the building are located within an area that is not classified as a wildlife habitat; therefore, no impacts will be placed on the wildlife populations of the project area.

#### **4.2.7.3 Potential Impacts on Threatened, Endangered, and Sensitive Species**

As discussed in earlier sections of this EA, there are many threatened, endangered, and sensitive species found in the region of the Picatinny Arsenal. An interview with the Picatinny Arsenal Natural Resource Manager, Mr. John Van De Venter, revealed that there is potential for the existence of the Timber Rattlesnake, Northeastern Cottontail, and Eastern Woodrat within the immediate vicinity of Building 237. Although, suitable habitat exists, no such sightings of these species have been reported for this area in recent years. Also, habitat for the Indiana Bat, Bald Eagle, and Bog Turtle have not been found within the project area; therefore, it is highly unlikely that the proposed action would impact either of these species. However, if any indication of threatened, endangered, and sensitive species were discovered during construction or operation of the proposed facility, proper consultation with USFWS would be required.

#### **4.2.8 Potential Impacts on Cultural, Historical, and Aesthetic Resources**

No impacts on any cultural or historical resources would result from the proposed action because there are no documented cultural or historical resources on or in the immediate vicinity of the proposed sites. The sites are not located on or adjacent to land owned by Native American tribes, or land of religious or archeological value to Native Americans. If, during construction, artifacts of cultural or historical significance are discovered, it is recommended that SOP #2 of the Integrated Cultural Resource Management Plan be initiated as Picatinny must abide by Federal, State, and DOD regulations and all construction would cease until proper consultation with the New Jersey SHPO were conducted.

#### **4.2.9 Potential Impacts on the Socioeconomic Environment and Environmental Justice**

The proposed action would cause minor beneficial impacts on the facility because it would have the potential to create construction employment opportunities during the proposed construction of the facilities, as well as during the operational life of the building. Access roads may experience a temporary increase in traffic as construction vehicles travel to and from the site. However, this increase would be temporary, negligible, and would continue while the proposed facility is being constructed. Research and training activities within the project area would increase, due to the nature of the proposal.

The proposed facilities would not be located in or near any residential community or area, including communities of minority or low-income populations. Therefore, under the provisions of Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, no impacts on environmental justice concerns in the region would result from the proposed action.

#### 4.2.10 Potential Impacts on Hazardous Materials

The proposed action would cause minor, adverse, direct, permanent impacts on the project area because an increased amount of hazardous materials would be utilized and stored at Building 237 for operation purposes. The main materials planned to be used during operations include HMX, RDX, acetone, ethylene glycol and VOC solvents including ethanol, ethyl acetate, methyl ethyl ketone, cyclohexanone, octane, and n-methylpyrrolidinone. Other materials to be used include 1,3,3-trinitroazetidine (TNAZ), cellulose acetate butyrate (CAB), bis-dinitropropyl acetylformal (BDNPAF), viton, estane, dioctyl adipate, polyisobutylene, stearic acid wax, polyethylene, 2,3-dimethyl-2,3-dinitrobutane, acetic anhydride, nitric acid, ammonium nitrate, hydrochloric acid, sulfuric acid, tetra acetyl diamine (TADA), tetra acetyl diformal (TADF), CL-20, nitrogen and nitrocellulose.

During normal operating conditions, small amounts of waste will be generated from the formulation processes and/or process equipment cleaning. These wastes will be stored in tanks retrofitted with spill containment as described in Section 2.1.1. This includes any water used in the building. There are two waste streams anticipated at this time. One waste stream, from RDX recrystallization, will contain an estimated 70-80% water, 20-30% acetone and traces of RDX, VOCs and inert materials. The second waste stream, from PAX2A formulations will contain an estimated 70-80% water, 20-30% acetone and traces of HMX, BDNPAF, CAB and inert materials. Waste profiles will be completed and disposal options shall be evaluated prior to the 90 day storage limit. By following established guidelines for handling and storing hazardous materials and waste summarized in section 4.2.11 below, potential impacts to the environment can be minimized and/or mitigated.

In addition, existing hazardous materials would have to be removed and potential mitigation systems would have to be implemented within the building before renovation activities begin. Proper management of these materials would mitigate this impact.

