Ground-Based Midcourse Defense (GMD) Initial Defensive Operations Capability (IDOC) at Vandenberg Air Force Base

Environmental Assessment

28 August 2003

U.S. Army Space and Missile Defense Command
P.O. Box 1500
Huntsville, Alabama 35807-3801

GROUND-BASED MIDCOURSE DEFENSE (GMD)
INITIAL DEFENSIVE OPERATIONS CAPABILITY (IDOC) AT
VANDENBERG AIR FORCE BASE ENVIRONMENTAL ASSESSMENT

MISSILE DEFENSE AGENCY

AGENCY: Missile Defense Agency (MDA)

ACTION: Finding of No Significant Impact

BACKGROUND: Within the Department of Defense, the MDA is responsible for developing, testing, and deploying the Ballistic Missile Defense System. The Ballistic Missile Defense System is designed to intercept threat missiles during all phases of their flight: boost, midcourse, and terminal. The Ground-Based Midcourse Defense (GMD) is a component of the midcourse defense, during which the Ground-Based Interceptors (GBIs) intercept and destroy long-range missiles during the ballistic (midcourse) phase of their flight before their reentry into the Earth's atmosphere.

The U.S. Army Space and Missile Defense Command, on behalf of MDA, has conducted an Environmental Assessment (EA) of the potential environmental consequences of establishing the capability to launch defensive GBIs from Vandenberg Air Force Base (AFB), California, in support of the President's direction to the Department of Defense to field a set of initial missile defense capabilities.

This EA has been prepared in accordance with the National Environmental Policy Act of 1969, as amended, and its implementing regulations, 42 United States Code 4321 *et seq.* and 40 Code of Federal Regulations (CFR) 1500-1508, respectively; 32 CFR Part 651 (Army Regulation 200-2), *Environmental Analysis of Army Actions;* 32 CFR 989 (Air Force Instruction 32-7061), *Environmental Impact Analysis Process*; and Department of Defense Instruction 4715.9, *Environmental Planning and Analysis*. The purpose of the Proposed Action is to provide an initial defensive operational capability (IDOC) at Vandenberg AFB to defend the United States against a limited attack by long-range ballistic missiles. The GMD IDOC activities are operational, not test in nature. Operational launches would only occur in an emergency as an initial defense against a limited long-range ballistic missile attack. Consequently, this EA does not address the environmental impacts of defensive GBI launches, which would occur only in response to an actual ballistic missile threat.

DESCRIPTION OF THE PROPOSED ACTION: The Proposed Action would use and/or modify four existing missile silos and other supporting facilities at Vandenberg AFB as part of the GMD IDOC. The candidate silos for IDOC activities examined in this EA were Launch Facility (LF)-02, LF-03, LF-10, LF-

21, LF-23, and LF-24. LF-21 has been used by GMD for GBI flight tests, and LF-23 was previously reconfigured for booster verification tests. LF-02, LF-03, LF-10, and LF-24 were included as launch facility alternatives for IDOC activities following a selection screening process that included criteria such as location (i.e., distance from other proposed IDOC facilities), availability of infrastructure, physical condition of each facility, and the amount of possible environmental concerns at each site.

The four missile silos would be in an operational state at Vandenberg AFB with GBIs installed, ready to defend the United States against a limited strategic ballistic missile attack. One silo could function as both an operational silo and a test launch silo. This dual-use capability would enable the GMD program to use the silo for occasional test launches as analyzed in the GMD Extended Test Range Environmental Impact Statement (July 2003). At all other times, the dual-use silo would be in an operational state.

The GBI acts in a defensive mode to intercept incoming ballistic missile warheads outside the Earth's atmosphere and destroy them by force of impact. No nuclear warheads would be used by the GBI defensive interceptor. During flight, the GBI receives information from the In-Flight Interceptor Communication System Data Terminal (IDT), enabling the GBI onboard sensor system to continually discriminate and track the target. The GBI missile consists of a three-stage solid propellant booster and an Exoatmospheric Kill Vehicle (EKV). Each GBI would contain approximately 20,500 kilograms (45,000 pounds) of hydroxyl-terminated polybutadiene solid propellant. Each EKV would contain approximately 7.5 liters (2 gallons) each of liquid fuel (monomethyl hydrazine) and liquid oxidizer (nitrogen tetroxide). The liquid fuel and liquid oxidizer tanks would arrive at the site fully fueled.

Additional components associated with an operational IDOC include a Component Site Communication Node or potentially a GMD Fire Control/Communication Node, a Readiness Station (for operational, defensive readiness activities), sensors (existing range radars and fixed or mobile telemetry and optics equipment), and an IDT (fixed or relocatable).

Existing facilities would be required for the following functions: Missile Assembly/EKV/Interceptor Integration, Security Response Force Outpost, Readiness Station, GMD Fire Control/Communication components (IDT, GMD Communication Node, and GMD Fire Control), interceptor storage, administrative/office space, Peculiar Support Equipment (IDOC-associated equipment such as the "strongback" trailer used for transport) storage, EKV fuel tank storage, EKV oxidizer tank storage, and warehouse/maintenance/storage facilities. Several of these facilities may require interior modifications and the installation of additional infrastructure (i.e., security fencing, lighting,

communications lines, water line upgrades, re-grading for proper storm drainage, septic tank and leach field, etc.). Buildings 975, 976, 1032, 1768, 1777, 1801, 1819, 1900, 1959, 1970, 1978, 2001, 6510, 6819, and 8500 are being considered for use by the GMD IDOC program as described in the table below. Existing security force personnel at Vandenberg AFB would be used for IDOC activities. However, additional personnel could be required for a dedicated security force at Vandenberg AFB in support of the GMD program.

Table 1: Potential Locations or Existing Facilities Proposed for Use at Vandenberg AFB, California

Facility Function	Potential Locations
Ground-Based Interceptor Launch Silos	LF-02, LF-03, LF-10, LF-21, LF-23, and LF-24
Readiness Station	Building 1768 or Building 1801
Ground-Based Midcourse Defense Fire Control Node	Building 1768 or Building 1801
Missile Assembly/Exoatmospheric Kill Vehicle /Interceptor Integration	Building 1032, Building 1819, or Building 1900
Program Personnel Support	Building 1978
Administrative Space (office space)	Building 1801, Building 1900 (short-term), Building 1959, Building 6510, and Building 8500
Exoatmospheric Kill Vehicle Fuel Tank Storage	Building 976 (This would be requested as a service)
Exoatmospheric Kill Vehicle Oxidizer Tank Storage	Building 975 (This would be requested as a service)
Interceptor Storage	Building 6819 (This would be requested as a service)
Peculiar Support Equipment Storage	Building 1970
Warehouse	Building 1801, Building 2001, and new construction within Cantonment Area or lease space off base
Maintenance/Storage	Building 1777, Building 1959, Building 2001, and new construction within Cantonment Area or lease space off base
In-Flight Interceptor Communication System Data Terminal Site	Titan Pasture Site

NOTES:
LF = Launch Facility

Communication cables would be installed between facilities as required. Cables would be installed in existing conduits, where available. If existing conduits are not available, the cable(s) would be installed in new conduits that would be placed

in routes designed to avoid sensitive areas and approved by the Vandenberg AFB Environmental Management Office. New communications cable/conduit would be buried in the shoulders of existing roads, or along existing buried communication lines if cross country routes are required. Trenching, approximately 20 kilometers (12.4 miles), for the new communications cable/conduit would have a maximum depth of 0.9 meter (3 feet). Other methods of installation, such as slant/directional drilling, are also being proposed where appropriate as a means of minimizing impacts to sensitive areas.

ALTERNATIVES TO THE PROPOSED ACTION:

No-action

Under the No-action Alternative, GBI launch facilities at Vandenberg AFB for initial defensive operations would not be established. Vandenberg AFB would continue with normal activities, including launching missiles as analyzed in prior environmental documents. GMD Extended Test Range tests would continue. By implementing the No-action Alternative, GMD would not expand the capability at Vandenberg AFB to provide an initial defensive capability for the United States against the threat of a limited strategic ballistic missile attack.

Alternatives Not Carried Forward for Analysis

Several alternative Vandenberg AFB facilities and locations were considered for use as part of the IDOC Proposed Action. These alternative locations did not meet all necessary criteria determined in accordance with MDA Directive 4165.02, *Comprehensive Siting Analysis Process,* and thus were not carried forward for analysis.

ENVIRONMENTAL EFFECTS:

Proposed Action

To provide a context for understanding the potential effects of the Proposed Action and a basis for assessing the significance of potential impacts, several environmental resource areas were evaluated. The resource areas determined to have a potential for impacts were air quality, biological resources, cultural resources, geology and soils, hazardous materials and waste, health and safety, infrastructure, land use, noise, socioeconomics, and water resources. Each environmental resource was evaluated according to a list of activities that were determined to be necessary to accomplish the Proposed Action.

Implementation of the Proposed Action on Vandenberg AFB would not result in significant impacts to any of the resource areas listed above. All activities would be in compliance with applicable federal, state, and local regulations and requirements.

Air Quality. No exceedance of air quality standards or health-based standards of non-criteria pollutants are anticipated from facility modifications and site preparation activities necessary for the GMD IDOC program. Emissions from site preparation and cable installation activities and test and use of generators for backup power (less than 200 hours per year) would be regulated in accordance with the agreement between Vandenberg AFB and the Santa Barbara County Air Pollution Control District for Vandenberg AFB and are not anticipated to cause exceedances of air quality standards. Review of the Proposed Action as required by the General Conformity Rule resulted in a finding of presumed conformity with the State Implementation Plan.

Biological Resources. Site preparation and cable installation activities should not have significant adverse impacts to vegetation, wildlife, threatened/endangered species, or wetlands. Facility modifications requiring parking lot construction and fencing would occur in previously disturbed locations resulting in minor impacts to vegetation. Fiber-optic cable installation is anticipated to require minor excavation along the shoulders of existing roads or existing buried communication lines, which should also pose minimal impact to adjacent vegetation and minimize the potential for impacts to listed species of vegetation. Surveys would be performed for the Gaviota tarplant and Lompoc yerba santa, which would allow for designs to avoid impacts. Biological monitors would be available on-site during communication cable installation and other site preparation activities that would require ground disturbance.

All transportation and operation of equipment and materials would be conducted in accordance with applicable spill prevention, containment, control measures, and transportation regulations, which should preclude impacts to biological resources. No direct physical auditory changes to wildlife are anticipated from the site preparation noise. GMD IDOC site preparation activities would not impact threatened and endangered species along the coast, such as the southern sea otter and nesting western snowy plover and California least tern, due to the distance from their coastal habitat. Biological monitors would be available on-site during installation. Reconnaissance-level pre-construction surveys and construction monitoring would be conducted to minimize the risk of mortality to federal and state species of concern (burrowing owl, loggerhead shrike, California horned lizard, and silvery legless lizard) during site clearing for those areas requiring grading or vegetation removal. The increased presence of personnel and site preparation noise may cause birds and other mobile wildlife species to temporarily avoid areas subject to the most activity. However, additional similar habitat is nearby for displaced wildlife. Areas of potential wetlands along communication routes would be surveyed by qualified biologists. No impacts to environmentally sensitive habitat are expected.

Cultural Resources. Since all new construction would take place on existing concrete pads, within previously graded or graveled areas, or within already developed areas of the base, the proposed new construction activities should have no effect on historic properties. Consultation with State Historic Preservation Officer on the potential effects of the Proposed Action to National Register-eligible properties has been initiated through Vandenberg AFB Environmental Management. Prior to the reuse of these properties, consultation would continue through Vandenberg AFB to ensure their protection or to determine appropriate mitigations that would be performed to preserve information concerning these facilities.