Bulk sampling of potential asbestos-containing materials (ACM) within the building should be conducted to identify the matrix of the materials identified during the site visit and to implement proper engineering controls and a worker protection program prior to disturbance.

Also, though there are no plans for renovations within building 231, due to common occupancy of the building, Tetra Tech recommends sampling to identify the lead content of the painted surfaces of the hidden northern wall of the building.

Radon has been formerly detected within building 237 exceeding levels greater than (>) 4 pCi/L; therefore, Tetra Tech recommends that a radon mitigation system be installed as part of the renovation activities to mitigate the impacts of radon within the building.

#### 4.2.11 Potential Unavoidable Adverse Impacts and Associated Mitigation Measures

Potential unavoidable minor adverse impacts include:

**Current Land Use:** The land use for Building 237 would be converted from a vacant semi-improved building to a developed fully operating research and development automated Energetic Processing facility.

**Soil and Geologic Resources:** Minimal mixing of soil horizon layers would occur during construction of the paved driveway near the loading dock, due to increased vehicular use and loading and unloading of materials within the building.

Mitigation measures that would be used to reduce or minimize impacts on resources would include:

**Air Resources:** The number of vehicles and the number of trips to and from the sites during construction, the placement of gravel on Phipps Roads to minimize possible dispersion of dust, and minimization of the number of construction days would help mitigate potential impacts on air resources. Emission controls are not necessary for treating air emissions, due to the insignificant amount of emissions being released during operational procedures. Should air emissions reach higher levels than expected, emission controls should be installed as a mitigation measure.

**Water, Soil, and Geologic Resources:** Implementing spill containment during loading and unloading of more than 10% the maximum anticipated volume of materials to be handled, as part of the construction activities for the facility, will mitigate potential spills and leaks from impacting the water, soil and geologic resources during operation. Spill containment can be derived by using temporary portable containment during product delivery or waste removal, or by the construction of permanent secondary containment structures, such as pavement and curbing, near the loading dock, and a drainage system connecting to the waste storage tanks in the basement of the building.

**Cultural, Historic, and Aesthetic Resources:** If, during construction, artifacts of cultural or historical significance are discovered on any of the proposed sites, all construction would cease until proper consultation with the New Jersey State Historic Preservation Office was conducted.

**Hazardous Materials:** Impacts to the project area in relation to former or future hazardous materials can be mitigated by removing all asbestos containing materials, if the bulk samples test positive for ACM, by removing any lead based paint materials, by installing a radon mitigation system during construction activities of the facility, and by installing temporary or permanent secondary containment, to allow for the collection and storage of raw material or waste spills.

In addition, by following established guidelines for handling and storing hazardous materials and waste, potential impacts to the environment can be minimized. This includes conformance with the Hazardous Waste Management Plan, February, 2001, Best Management Practices (BMP) for Spill Prevention and Control, Installation Spill Contingency (ISC) Plan, March 2001, Hazmart SOP and adherence to spill response and notification procedures.

#### 4.2.12 Irreversible and Irretrievable Commitment of Resources

Although the proposed action would commit the proposed site to its prior historical land usage, only some of the impacts would be minor and irreversible, and only some of the resources would be irretrievable. Should, at some time, the proposed facilities no longer be used, they could be removed, and new trees could be planted (or natural forest succession allowed) to repopulate the area with trees. However, the soils of the site, especially those of the paved areas, would remain compacted and mixed.

#### 4.2.13 Relationship Between Short-Term Uses and Long-Term Productivity

The proposed action would include the long-term conversion and refurbishment of the abandoned building 237 to a new automated Energetic Processing facility, with newly equipped state-of-the-art technologies. All processing equipment, including various storage tanks, a batch reactor, connecting piping and emissions control equipment will be housed in Building 237. The electronics controlling the processing will be housed in another building, known as building 231, that will be connected to Building 237, via an underground utility vault.

These new facilities would be used to support the research and development mission of the Picatinny Arsenal and interested agencies for a number of years. Therefore, there is no short-term use associated

with the proposed action; operation of these sites would contribute to long-term productivity of Buildings 237 and 231.