Modifications to facilities eligible for listing on the National Register of Historic Properties would be directed by Vandenberg AFB personnel consistent with requirements resulting from consultation with the California State Historic Preservation Office. A Historic American Engineering Record would be completed for proposed activities at former Peacekeeper facilities, LF-02, Building 1819, and Building 1900, prior to any refurbishment or alterations. The trenching required for fiber-optic cable installation would be excavated along the shoulder of existing roadways or along existing buried communication lines if cross country routes are required. Any known cultural resources would be avoided or impacts mitigated by drilling beneath them. Although complete avoidance of prehistoric and historic sites is planned, all construction activities would be monitored by an archaeologist and Native American specialist.

Geology and Soils. GMD IDOC site preparation activities (new small asphalt parking areas, some re-grade for proper storm drainage in the area outside of the existing fence at Building 1768, additional parking areas, and fence installation) may result in minor, short-term impacts to adjacent soils. The staging areas for any construction materials and equipment associated with modification of the facilities would be on existing paved, aggregate, or previously disturbed surfaces. The trenching required for fiber-optic cable installation would be excavated along existing roads or along existing buried communication lines if cross country routes are required. No substantial impacts to geology and soils are anticipated.

Hazardous Materials and Hazardous Waste. The Proposed Action is not expected to substantially increase the volume of hazardous materials used, or hazardous waste generated, at Vandenberg AFB. Hazardous materials and hazardous waste would be handled and disposed of in accordance with appropriate spill prevention, containment, and control measures and hazardous materials handling regulations. GMD program personnel would look for opportunities to reduce/recycle the hazardous materials used during all stages of site preparation and operation, such as including environmentally preferred products and bio-based products.

Health and Safety. Overall there would be a minimal increase in health and safety risk in comparison to current activities at Vandenberg AFB from site preparation and operation and transportation of hazardous materials. All activities would be conducted in accordance with the Occupational Safety and Health Administration regulations and U.S. Army and 30th Space Wing Safety procedures to control exposure of workers to safety and health hazards, which should preclude impacts to worker or public health as a result of the Proposed Action.

Infrastructure. Minor disruptions to traffic from cable installation along roadways and a slight increase in traffic on roadways used by contractor personnel during silo modification, other site preparation, and operation activities would be expected. All disruptions to traffic due to cable installations along the roadways would be communicated to 30 Civil Engineering Squadron Dispatch, so that in the event of an emergency, responders would be forewarned about changed conditions in the area.

Existing infrastructure for Buildings 1032, 1777, 1900 (short term), 1959, 2001, 6510, 8500, and the IDT site is sufficient for support of the Proposed Action, and no external modifications would be required. Existing infrastructure such as commercial power, water, sewer, communication lines, roadways, and storm drainage are all available and adequate in the area where the storage and warehouse facilities are to be constructed. Diesel generators would be used as a backup power source at each LF and potentially at each support facility. Additional exterior lighting, telephone communications, warning lights, and a public address system would be installed at each facility as required. Additional water lines (upgrades) would be installed at Buildings 1768, 1970, and 6819. A septic tank and leach field would be installed at Building 1801. The addition of GMD IDOC site preparation and operation personnel should not substantially increase demand on the capacity of infrastructure systems on base.

The potential increase in solid waste generated from the nominal increase in personnel and site preparation and operation activities would be minimal (nonhazardous materials removed during renovation of facilities, general office type waste) and would not substantially increase demand on the capacity of the Vandenberg AFB landfill or other infrastructure such as the solid waste disposal system.

Land Use. No adverse impacts to current on-base land use are anticipated. No public access to parks, popular visitor destination points, and recreation areas, including water-oriented recreational activities, would be restricted by the program. A Coastal Zone Consistency Determination, stating that the Proposed Action is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program, was approved by the

California Coastal Commission. The GMD IDOC activities would comply with federal Coastal Zone Consistency Regulations.

Noise. Noise impacts from site preparation and fiber optic cable installation would be short-term and insignificant. Any impacts associated with operation of the facilities, such as generator testing and other maintenance, would also be short-term and insignificant.

Socioeconomics. GMD IDOC personnel spending money in the local economy would represent a small positive temporary impact to the local community.

Water Resources. No withdrawal of or discharge to groundwater is anticipated. Communications cables would be in existing conduits attached to the bridge at San Antonio Creek and Shuman Creek. Some re-grade for proper storm drainage would be required in the area outside of the existing fence at Building 1768 and for additional parking area construction. Activities would also follow guidelines in the Vandenberg AFB Spill Prevention Control and Countermeasure Plan to minimize potential water resources impacts.

Alternatives

Under the No-action Alternative, no environmental consequences associated with the GMD IDOC program would occur. Vandenberg AFB would continue with normal activities, including launching missiles as analyzed in prior environmental documents. GMD Extended Test Range tests, including those actions at Vandenberg AFB analyzed in the July 2003 GMD ETR EIS, would continue.

CONCLUSION: This analysis concludes that the proposed activities for the IDOC at Vandenberg AFB are expected to have no significant impacts on the environment as long as the noted mitigation actions are implemented. Preparation of an Environmental Impact Statement, therefore, is not required. A follow-up action list of mitigations and standards operating procedures to protect the environment will be developed and completed by the Executing Agent and submitted to MDA/TERC to ensure compliance with the actions described in this EA.

MDA will use LF-02, LF-03, LF-21, and LF-23. As described in the Proposed Action, the silos would be in an operational state with GBIs installed, ready to defend the United States against a limited strategic ballistic missile attack. One of these silos would function as both an operational silo and a test launch silo.

DEADLINE FOR RECEIPT OF WRITTEN COMMENTS:
October 15, 2003.

POINT OF CONTACT: Submit written comments or requests for a copy of the GMD IDOC EA to:

U.S. Army Space and Missile Defense Command
Attention: SMDC-EN-V (David Hasley)
Post Office Box 1500
Huntsville, AL 35807-3801

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GROUND-BASED MIDCOURSE DEFENSE (GMD) INITIAL DEFENSIVE OPERATIONS CAPABILITY (IDOC) AT VANDENBERG AIR FORCE BASE ENVIRONMENTAL ASSESSMENT

AGENCY: Missile Defense Agency

ACTION: Finding of No Significant Impact

PROPONENT:

_____ DATE: _____

MARK D. SHACKELFORD
Brigadier General, USAF
Deputy for Test and Assessment

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Ground-Based Midcourse Defense (GMD) Initial Defensive Operations Capability (IDOC) at Vandenberg Air Force Base

19. ABSTRACT *(Continue on reverse if necessary and identify by block number)*

The Missile Defense Agency is responsible for developing the Ground-Based Missile Defense (GMD) element, which is designed to intercept long-range ballistic missiles before their reentry into the earth's atmosphere. In 2002, the President directed the Department of Defense to field a set of initial missile defense capabilities (National Presidential Directive 23) that would begin operation on 30 September 2004. In support of this directive, the Proposed Action would establish operational Ground-Based Interceptor (GBI) launch facilities at Vandenberg AFB as an initial defense of the United States from a limited ballistic missile attack.

These defensive capabilities would be achieved by new construction and use and/or modification of existing missile launch locations and other supporting facilities at Vandenberg Air Force Base, California as part of the GMD Initial Defensive Operations Capability (IDOC) program. The GMD IDOC activities would be operational, not test in nature. Operational launches would only occur in an emergency as an initial defense against a limited long-range ballistic missile attack.

The components associated with an operational IDOC include the GBIs installed in missile silos, a Component Site Communication Node or potentially a GMD Fire Control Node, a Readiness Station, Missile Assembly/Exoatmospheric Kill Vehicle/Interceptor Integration Building, sensors (existing range radars and fixed or mobile telemetry and optics equipment), and an In-Flight Interceptor Communication System Data Terminal (fixed or relocatable).

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Mr. David C. Hasley	955-4170	SMDC-EN-V

ACRONYMS AND ABBREVIATIONS

ACRONYMS AND ABBREVIATIONS

30 CES/CEV	30th Civil Engineering Squadron Environmental Management Flight
30 CES/CEVPN	30th Civil Engineering Squadron/Environmental Management
30 CES/CEX	Readiness Flight
30 SW	30th Space Wing
30 SW/CC	30th Space Wing Commander
30 SW/SE	30th Space Wing Safety Office
AFB	Air Force Base
APE	Area of Potential Effect
BMP	Best Management Practice
C	Celsius
CAAQS	California Ambient Air Quality Standards
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CZM	Coastal Zone Management
dB	Decibel
dBA	A-weighted decibel
DNL	A-weighted Day-Night Equivalent Sound Level (L_{dn})
DoD	Department of Defense
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EKV	Exoatmospheric Kill Vehicle
EPA	U.S. Environmental Protection Agency
EPP	Environmental Protection Plan
ESQD	Explosive Safety Quantity-Distance
ETR	Extended Test Range
F	Fahrenheit
FAA	Federal Aviation Administration
GBI	Ground-Based Interceptor
GFC	Ground-Based Midcourse Defense Fire Control
GFC/C	Ground-Based Midcourse Defense Fire Control/Communication
GMD	Ground-Based Midcourse Defense

HAER	Historic American Engineering Record
IDLH	Immediately Dangerous to Life and Health
IDOC	Initial Defensive Operations Capability
IDT	In-Flight Interceptor Communication System Data Terminal
ILL	Impact Limit Lines
IRP	Installation Restoration Program
kW	Kilowatt
L_{dn}	Day-Night Equivalent Sound Level
LER	Launch Equipment Room
LF	Launch Facility
L_{max}	Maximum Sound Level
MDA	Missile Defense Agency
$\mu g/m^3$	Micrograms Per Cubic Meter
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PM-10	Particulate Matter of 10 Microns in Diameter or Smaller
ppm	Parts per Million
PSE	Peculiar Support Equipment
ROI	Region of Influence
SBCAPCD	Santa Barbara County Air Pollution Control District
SHPO	State Historic Preservation Officer
SR	State Route
USC	United States Code
WR	Western Range

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1.0
PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

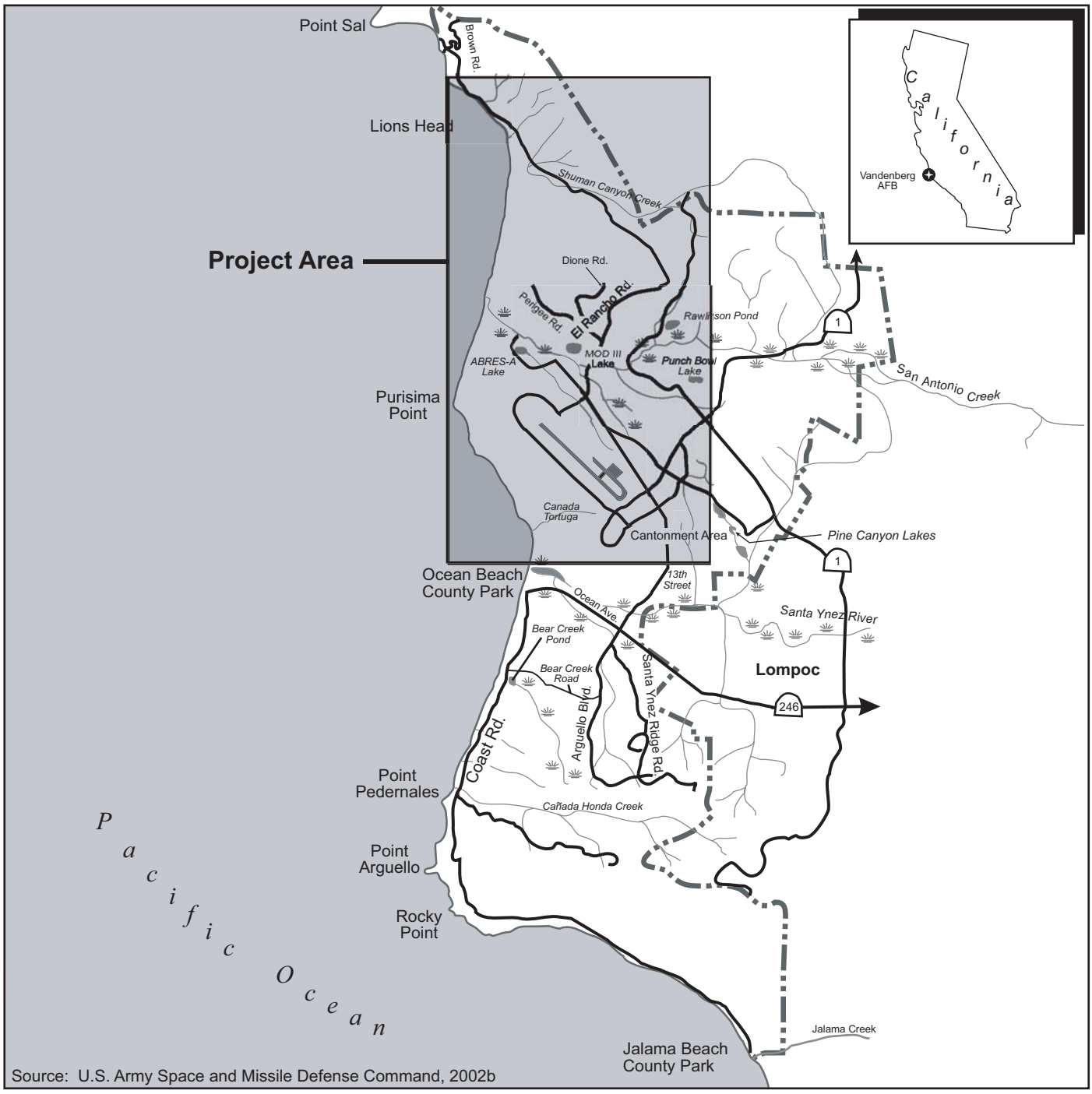
The National Environmental Policy Act (NEPA) of 1969, Council on Environmental Quality (CEQ) Regulations implementing NEPA, Department of Defense (DoD), and applicable Service environmental regulations that implement these laws and regulations, direct DoD officials to consider environmental consequences when authorizing and approving federal actions. Accordingly, this analysis examines the potential for impacts to the environment as a result of the Proposed Action of using modified existing missile silos and other supporting facilities at Vandenberg Air Force Base (AFB), California, for the Ground-Based Midcourse Defense (GMD) Initial Defensive Operations Capability (IDOC) (figure 1-1). The GMD IDOC activities would be operational, not test in nature. Operational launches would only occur in an emergency as an initial defense against a limited long-range ballistic missile attack.

1.1 BACKGROUND

Within the DoD, the Missile Defense Agency (MDA) is responsible for developing, testing, and deploying the Ballistic Missile Defense System. The Ballistic Missile Defense System is designed to intercept threat missiles during all phases of their flight: boost, midcourse, and terminal. The GMD is a component of the midcourse defense, during which the Ground-Based Interceptors (GBIs) intercept and destroy long-range missiles in the ballistic (midcourse) phase of their flight before their reentry into the Earth's atmosphere. GMD system testing was analyzed in the *Ground-Based Midcourse Defense (GMD) Extended Test Range (ETR) Environmental Impact Statement (EIS)* (Missile Defense Agency, 2003).

In 2002, the President directed the DoD to field a set of initial missile defense capabilities (National Presidential Directive 23) that would begin operation on 30 September 2004. In support of this direction, this Environmental Assessment (EA) analyzes the environmental effects of establishing the GMD IDOC at Vandenberg AFB. The GMD IDOC will provide the ability to launch defensive GBI missiles in response to a limited long-range ballistic missile attack that threatens the United States.

Vandenberg AFB is located on approximately 400 square kilometers (154 square miles) of the south-central coast of California in western Santa Barbara County. Vandenberg AFB is the headquarters for the 30th Space Wing (30 SW). The primary missions at Vandenberg AFB are to launch and track satellites in space, test and evaluate U.S. intercontinental ballistic missile systems, and support aircraft operations in the Western Range (WR). Nonmilitary, commercial space launch operations also occur at Vandenberg AFB.



EXPLANATION

- Land Area
- Water Area
- Vandenberg Air Force Base Boundary
- Road
- River / Creek
- Wetlands

Scale
0 3.42 6.84 kilometers
0 2.13 4.25 miles

NORTH

08-20-03 VAFB

Vandenberg Air Force Base Proposed Project Area

Vandenberg Air Force Base, California

Figure 1-1

1.2 PURPOSE

The purpose of GMD is the defense of the United States and its allies against the threat of a limited strategic ballistic missile attack. The purpose of GMD IDOC, the Proposed Action, is to provide an initial defensive operational capability at Vandenberg AFB to defend the United States against a limited attack by long-range ballistic missiles.

1.3 NEED

The proliferation of weapons of mass destruction and improvements in foreign long-range missile technology are increasing the threat to our national security. The need for this Proposed Action is to modify existing facilities to support the initial capability to launch defensive GBI missiles from Vandenberg AFB to counter this threat.

1.4 DECISION TO BE MADE

The decision to be made is whether to modify, construct, and operate existing missile silos and other necessary facilities at Vandenberg AFB in support of fielding the IDOC.

1.5 APPLICABLE REGULATORY PROCESSES

Biological Resources—The Endangered Species Act of 1973 requires the U.S. Fish and Wildlife Service to identify plant and wildlife species that are threatened or endangered. A key provision of the Endangered Species Act for federal activities is Section 7 consultation. Under Section 7 of the Act, every federal agency must consult with the U.S. Fish and Wildlife Service and National Marine Fisheries Service on any agency action (authorization, funding, or execution) that is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species. The Endangered Species Act was considered during the preparation of the EA, but no significant impacts to listed plant or wildlife species have been identified.

The Migratory Bird Treaty Act (16 United States Code [USC] 703-712) protects many species of migratory birds. Specifically, the act prohibits the pursuit, hunting, taking, capture, possession, or killing of such species or their nests and eggs. GMD IDOC activities would be undertaken in compliance with this Act.

Cultural Resources—In addition to the NEPA, the primary applicable law that pertains to the treatment of cultural resources during environmental analysis is the National Historic Preservation Act (16 USC 470 *et seq.*), especially Section 106.

Section 106 of the National Historic Preservation Act requires federal agencies to take into consideration the effects of their actions on significant cultural properties. Implementing regulations specify a process of consultation to assist in satisfying this requirement. To be

considered significant, cultural resources must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion in the National Register. The term “eligible for inclusion in the National Register” includes all properties that meet the National Register listing criteria which are specified in Department of Interior regulations. Therefore, sites not yet evaluated may be considered potentially eligible to the National Register and, as such, are afforded the same regulatory consideration as nominated properties. Whether prehistoric, historic, or traditional, significant cultural resources are referred to as historic properties. As GMD IDOC project details are further delineated, coordination will continue to occur with the Environmental Planning Section and the Cultural Resources Section at Vandenberg AFB to further ensure that cultural resources would be protected.

Hazardous Materials and Hazardous Waste—Executive Order 12088, *Federal Compliance with Pollution Control Standards*, as amended, under the authority of the U.S. Environmental Protection Agency (EPA), ensures that necessary actions are taken for the prevention, management, and abatement of environmental pollution from hazardous materials or hazardous waste caused by federal facility activities. The State of California has been delegated authority by the EPA for regulation of all activities related to the management of hazardous materials and wastes previously regulated by EPA. California has adopted and elaborated the requirements found in the federal regulations, which are rewritten in Title 22 of the California Code of Regulations. The GMD IDOC activities would also be performed in compliance with the California Business Plan Program and any required permits to operate, such as potential aboveground storage tank permits.

Land Use—The Coastal Zone Management Act of 1972 is designed to preserve and develop the resources of the coastal zone. The act provides funds to states that develop and implement programs for management of land and water uses consistent with the act's standards. Federal development projects in a coastal zone and all federal activities which could directly affect a coastal zone must be consistent to the maximum extent practicable with the Coastal Zone Management (CZM) Program as authorized by the Coastal Zone Management Act of 1972. The GMD IDOC program would comply with federal Coastal Zone Consistency Regulations and the California CZM Program and Plan.

Water Resources—Stormwater Pollution Prevention Plans are typically prepared before any soil-disturbing activities occur and are permitted under the National Pollutant Discharge Elimination System to ensure that activities do not lead to unacceptable levels of erosion and water pollution. Projects, such as the Proposed Action, that disturb 0.4 hectare (1 acre) or greater require compliance with the State General Stormwater Permit for Construction Activities.

1.6 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

As stated in section 1.1, the President directed the DoD to begin fielding a set of initial missile defense capabilities. This EA analyzes the use of modified existing missile silos and other support facilities on Vandenberg AFB as part of the GMD IDOC. This GMD IDOC EA analyzes the site preparation, facility modifications, new construction, and operational activities required to attain this initial defense capability at Vandenberg AFB. The GMD IDOC activities would not involve launches of GBIs from modified missile silos at Vandenberg AFB except in response to a limited long-range ballistic missile attack.

1.7 RELATED ENVIRONMENTAL DOCUMENTATION

A number of other EAs and EISs have previously been prepared to support the development of the specific technologies that may be used as part of the GMD element. The information and analyses contained in these NEPA documents were used in the development of this EA. Several of the documents are cited in the EA where applicable.

- *Ground-Based Midcourse Defense (GMD) Extended Test Range (ETR), Environmental Impact Statement,* July 2003, Missile Defense Agency
- *Alternate Boost Vehicle (ABV) Environmental Assessment*, August 2002, U.S. Army Space and Missile Defense Command
- *Ground-Based Midcourse Defense (GMD) Validation of Operational Concept (VOC) Environmental Assessment,* March 2002, Department of Defense
- *National Missile Defense Deployment Environmental Impact Statement*, July 2000, Department of Defense
- *Environmental Assessment for the General Plan for the Cantonment Area at Vandenberg Air Force Base, California*, October 1999, Vandenberg Air Force Base, California
- *Booster Verification Tests Environmental Assessment, Vandenberg Air Force Base, California,* March 1999, U.S. Air Force

Contact the U.S. Army Space and Defense Command, SMDC-EN-V, PO Box 1500, Huntsville, Alabama 35807-3801 for information on obtaining the above documents.