#### **4.2.14 Potential Cumulative Impacts**

Cumulative impacts result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. Past impacts associated with the proposed action may consist of the potential contamination of soils and groundwater within the project area and surrounding area due to former operations. Explosive pressing, PBX mixing, and the storage of chemicals (powdered explosives and propellants, small quantities of solvents and press oils) took place within the building. Also, contamination has been documented for the soil and groundwater within the neighboring properties, allowing for the potential migration of contaminants into the project area.

The present potential impacts are examined in this document and include the construction, operation, and maintenance activities associated with integrating the proposed automated Energetics processing facility into the existing Building 237. Foreseeable future actions associated with the proposed project include the refurbishment of Building 237 and Building 231 to a condition suitable for its intended purpose, and the purchase, installation, and integration of all equipment and sub systems except as provided by the government.

The future impacts of the project area are minor improvements to the site that may potentially impact natural resources within the area, such as wetlands habitats, and the conditions of the soil and groundwater. If mitigation measures are properly implemented into the proposed activities for the site, then the aforementioned natural resources should not be impacted. Building 237 will be altered permanently to carry out the proposed processing activities to accommodate the U.S. Army and interested parties for research and development purposes.

#### **4.3 NO ACTION ALTERNATIVE**

The no action alternative does not involve the construction, operation, and maintenance of a automated Energetic Processing facility; therefore there would be no impacts on land use, air resources, water resources, soil and geologic resources, or biological resources. However, the no action alternative would not meet the stated need of the Picatinny Arsenal and would not result in the potential beneficial socioeconomic impacts of the proposed action.

## 5.0 CONCLUSIONS

This environmental assessment considers the construction, operation, and maintenance of a new automated Energetic Processing Facility for Picatinny Arsenal within a building known as Building 237. Processing equipment, including various storage tanks, a batch reactor, and connecting piping will be housed in Building 237. The electronics controlling the processing will be housed in another building, known as building 231, that will be connected to the equipment room of Building 237, via an underground utility vault. This site will be refurbished and newly equipped to reflect the state-of-the-art of energetics processing technology as required by the various US ARMY Research and Development armaments missions. After analysis presented in previous sections, this EA concludes that the proposed action would not have any significant adverse impacts on the resources examined herein. The proposed action would cause minor adverse impacts on several of the resources of the installation, but those impacts would not be significant and would themselves be reduced through the use of a variety of BMPs and mitigation measures. Therefore, the preparation of an EIS is not warranted at this time. This decision will be documented through a finding of no significant impact (FNSI).

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Table 2: Consulted Personnel

NAME	FUNCTION	OFFICE	EXTENSION	INTERVIEWED
Gil Myers	NEPA Specialist	AMSTA-AR-PSE	X - 5957	Yes
Ted Gabel	Site Remediation Manager	AMSTA-AR-PSE	X - 6748	Yes
Chris Wagner	Hazardous Waste and Spill Response Manager	AMSTA-AR-PSE	X - 2061	Yes
Tim Miller	Natural Resources	AMSTA-AR-PW	X - 3890	Yes
John Van De Venter	Natural Resources	AMSTA-AR-PW	X - 4691	Yes
Harry Chu	Engineer	Johnson Controls	X - 3742	Yes

**FIGURE 1**

**USGS SITE LOCATION MAP**

THIS MAP WAS DEVELOPED USING NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION GEOGRAPHIC INFORMATION SYSTEM DIGITAL DATA, BUT THIS SECONDARY PRODUCT HAS NOT BEEN VERIFIED BY NJDEP AND IS NOT STATE AUTHORIZED.

2000 0 2000 4000 Feet



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Source:  
USGS Digital Topographic Quarterquad  
Dover, NJ Quadrangle  
1954, Photorevised 1981