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2.0
DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

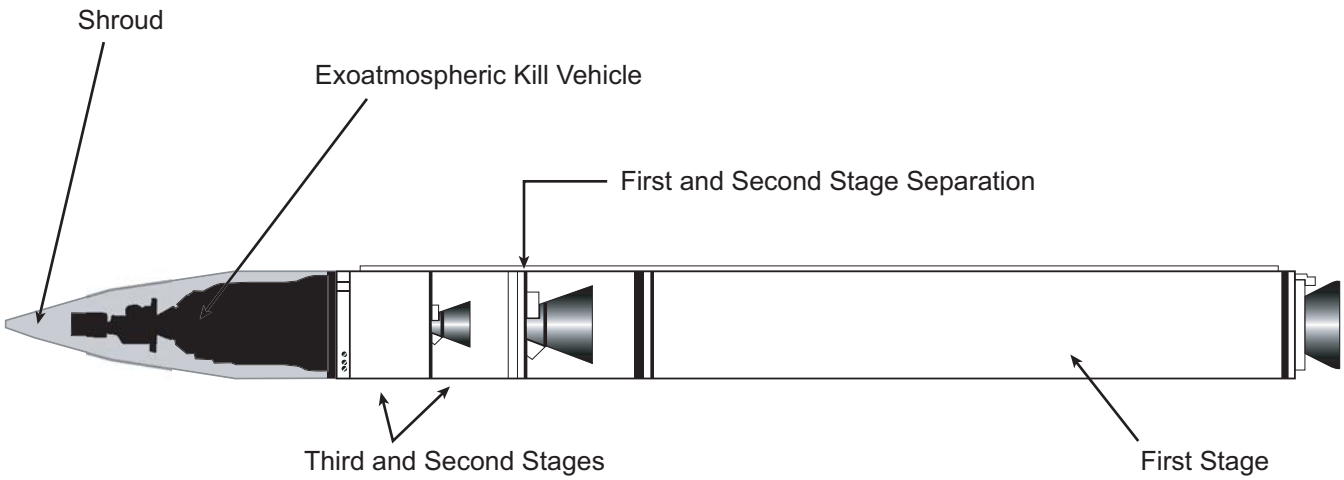
The Proposed Action is to establish an IDOC capability at Vandenberg AFB in order to defend the United States from a limited ballistic missile attack. These defensive capabilities would be achieved by the utilization and renovation/modification of several existing silos and other facilities at Vandenberg AFB (required fencing, security lighting, storm water re-grading, water line upgrades, septic tank/leach field installation, and construction of new parking areas and potentially warehouse/storage facilities). Site preparation for the Proposed Action would begin during fiscal year 2004. The defensive capabilities described in the Proposed Action would become operational by fiscal year 2005.

2.1.1 GROUND-BASED INTERCEPTOR SYSTEMS DESCRIPTION

The components associated with an operational IDOC include the GBIs installed in existing missile silos, a Component Site Communication Node or potentially a GMD Fire Control Communication (GFC/C) Node, a Readiness Station, Missile Assembly/Exoatmospheric Kill Vehicle (EKV)/Interceptor Integration Building, sensors (existing range radars and fixed or mobile telemetry and optics equipment), and an In-Flight Interceptor Communication System Data Terminal (IDT) (fixed or relocatable).

The GBI is the “weapon” of the GMD element. Its function is to intercept incoming ballistic missile warheads outside the Earth’s atmosphere and destroy them by force of impact. No nuclear or conventional warheads would be used. During flight, the GBI receives information from a fixed or relocatable IDT to update the location of the incoming ballistic missile, enabling the GBI onboard sensor system to continually discriminate and track the target. For IDOC, the GBIs would be installed in silos and maintained in a state of readiness to be able to launch to intercept a missile launched against the United States. The GBI consists of a three-stage solid propellant booster (figure 2-1) and an EKV. The GBI is approximately 16 meters (54 feet) long and 1.3 meters (4.2 feet) in diameter, and it weighs approximately 20.4 to 22.7 metric tons (22.5 to 25 tons).

At a maximum, each GBI would contain approximately 20,500 kilograms (45,000 pounds) of hydroxyl-terminated polybutadiene, solid propellant, and each EKV would contain approximately 7.5 liters (2 gallons) of liquid fuel and 7.5 liters (2 gallons) of liquid oxidizer. These liquid propellants would consist of a form of monomethyl hydrazine and nitrogen tetroxide, respectively. The liquid fuel and liquid oxidizer tanks would arrive at the site fully fueled but would be separate from the EKV and booster. For this analysis, it is assumed that the GBI (booster stages) would be assembled and integrated with the EKV at Vandenberg AFB.



EXPLANATION

Conceptual Ground-Based Interceptor

Not to Scale

Figure 2-1

The GFC/C Node function may be provided from remote locations or locally. The functions provided from the GMD Readiness Station may be met, in whole or in part, in an existing facility at Vandenberg AFB. The IDT provides a tactical communications link between the GFC/C Node and the GBI missile during flight. The fixed IDT or relocatable IDT would use commercial power, with diesel generators serving as backup.

2.1.1.1 Ground-Based Interceptor Transportation, Handling, and Facilities

GBI missile boosters, payloads, and support equipment would be transported by air or over-the road common carrier truck from U.S. Government storage depots or contractor facilities to Vandenberg AFB. All shipping would be conducted in accordance with applicable U.S. Air Force, Federal Aviation Administration (FAA), and Department of Transportation (DOT) regulations. Transportation of hazardous materials would be in accordance with DOT regulations for interstate shipment of hazardous materials found in 49 Code of Federal Regulations (CFR) parts 100-199. The interceptor would be placed in existing Vandenberg AFB facilities for assembly and check-out. The GBI operations at Vandenberg AFB would include booster assembly and checkout; integration of the EKV with the booster; installation of the EKV bi-propellant tanks onto the EKV; inspection of the tanks after installation; final inspections, testing, and checkout of the integrated interceptor assembly; and placement of the interceptors into the silo(s). Commercial contracted services may be used at Building 1032 for some assembly activities. Applicable safety regulations would be followed in the transport, receipt, storage, and handling of hazardous materials. Presently, there are no plans to store the small amounts of liquid propellants onsite other than the preloaded fuel and oxidizer tanks that would be installed on the EKV at Vandenberg AFB prior to emplacement of the GBI in a silo.

An explosive safety quantity-distance (ESQD) would be established on Vandenberg AFB around facilities where GBIs and small quantities of ordnance are stored or handled as approved by the DoD Explosives Safety Board.

Maximum use would be made of existing infrastructure and facilities on Vandenberg AFB. Existing facilities would be modified as necessary to support GBI operations. Additional infrastructure requirements may include onsite road improvements, fencing, electrical service, potable water, and telephone and data transmission lines.

2.1.1.2 Ground-Based Interceptor Support Operations

Relocatable equipment used to support defensive readiness activities could include vans, personnel trailers, and power generators. Personnel involved with these activities would include contractors, military, and U.S. Government civilians.

In addition to interceptor storage, ordnance storage would be provided for the GMD program as a service by Vandenberg AFB. Small quantities of ordnance, similar to blasting caps, are used for the rapid opening of the closure mechanism on the silo cover. These small amounts of ordnance would be stored in an existing facility or placed in an International Organization for Standardization container that would be stored in a Vandenberg AFB approved location.

2.1.2 FACILITIES/SITE PREPARATION

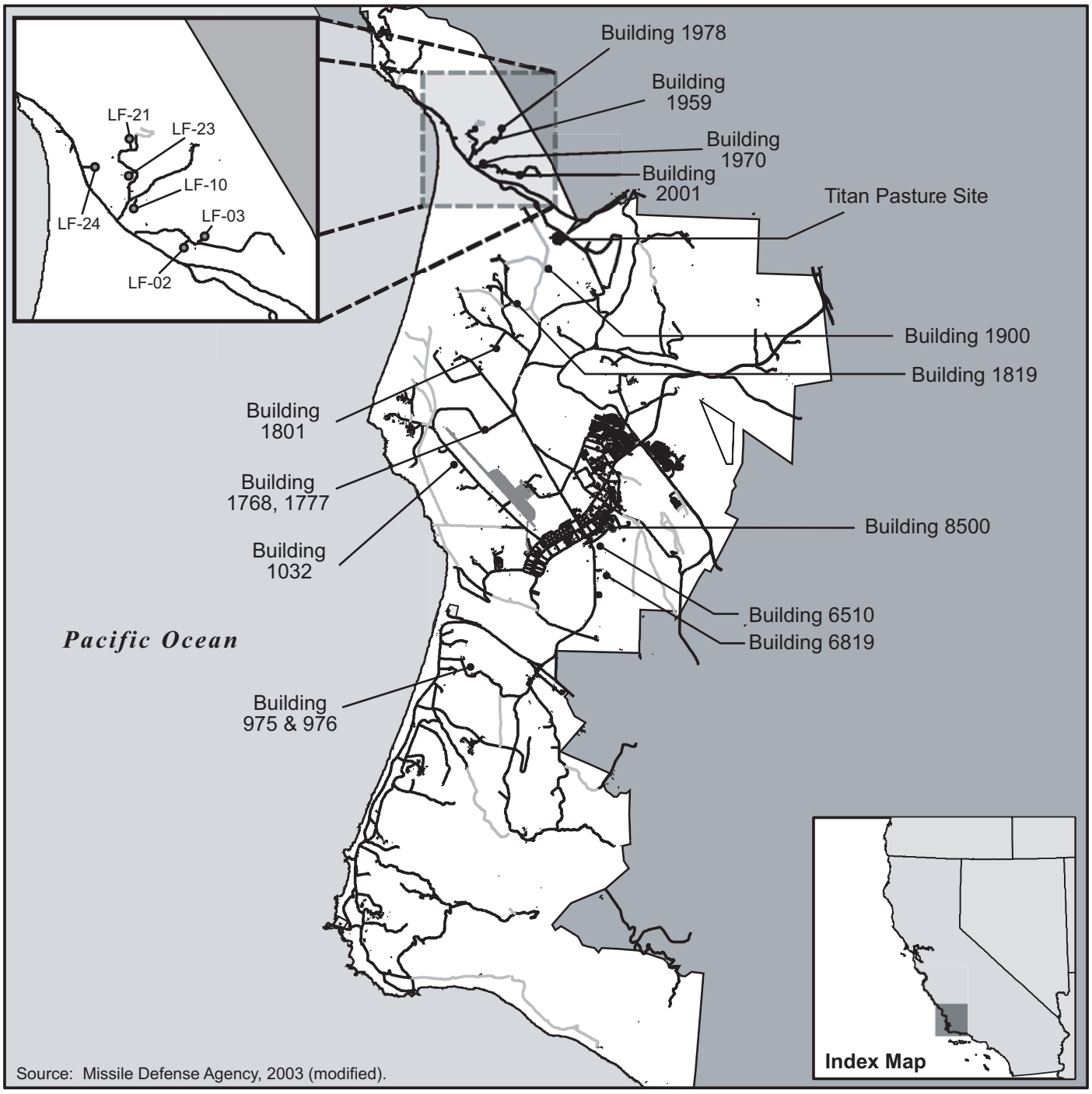
The Proposed Action would require the use of several existing facilities on north Vandenberg AFB (see figures 2-2 and 2-3 and tables 2-1 and 2-2). Up to four existing missile silos could be used, along with other existing facilities, for the following functions: Missile Assembly/EKV/Interceptor Integration Building, Security Response Force Outpost, Readiness Station, GFC/C Node (IDT, GMD Communication Node, and GMD Fire Control [GFC], interceptor storage, administrative/office space, Peculiar Support Equipment (PSE) (strongback trailer) storage, EKV fuel tank storage, EKV oxidizer tank storage, and warehouse/maintenance/ storage facilities. Several of these facilities may require modifications and the installation of additional infrastructure (i.e., security fencing, lighting, communications lines, etc.). In accordance with U.S. Air Force Instruction 32-1065 and National Fire Protection Association Standard 780, a certified Lightning Protection System would be properly installed at all launch facilities and on all support buildings/facilities where required. Construction work for IDOC activities could begin as early as the latter part of calendar year 2003. A peak personnel number of approximately 361 and several pieces of heavy equipment (e.g., trucks, cranes, back-hoe, post bore trucks, diesel generators, etc.) would be present during the construction/modifications phase of the Proposed Action.

An offsite commercial supplier would supply primary power to the GMD IDOC facilities, but a backup battery system and onsite backup diesel generators would supply emergency power. Generators for various GBI-related facilities would range in output from approximately 60 kilowatts (kW) to 1.5 megawatts (MW). A generator would be associated with each silo, the IDT, and Buildings 1768, 1801, 1819, 1978, and 6819. Each generator would also have its own dedicated, aboveground fuel storage tank with secondary spill containment. These dedicated tanks would range in capacity from approximately 379 to 18,927 liters (100 to 5,000 gallons).

2.1.2.1 Launch Facilities

Up to four existing missile silos could be used for IDOC activities at Vandenberg AFB. The preferred candidate silos for IDOC activities are as follows: Launch Facility (LF)-02, LF-03, LF-10, LF-21, LF-23, and LF-24 (figure 2-3). LF-21 has been used by GMD for GBI flight tests, and LF-23 has been previously reconfigured for booster verification tests. LF-02, LF-03, LF-10, and LF-24 were included as preferred launch facility alternatives for IDOC activities following a LF selection screening process that included criteria such as location (i.e., distance from other proposed IDOC facilities), availability of infrastructure, physical condition of each facility, and possible environmental concerns at each site.

Four missile silos would be in an operational state at Vandenberg AFB with GBIs installed, ready to defend the United States against a limited strategic ballistic missile attack. One silo could function as both an operational silo and a test launch silo. This dual-use capability would enable the GMD program to use the silo for occasional test launches as analyzed in the GMD ETR EIS. At all other times, the dual-use silo would be in an operational state.



EXPLANATION

- Pacific Ocean
- Vandenberg Air Force Base
- Land
- GBI Launch Site

LF = Launch Facility

Scale
0 2.92 5.84 kilometers
0 1.82 3.63 miles

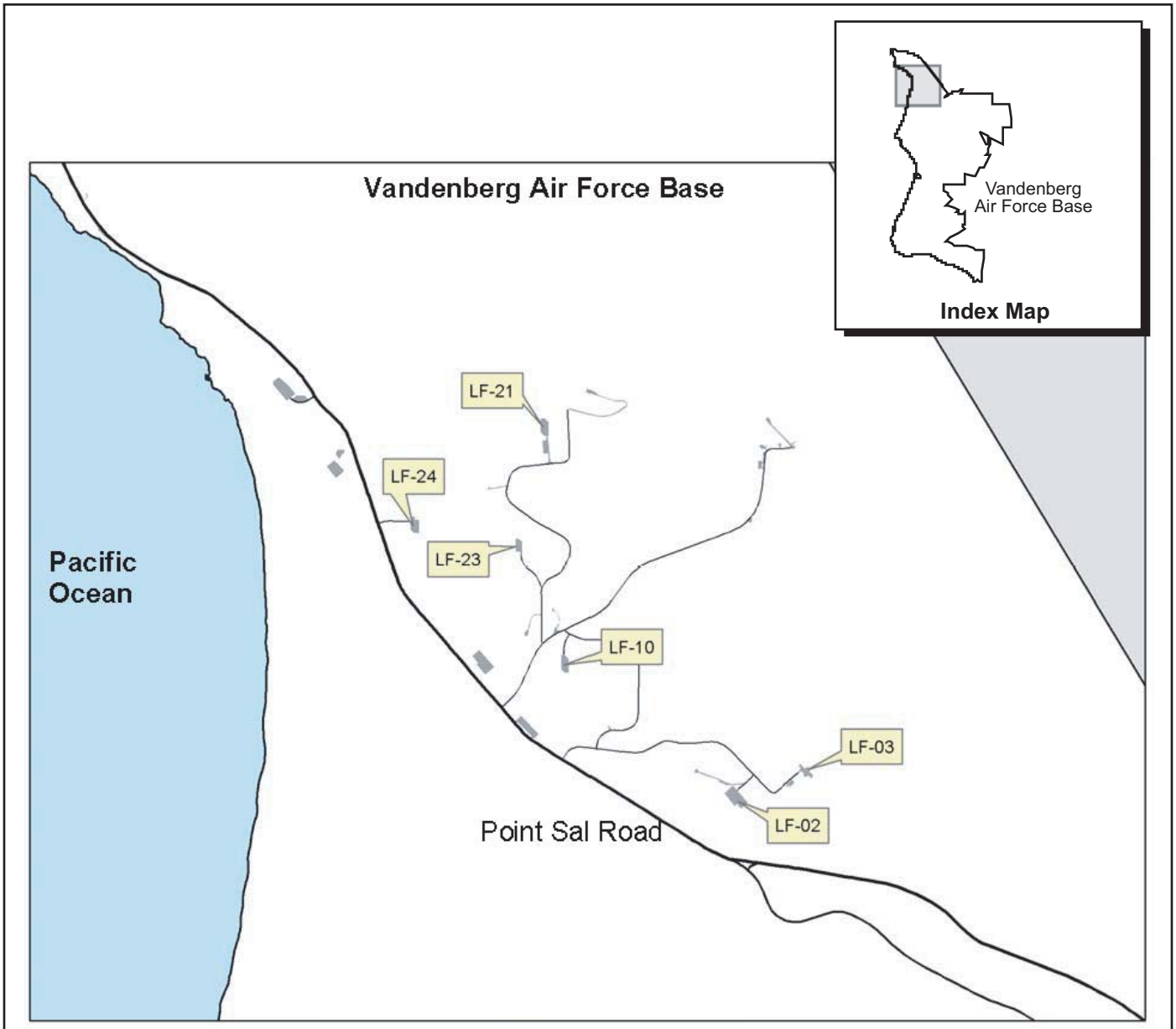
NORTH

08-20-03 Vberg GBI Fac

Potential Facility Locations

Vandenberg Air Force Base, California

Figure 2-2



Source: Missile Defense Agency, 2003 (modified).

EXPLANATION

Potential Launch Facility Locations

Vandenberg Air Force Base, California

Figure 2-3

Scale
0 395 789 meters
0 1,295 2,590 feet
NORTH

08-20-03 LF Loc VAFB

Table 2-1: Potential Locations or Existing Facilities Proposed for Use at Vandenberg AFB, California

Facility Function	Potential Locations
Ground-Based Interceptor Launch Silos	LF-02, LF-03, LF-10, LF-21, LF-23, and LF-24
Readiness Station	Building 1768 or Building 1801
Ground-Based Midcourse Defense Fire Control Node	Building 1768 or Building 1801
Missile Assembly/Exoatmospheric Kill Vehicle/Interceptor Integration	Building 1900, Building 1032, or Building 1819
Program Personnel Support	Building 1978
Administrative Space (office space)	Building 1801, Building 1959, Building 2001, Building 6510, and Building 8500, Building 1900 (short-term)
Exoatmospheric Kill Vehicle fuel tank storage	Building 976 (This would be requested as a service)
Exoatmospheric Kill Vehicle oxidizer tank storage	Building 975 (This would be requested as a service)
Interceptor Storage	Building 6819 (This would be requested as a service)
Peculiar Support Equipment Storage	Building 1970
Warehouse	Building 1801 Building 2001, and new construction within Cantonment Area or lease space off base
Maintenance/Storage	Building 1777, Building 1959, Building 2001, and new construction within Cantonment Area or lease space off base
In-Flight Interceptor Communication System Data Terminal Site	Titan Pasture Site

NOTES:
LF = Launch Facility

Table 2-2: Candidate Launch Facilities

Launch Facility	Location	Current Use	Additional Information
LF-02	On Mina Road	Active Peacekeeper missile silo	Eligible for listing in the National Register of Historic Places (National Register) as a historic Cold War-era facility
LF-03	On Mina Road	Missile Defense Agency target missile silo	Eligible for listing in the National Register as a historic Cold War-era facility
LF-10	End of Veintedos Road	Active Minuteman III missile silo	Eligible for listing in the National Register as a historic Cold War-era facility
LF-21	End of Tow Road	Active Booster Verification Tests silo	Modified for GMD Program use
LF-23	End of Sercho Road	Active Ground-Based Interceptor booster tests silo	Modified for GMD Program use
LF-24	End of Parquee Road	Inactive Minuteman II missile silo	Potentially scheduled to be modified for GMD Program use

NOTES:
GMD = Ground-Based Midcourse Defense
LF = Launch Facility

Modifications to Launch Facilities

Some level of modifications and site preparation would be required at all of the LFs included in the Proposed Action that are not currently being used for GMD launches. These activities would be similar to those analyzed in the 1999 Booster Verification Tests EA (LF-21) and the 2002 Alternate Boost Vehicle EA (LF-23) (U.S. Department of the Air Force, 1999; U.S. Army Space and Missile Defense Command, 2002a). The proposed sites would each include the missile silo, equipment located above-ground and within the existing below-ground spaces (the existing Launch Equipment Room [LER]), the Silo Interface Vault located within the LER, the existing silo access roadways, site utility distribution, Launch Auxiliary Support Building, Launch Support Building, and any auxiliary mechanical support equipment (to include back-up generator, aboveground storage tank, air conditioning/chiller, Demineralized Water System, Rerad tower, etc.). Site preparation could include modifying the existing silo(s) to receive a new prefabricated launch station (sleeve) that would accommodate the installation of the GBI. A "headworks" consisting of a foundation and silo top block would provide an interface for insertion and removal of the GBI. An operational launch silo closure mechanism would be installed at each LF. Each LF would require a 200-kW generator and associated aboveground storage tank. Approximately 361 personnel would be present on Vandenberg AFB during peak construction periods.

Exterior lighting would be provided by pole-mounted floodlights using 400-watt high pressure sodium lamps. The top of the corrosion-proof fixtures would be approximately 7 meters (23 feet) high. The poles would be spaced approximately 26 meters (85 feet) apart and located 4.5 meters (15 feet) inside the fence. The lights would be focused downward in order to illuminate an area 3 meters (10 feet) inside the fence to 7.6 meters (25 feet) outside the fence and to minimize light spillage out of the area. No lights would be pointed away from the area. The maximum light level at the ground would be approximately 86 meter-candles (8 foot-candles) and the minimum would be 21.5 meter-candles (2 foot-candles), with an average of approximately 48.4 meter-candles (4.5 foot-candles).

Security fencing would consist of standard 2.4-meter (8-foot) chain link fencing laced with 3-strand barbed wire outriggers, mounted sensors, and closed circuit television. Required fencing would be located approximately 45 meters (148 feet) from the facility as supported by environmental permit. Existing fence would be used where possible. Where the existing fence is used as the crash barrier fence, additional posts would need to be installed to support barrier cable. This could result in a disturbance of approximately 0.6 to 0.9 meter (2 to 3 feet) outside this portion of the fence.

All construction staging areas would be located on paved, aggregate, or previously disturbed areas. The GMD program would perform sampling and abatement for lead-based paint, asbestos, polychlorinated biphenyls (PCBs), and other hazardous substances as required before modification. If any of the modifications require the removal of these hazardous wastes, they would be properly disposed of in accordance with work plans developed by GMD personnel and approved by Vandenberg AFB 30th Civil Engineering Squadron/Environmental Management Flight (30 CES/CEV). Reuse of LF-02, LF-03, or LF-10, which are eligible for listing in the National Register, would require mitigation and consultation with the California State Historic Preservation Officer (SHPO). Completion of a Historic American Engineering Record (HAER) would be required prior to any refurbishment or alteration to LF-02.