 APPROXIMATE ARSENAL BOUNDARY

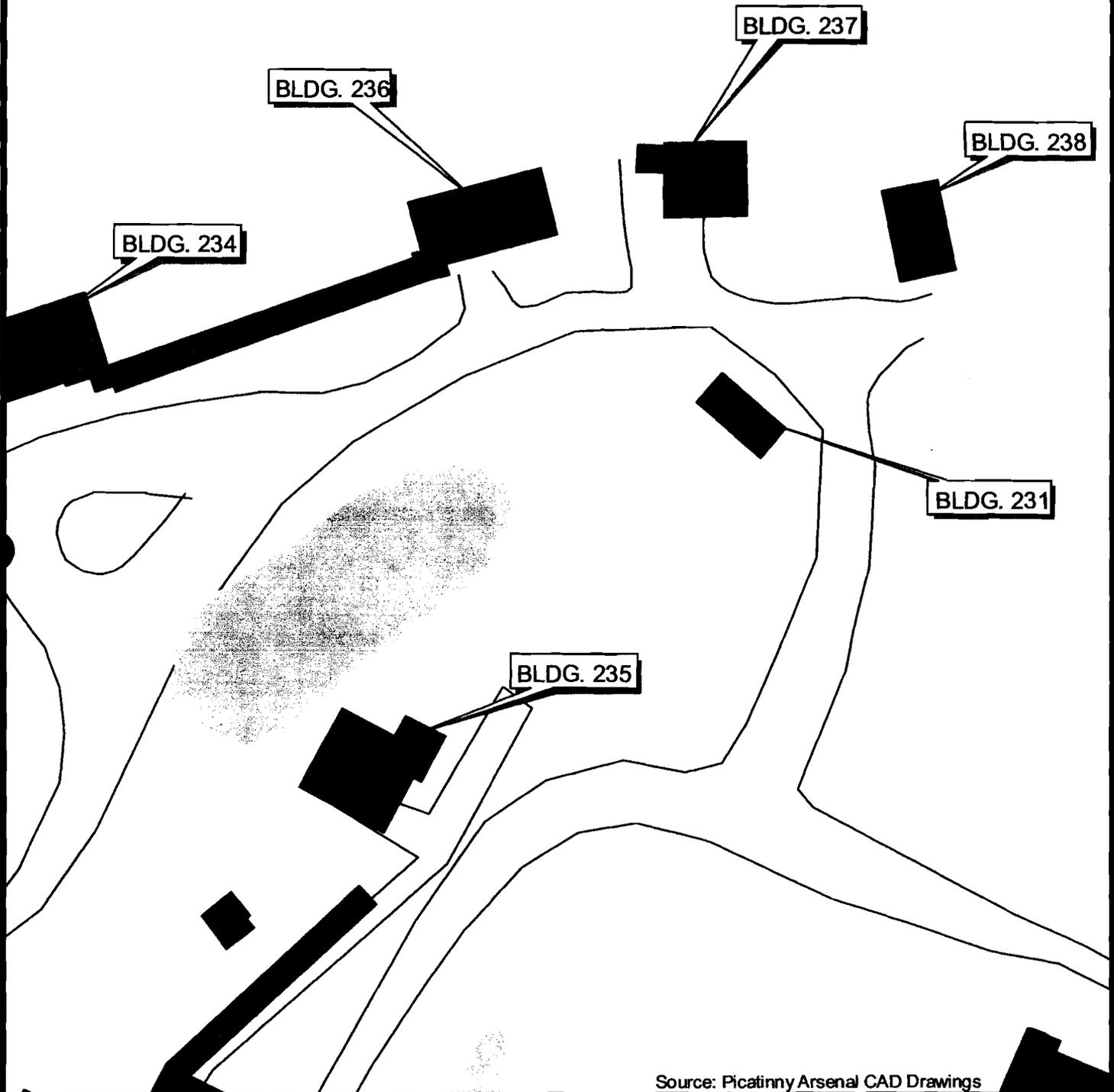
FIGURE 1  
USGS SITE LOCATION MAP

PICATINNY ARSENAL  
BUILDING 237  
ENVIRONMENTAL ASSESSMENT

**FIGURE 2**  
**BUILDING 237 SITE PLAN**

THIS MAP WAS DEVELOPED USING NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION GEOGRAPHIC INFORMATION SYSTEM DIGITAL DATA, BUT THIS SECONDARY PRODUCT HAS NOT BEEN VERIFIED BY NJDEP AND IS NOT STATE AUTHORIZED.

90 0 90 180 Feet



Source: Picatinny Arsenal CAD Drawings



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-  Buildings
-  Secondary Buildings
-  Wetlands
-  Roads

FIGURE 2  
BUILDING 237 SITE PLAN

PICATINNY ARSENAL  
BUILDING 237  
ENVIRONMENTAL ASSESSMENT