2.1.2.2 Communications Cable Installation

Communication cable(s) would be installed between support facilities and silos, as required. Cables would be installed in existing conduits, where available. If existing conduits are not available, the cable(s) would be installed in new conduits that would be placed in previously disturbed areas of soil (usually along the shoulders of existing roads) approved by the Vandenberg AFB Environmental Management Office where possible to avoid sensitive biological and cultural areas. Also, the new communications cable/conduit would be buried parallel to existing buried utility lines if cross country routes are required (figures 2-4 and 2-5). Trenching for the new communications cable/conduit would have a maximum depth of 0.91 meter (3 feet). If new cable conduit is necessary and must be placed near known archaeological sites, the conduit would be routed under the site deposits using a directional drilling rig. In this case, the conduit would be emplaced deep enough to avoid negative impacts to the site. Other methods of installation such as slant/directional drilling would be used as mentioned above where appropriate as a means of minimizing impacts to sensitive areas. Communications cable/conduit would likely be buried on both sides of the road or line to achieve redundancy. If this cannot be accomplished because of sensitive environmental resources, then a trench on one side of the road with the cable encased in concrete conduits would be acceptable. Communications cables would be installed in existing cables attached to the bridges at San Antonio Creek and Shuman Creek.

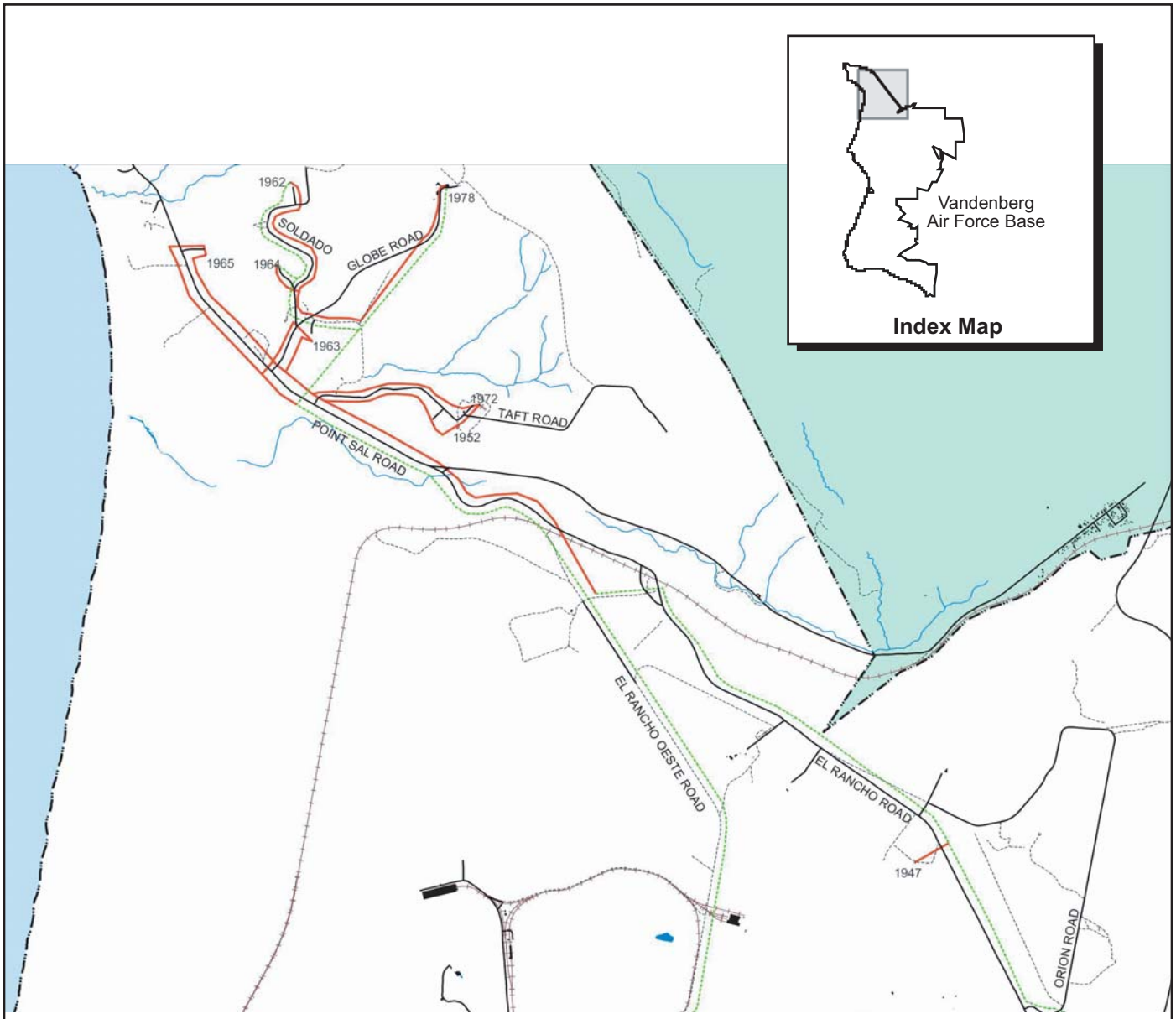
Pre-construction surveys would be performed for the Gaviota tarplant and Lompoc yerba santa, which would allow for designs to avoid impacts. Reconnaissance-level pre-construction surveys and construction monitoring would be conducted to minimize the risk of mortality to federal and state species of concern (burrowing owl, loggerhead shrike, California horned lizard, and silvery legless lizard) during site clearing for those areas requiring grading or vegetation removal. Biological monitors would be available onsite during installation. Areas of potential wetlands along communication routes would be surveyed by qualified biologists. If previously undocumented cultural resource items are discovered during excavation, grading, or other ground-disturbing activities, work would immediately cease. In addition, work would be temporarily suspended within 30 meters (100 feet) of the discovered item until it has been properly evaluated and secured. Any discovery of previously unidentified cultural resources would be reported to the Vandenberg Base Historic Preservation Officer.

2.1.2.3 Security

Existing security force personnel at Vandenberg AFB would support IDOC activities. However, additional personnel could be required for a dedicated security force at Vandenberg AFB in support of the GMD program. A Security Response Force Outpost would be established on north Vandenberg AFB in support of IDOC activities. Each facility used by the GMD IDOC program at Vandenberg AFB, with the exception of administrative space, could require security fencing and exterior lighting as described above. The launch facilities and some support facilities could require a double gate system for both vehicles and personnel. The installation of poles for additional lighting would be required at some facilities.

Security Response Force Outpost

An existing facility at Vandenberg AFB would be used to function as a Security Response Force Outpost. The facility would require interior modifications, toilet facilities, and space for equipment storage including small arms and ammunition, and space for the storage/parking of two vehicles near the facility.



Source: Gipson, 2003c

EXPLANATION

- New cable route
- Existing conduit available
- Paved roads
- Unpaved roads
- Buildings
- Water

** Note: Communication cables would be installed in existing conduit attached to the bridges at San Antonio Creek and Shuman Creek.

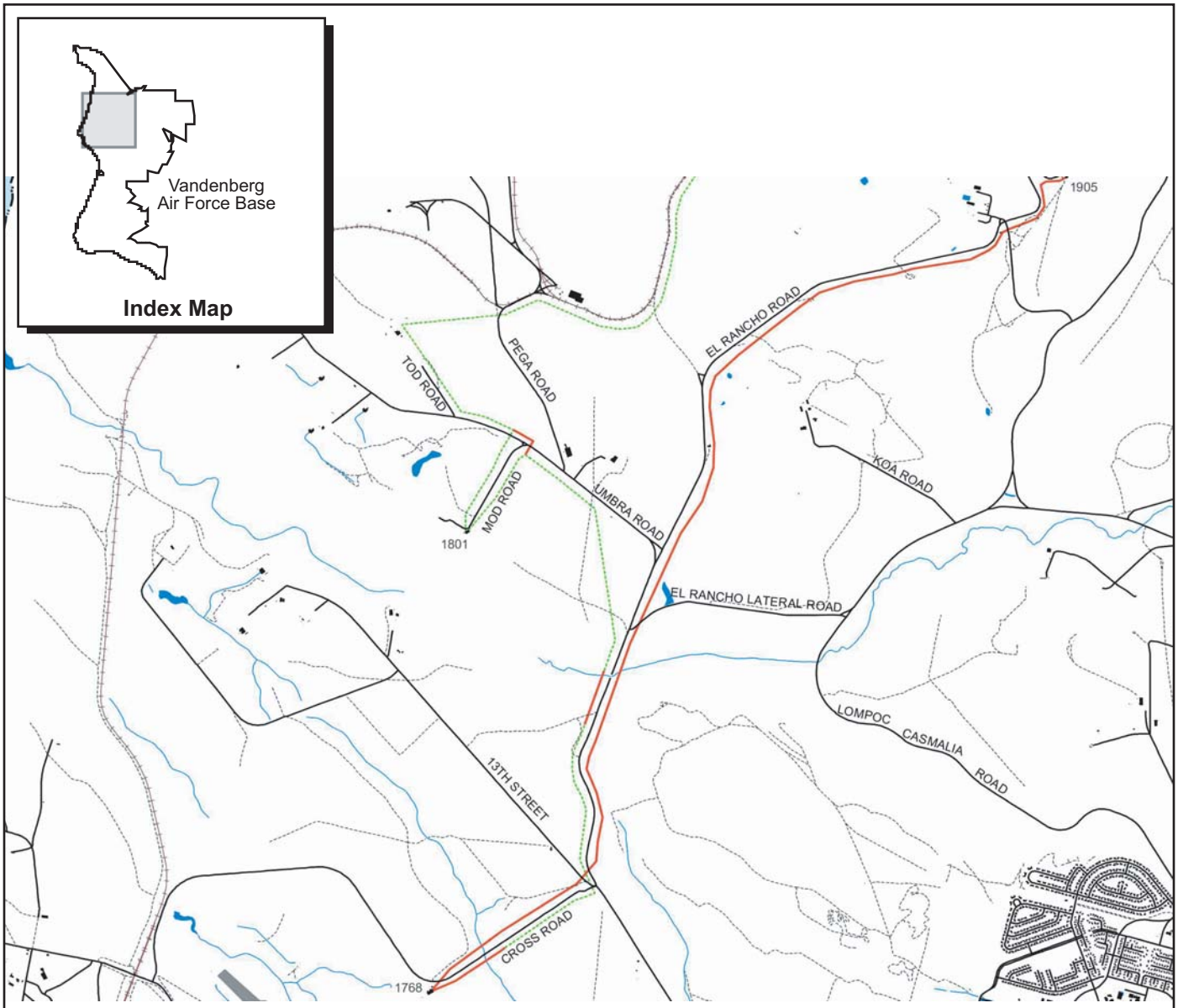
Scale
0 585 1,170 meters
0 1,919 3,838 feet
NORTH

08-20-03 N-Vberg Fiber Optic

Proposed Communications Cable Routes to Potential Support Facilities

Vandenberg Air Force Base, California

Figure 2-4



Source: Gipson, 2003c

EXPLANATION

- New cable route
- Existing conduit available
- Paved roads
- Unpaved roads
- Buildings
- Water

** Note: Communication cables would be installed in existing conduit attached to the bridges at San Antonio Creek and Shuman Creek.

Scale

NORTH

0 584 1,168 meters

0 1,916 3,832 feet

08-20-03 S-Vberg Fiber Optic

Proposed Communications Cable Routes to Potential Support Facilities

Vandenberg Air Force Base, California

Figure 2-5

Existing commercial power, water, sewer, and communications infrastructure would be used for IDOC activities. However, a 300-kW backup generator and associated aboveground storage tank would be installed. Also, existing roadways, paved areas and storm drainage infrastructure are adequate for IDOC activities. The installation of additional facility-mounted exterior lighting would be required.

2.1.2.4 Safety

All Vandenberg AFB safety procedures and regulations would be implemented and followed by the GMD program for any actions conducted and facilities used during IDOC activities. Buildings 1768 and 1801 are located inside the Impact Limit Lines (ILLs) of a number of test/space launch facilities. Locating the Readiness Station and the GFC/C in either of these facilities would require evacuation during normal Vandenberg AFB launch activities. If any of the facilities require constant manning, personnel remaining during the required evacuation window would have to be designated as mission essential.

Explosive Safety Quantity-Distances

An ESQD would be established around facilities on Vandenberg AFB where interceptors and ordnance are stored or handled in order to account for the possibility of an unplanned event. Such an event would be characterized by either an explosion of the missile propellants or by the propellants burning without an actual explosion. The ESQD zone surrounding the explosives is calculated in accordance with DoD Standard 6055.9, *Ammunition and Explosives Safety Standards*, and considers factors such as the hazard classification of the explosive and actual test results for that explosive. ESQD determinations are based on the equivalent explosive force of all propellant and pyrotechnic materials involved. All ESQDs would be approved by the DoD Explosive Safety Board.

ESQDs would be similar to or less than those established for prior missiles launched (Minuteman and Peacekeeper). Establishment of the ESQD zone represents DoD's determination that areas outside the zone provide acceptable protection, and requires that areas inside the ESQD zone be cleared of non-mission-essential personnel for the entire period during which the explosives are present.

2.1.2.5 Readiness Station/GFC/C Node

The Readiness Station would be used only for operational activities (defensive GBI operations), and it would serve as the launch monitoring center. An existing facility at Vandenberg AFB (Building 1768 or Building 1801) (figure 2-6) could be used to serve as the Readiness Station with interior modifications. The Readiness Station could include onsite monitoring equipment, command launch equipment, and space for embedded test equipment, as well as other computer/control interfaces.

Building 1978

Building 1768

Building 1801

Building 1900 (Integrated Refurbishment Facility)

Source: Boeing, 2003; Gipson, 2003a,b

Potential Support Facilities

Vandenberg Air Force Base, California

Figure 2-6

Either Building 1768 or Building 1801 could also be used for the GFC/C Node. If adequate space is available, the GFC/C Node may be collocated with the Readiness Station. The GFC/C Node facility would house areas such as the Operations Center, Computer Center, technical office, maintenance room, administration office, and break rooms.

Building 1768

Building 1768 (figure 2-6) may be used as the location for some or all of the following functions in support of IDOC: the Readiness Station and the GFC/C Node. The collocation of some or all of these functions depends on the availability of adequate space within Building 1768. By locating the Readiness Station and the GFC/C Node within the same facility, the amount of additional utilities, communication lines, and other infrastructure could be reduced.

Commercial power is available at Building 1768. A 1.5-MW diesel generator would be required for backup power at Building 1768 if it were used as an IDOC facility. If installed, the diesel generator would be tested monthly. Total test and maintenance use would be less than 200 hours per year.

Potable water is available at Building 1768. However, the installation of a new distribution line at the southwest of the building or the installation of a water storage tank and associated distribution pump may be required. Sewer service is available at Building 1768, but it may require some upgrades for the facility to be used as an IDOC facility. The construction of a security fence as described above would be required at Building 1768. Existing roadways and paved areas near Building 1768 would need to be repaved, and some additional paved or aggregate areas constructed for vehicle parking in an area between Cross Road and Building 1768. The existing grade would be maintained within the area of the existing security fence. Some re-grade (for proper storm drainage) may be required in the area outside the existing fence if an additional parking area is constructed. The construction of new pole-mounted and facility-mounted exterior lighting may be required at Building 1768. A new transformer pad and generator pad (2.4 by 3.7 meters [8 by 12 feet] each) would need to be constructed on the southwest side of the building.

Building 1801

Building 1801 (figure 2-6) could be used as the location for some or all of the following functions in support of IDOC: the Readiness Station, the GFC/C Node, additional IDT spare and repair parts, or some other similar function. The collocation of some or all of these functions depends on the availability of adequate space within Building 1801. By locating the Readiness Station and the GFC/C Node within the same facility, the amount of additional utilities, communication lines, and other infrastructure could be reduced.

Commercial power is available at Building 1801. A diesel generator (1.5-MW) would be required for backup power at Building 1801 if it were used for the Proposed Action. If installed, the diesel generator would be tested monthly. Total test and maintenance use would be less than 200 hours per year.

Potable water is available at Building 1801. A fire protection tank and associated equipment would be installed. A security fence (described above) would be required at Building 1801. Some additional paved or aggregate areas along the west side of Mod Road would be

constructed for vehicle parking. The existing grade would be maintained within the area. Some re-grade (for proper storm drainage) may be required in the area if an additional parking area is constructed. The construction of new pole-mounted and facility-mounted exterior lighting may be required at Building 1801. A septic tank and leach field would be installed.

2.1.2.6 Missile Assembly/EKV/Interceptor Integration Building

The Missile Assembly/EKV/Interceptor Integration Building would be used for the assembly, integration of the interceptor and EKV, and check-out of GBIs. Either a single facility or a combination of several facilities could function as the Missile Assembly/EKV/Interceptor Integration Building for IDOC activities. Commercial contracted service at Building 1032 could be used for some assembly activities. Building 1032, Building 1819, or Building 1900, or a combination, are potential candidates. Buildings 1819 and 1900 were originally built as part of the Peacekeeper missile program, and both are National Register-eligible Cold War facilities and would require mitigation and consultation with the California SHPO prior to renovation or modification. Completion of a HAER would be required prior to any refurbishment or alteration to either Building 1819 or 1900.

The GBI EKV requires a small quantity of liquid propellants (approximately 7.5 liters [2 gallons] each of liquid fuel and of liquid oxidizer). These materials would be contained within the EKV and would not be released at the launch site except in the unlikely event of a system leak. Liquid fuels would be handled in accordance with U.S. Air Force regulations. A fully trained hazardous materials response team consisting of contractors, military, U.S. Government civilians, and Vandenberg AFB personnel would be located onsite to respond to such an event.

Building 1032

Building 1032, located on north Vandenberg AFB, is currently used by a contractor which performs payload processing operations. These contractor operations could be used for the EKV loading/EKV/Interceptor Integration functions of IDOC activities at Vandenberg AFB. Existing commercial power, water, sewer, and communications infrastructure would be used for IDOC activities. Existing roadways, paved areas, and storm drainage infrastructure are adequate for IDOC activities. No modifications are planned for Building 1032.

Building 1900

Building 1900, also known as the Integrated Refurbishment Facility, is located near the intersection of North Road and El Rancho Oeste Road on north Vandenberg AFB (figure 2-6). A portion of Building 1900 could be used as the Missile Assembly/EKV/Interceptor Integration Building for IDOC activities. Existing commercial power, water, sewer, and communications infrastructure would be used for IDOC activities. Existing roadways, paved areas, and storm drainage infrastructure are adequate for IDOC activities to occur at Building 1900. Building 1900 would require a new explosives site plan in which the current occupants of the facility (Detachment 41) would either have to be moved from the building permanently, or some type of timeshare/split shift arrangement would have to be worked out.

If required, the following additions/modifications would be made to the site:

- Exterior lighting, which could be facility-mounted or pole-mounted (could require the installation of new light posts)
- Potential installation of a security fence as described above
- Potential electrical modifications
- The installation of communications lines, which would be direct-buried or in existing conduit where possible at a maximum depth of 0.91 meter (3 feet)
- The potential installation of a 500-kW diesel generator and associated 3,028-liter (800-gallon) aboveground storage tank (with secondary containment) for use as a backup electrical power source; if installed, the diesel generator would be tested monthly for less than 200 hours per year

Building 1819

Building 1819 is on north Vandenberg AFB near the junction of New South Road, Rhea Road, and Dione Road. Building 1819 is currently used as a missile assembly building to process both government and commercial launch vehicles (figure 2-7). Building 1819 could be used as the Missile Assembly/EKV/Interceptor Integration Building for IDOC activities.

Existing commercial power, water, sewer, and communications infrastructure would be used for IDOC activities at Building 1819. Existing roadways, paved areas, and storm drainage infrastructure are adequate for IDOC activities to occur at Building 1819. Building 1819 would require an explosives waiver/exemption to be used for EKV integration.

If required, the following additions/modifications could be made to the site:

- Exterior lighting, which could be facility-mounted or pole-mounted (could require the installation of new light posts)
- Potential installation of security fence
- Installation of communications lines, which would be direct-buried or in existing conduit where possible at a maximum depth of 0.91 meter (3 feet)
- Potential installation of a 500-kW diesel generator and associated 3,028-liter (800-gallon) aboveground storage tank (with secondary containment) for use as a backup electrical power source; if installed, a diesel generator at Building 1819 would be tested monthly for less than 200 hours per year

2.1.2.7 Administrative Space/Buildings

A portion of Buildings 1959, 1801 (figure 2-6), 1900 (short term), 2001, 6510, and 8500 could each be used for office/administrative space in support of IDOC activities. Existing infrastructure for each of these sites is sufficient for support of IDOC activities, and no external modifications would be required except as described above. Fire protection equipment would be installed.

Building 1819

Building 1970

Source: Boeing, 2003; Gipson, 2003a

Potential Support Facilites

Vandenberg Air Force Base, California

Figure 2-7

2.1.2.8 In-Flight Interceptor Communications System Data Terminal

The IDT that would be in place at Vandenberg AFB in support of proposed GMD ETR activities would also be used to support GBI launches associated with IDOC activities. Construction of an IDT and associated support facilities at Vandenberg AFB has been previously described in the GMD ETR EIS.

The IDT site would normally be unmanned as part of GMD IDOC activities except during preventative maintenance, corrective maintenance, and future upgrades. During these activities approximately 10 personnel would be on site. Commercial power would be used as the primary power source for the IDT. Backup power requirements would be met by the use of a 400-kW diesel-powered generator, which would be tested monthly for less than 200 hours per year.

Security lighting sufficient for camera observation of the site would also be required and would be the same as that described above. Security measures for the IDT would be similar to the security requirements described above for other IDOC facilities. Depending on the selection of GMD ETR test silos, the proposed IDT site could fall inside the ILL of the test launch. If it would be inside an IIL during GMD ETR test flight operations, personnel at the facility would have to be designated as mission essential.

2.1.2.9 Peculiar Support Equipment Storage Building

Building 1970 may be used to store equipment associated with IDOC. The main use for Building 1970 would be the storage of PSE, such as the “strongback” trailer, which is used to transport the GBI missile to the silo(s). Interior modifications, such as insulation replacement, may be required. Exterior modifications such as roof repairs and a new door would be required at Building 1970 (figure 2-7). A new waterline would also be required.

2.1.2.10 General Warehouse, Maintenance, and Storage Facilities

Space within Buildings 1777, 1959, and 2001 could be used for storage and technical support. Due to the limited storage space available at Vandenberg AFB, additional facilities could be constructed for maintenance and storage of GMD mission support assets (equipment, spare parts, etc.) or warehouse, maintenance, and storage space could be leased off base in one of the neighboring communities.

A Maintenance/Storage Facility with an area of up to 1,300 square meters (14,000 square feet) could be constructed in the main cantonment area of Vandenberg AFB. This maintenance/storage facility would contain a space of 130 square meters (1,400 square feet) for technical support.

A Warehouse Facility with an area of up to 929 square meters (10,000 square feet) could be constructed in the main cantonment area of Vandenberg AFB. This warehouse facility would contain a space of up to 47 square meters (500 square feet) for administrative support.

If new construction is required, existing infrastructure such as commercial power, water, sewer, communication lines, roadways, and storm drainage are all available and adequate in the area where the storage and warehouse facilities would be located. Additional exterior lighting and a

security fence could be installed at each facility. The construction of storage type facilities in the cantonment area has been previously analyzed under the *Environmental Assessment for the General Plan for the Cantonment Area at Vandenberg AFB, California* (Vandenberg Air Force Base, 30th Civil Engineer Squadron, 1999).

2.1.2.11 EKV Hypergolic Tank Storage Facility

Storage facilities for EKV tanks with small quantities of fuel and oxidizer could be required at Vandenberg AFB for the GMD program. Vandenberg AFB would provide the service of storing these tanks at the existing Hypergolic Storage Facility (figure 2-8), which is located at Building 975 (oxidizer side) and Building 976 (fuel side). These tanks would be filled and sealed at the manufacturer. Thus, no bulk fueling of the EKV tanks for IDOC activities would take place at Vandenberg AFB. Vandenberg AFB safety regulations and procedures would be followed during the storage of the EKV tanks. No new modifications would be required.

2.1.2.12 Interceptor Storage Facility

Building 6819, or similar storage magazine(s), which is located within Vandenberg AFB's Munitions Storage Area (figure 2-8), would be used for interceptor storage for IDOC activities. The facility may require the addition of humidity controls, exterior security cameras, and the removal of the rail system. New trenching from 13th Street to Building 6819 would be required for communication. Two 2.4- by 3.7-meter (8- by 12-foot) concrete pads would need to be constructed adjacent to Building 6819 for a generator and transformer. Approximately 30 to 61 meters (100 to 200 feet) of new waterline would also need to be installed. A 60-kW backup generator with a 378.5-liter (100-gallon) aboveground storage tank would be required.

2.2 ALTERNATIVES CONSIDERED

2.2.1 NO-ACTION ALTERNATIVE

Under the No-action Alternative, GBI launch facilities at Vandenberg AFB for initial defensive operations would not be established. Vandenberg AFB would continue with normal activities, including launching missiles as analyzed in prior environmental documents listed in section 1.6. GMD ETR tests would continue. By implementing the No-action Alternative, GMD would not expand the capability at Vandenberg AFB to provide an initial defensive capability for the United States against the threat of a limited strategic ballistic missile attack.

2.2.2 ADDITIONAL LAUNCH FACILITIES AT VANDENBERG AFB CONSIDERED BUT NOT CARRIED FORWARD

Originally 12 LFs were evaluated utilizing MDA Directive 4165.02, *Comprehensive Siting Analysis Process.* The top six locations discussed in section 2.1.2.1 were carried forward for analysis as potential GMD IDOC locations. The remaining six alternative LFs that were initially evaluated (LF-05, LF-06, LF-07, LF-08, LF-25, and LF-26) were not carried forward for the reasons described below.

Hypergolic Storage Facility

Munitions Storage Area

Source: Boeing, 2003

Potential Storage Facilites

Vandenberg Air Force Base, California

Figure 2-8

LF-05

LF-05 is located on Cinco Road on north Vandenberg AFB. It is one of two active silos at Vandenberg AFB currently used by the Peacekeeper missile program. Only one of the active Peacekeeper silos could be considered for IDOC activities. Of the two active Peacekeeper launch facilities, LF-02 and LF-05; LF-05 is located at a greater distance from other facilities considered for the proposed action. LF-05 was eliminated from further consideration for IDOC activities due to the distance that infrastructure such as power, communications lines, and security measures would have to be extended when compared to LF-02.

LF-06

LF-06 is located on Oculto Road off Point Sal Road on north Vandenberg AFB. It is currently used to launch Minuteman II vehicles. LF-06 and LF-03 are both used to launch target missiles for MDA programs. Only one of the active MDA target launch silos could be considered for IDOC activities. LF-03 was deemed to be a more viable alternative for use in the Proposed Action than LF-06 due to its location. LF-06 was eliminated from further consideration for IDOC activities due to the distance that infrastructure such as power, communications lines, and security measures would have to be extended when compared to LF-03.

LF-07

LF-07 (Building 1981) is located at the end of Armar Road on north Vandenberg AFB. It is an inactive Minuteman II LF. All usable parts have been removed, and the site has been placed in caretaker status. LF-07 would not be a satisfactory location for the IDOC because of its isolated location relative to other silos and the proximity of a state beach and archaeological resources.

LF-08

LF-08 is an active silo that is located near Point Sal Road on north Vandenberg AFB. It is currently in use as a 532nd Operational Trainer. LF-08 would not be a preferred location for IDOC activities due to its current use as an operational training site and due to the unsatisfactory condition of the silo below the current operational depth.

LF-25

LF-25 is located at the end of Watt Road off of 13th Street on north Vandenberg AFB. This site was a Minuteman II silo LF that has since been decommissioned and abandoned in place. LF-25 would not be a preferred location for IDOC activities due to its distance from other facilities described within the proposed action and due to its lack of sufficient communications infrastructure. The use of LF-25 for IDOC activities would prevent the program from meeting the necessary schedule constraints.

LF-26

LF-26 is an active Minuteman III missile silo located on north Vandenberg AFB. It is the northern-most launch facility on Vandenberg AFB. Only one of the active Minuteman III silos could be considered for IDOC activities. LF-10 was deemed to be a more viable alternative for use in the Proposed Action than LF-26 due to its location. Use of LF-26 would not be as cost effective as other launch facility alternatives for IDOC activities. This is due to the relatively long distance that infrastructure such as power, communications lines, and security measures would have to be extended from other proposed IDOC facilities.

2.2.3 ALTERNATIVE READINESS STATION/GFC NODE LOCATIONS CONSIDERED BUT NOT CARRIED FORWARD

Originally four buildings were evaluated for use as a Readiness Station/GFC Node facility utilizing MDA Directive 4165.02, *Comprehensive Siting Analysis Process.* The top two buildings discussed in section 2.1.2.5 were carried forward for analysis. The remaining two alternative buildings that were initially evaluated (1871 and 8510) were not carried forward for the reasons described below.

Building 1871

Use of Building 1871 would require sharing the space with the 576th Flight Test Squadron, which uses over half of the available space as the Launch Control Center for Minuteman launches. The 30th Communications Squadron would have to be relocated. Their space requirement is 442 square meters (4,760 square feet). Although Building 1871 has approximately 344 square meters (3,700 square feet) of usable space, it does not have 232 square meters (2,500 square feet) of contiguous space required for GMD IDOC use due to load bearing walls. (Boeing, 2003)

Building 8510

Approximately 8 kilometers (5 miles) of fiber optic cable would be required for connectivity. Building 8510 currently supports multiple government missions and contractors. The current room height is approximately 2.4 meters (8 feet) to the ductwork and 2.7 meters (8.8 feet) to the ceiling. It would be difficult to accommodate the raised floors necessary to support GMD IDOC functions. Building 8510 also does not have ample space to accommodate all functions necessary for use as the Readiness Station/GFC Node. (Boeing, 2003)

3.0
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

This section describes the environmental characteristics that may be affected by the Proposed Action at Vandenberg AFB. To provide a baseline point of reference for understanding any potential impacts, the affected environment is concisely described; any components of greater concern are described in greater detail. The EA evaluates the potential environmental impacts of modifying existing launch silos and related facilities to establish operational GBI launch capabilities on Vandenberg AFB. The EA also evaluates related activities, such as safety issues associated with transporting, handling, and storage of missile components, which could have potential impacts on public health and safety or the environment.

Available reference materials, including EAs, EISs, and base master plans, were reviewed. Questions were directed to installation and facility personnel and private individuals. Site visits were also conducted where necessary to gather the baseline data presented below.

Environmental Resources

Thirteen broad areas of environmental consideration were originally considered to provide a context for understanding the potential effects of the Proposed Action and to provide a basis for assessing the severity of potential impacts. These areas included air quality, airspace, biological resources, cultural resources, environmental justice, geology and soils, hazardous materials and waste, health and safety, infrastructure, land use, noise, socioeconomics, and water resources. These areas were analyzed as applicable for the proposed location or activity.

Based on an initial analysis, it was determined that the activities proposed would not result in short- or long-term impacts to airspace. No new special use airspace, or any modification to existing special use airspace, would be required to support the Proposed Action. Therefore, this resource area was not analyzed further. In addition, no environmental justice issues have been identified at Vandenberg AFB, and thus no further analysis was required.

Environmental Setting

Vandenberg AFB is located in Santa Barbara County, California, approximately 88 kilometers (55 miles) north of Santa Barbara. The cities nearest to the base are Lompoc, 11 kilometers (7 miles) southeast, and Santa Maria, 27 kilometers (17 miles) northeast. The approximately 400-square-kilometer (154-square-mile) base covers more than 39,660 hectares (98,000 acres) along 56 kilometers (35 miles) of undeveloped Pacific coastline. Vandenberg AFB's climate is Mediterranean, or dry summer subtropical.

3.1 AIR QUALITY

Air quality in a given location is described by the concentrations of various pollutants in the atmosphere, expressed in units of parts per million (ppm), or micrograms per cubic meter ($\mu g/m^3$). Pollutant concentrations are determined by the type and amount of pollutants emitted into the atmosphere; the physical characteristics, including size and topography, of the air basin;

and meteorological conditions related to prevailing climate. The significance of a pollutant concentration is determined by its comparison with National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) that establish limits on the maximum allowable concentrations of various pollutants to protect public health and welfare.

Region of Influence

For inert pollutants (all pollutants other than ozone and its precursors), the region of influence (ROI) is generally limited to an area extending no more than a few kilometers downwind of the source. However, the ROI for ozone and its precursors may extend much further downwind than the ROI for inert pollutants. Consequently for the air quality analysis, the ROI for project site preparation and operational activities is the Santa Barbara Air Basin, which is part of the South Central Coast Air Basin. Ozone concentrations tend to be regionally distributed because precursor emissions are homogeneously dispersed in the atmosphere.

Affected Environment

The coastal location of Vandenberg AFB experiences moderate seasonal and daily variation in temperature and humidity. Temperatures are mild, ranging from 4°Celsius (C) to 24°C (39°Fahrenheit [F] to 75°F) with an annual mean temperature of 14°C (58°F). The rainy season extends from November to April. Average annual precipitation is 33 centimeters (13 inches).

Vandenberg AFB is located in the South Central Coast Air Basin, which consists of San Luis Obispo, Santa Barbara, and Ventura Counties (California Air Resources Board, 2002a). With respect to air quality, Santa Barbara County is divided into North County and South County. Vandenberg AFB is located within North County (U.S. Army Space and Missile Defense Command, 2002a).

The State of California has adopted ambient air quality standards that either meet or exceed the NAAQS. The CAAQS are stricter than the NAAQS for ozone, carbon monoxide, sulfur dioxide, particulate matter of 10 microns in diameter or smaller (PM-10), and lead. In addition to the six criteria pollutants covered by the NAAQS, the CAAQS also contain standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility.

According to EPA guidelines, areas with air quality surpassing the NAAQS are designated as being in attainment; areas with a lesser air quality are classified as non-attainment areas. Santa Barbara County has recently met the federal standard for ozone and is in the process of being redesignated by the EPA as being in attainment. The county is in attainment for all other federal air quality standards and in state non-attainment for both ozone and PM-10. (California Air Resources Board, 2002b)

The Santa Barbara County Air Pollution Control District (SBCAPCD) administers regulations for non-vehicular air pollution sources, and is required to monitor air pollutant levels to ensure federal and state ambient air quality standards are met or develop a plan to meet them (U.S. Army Space and Missile Defense Command, 2002a). The California Air Resources Board and local air pollution control districts such as the SBCAPCD operate more than 200 air monitoring stations in California (California Air Resources Board, 2000). Vandenberg AFB has one Prevention of Significant Deterioration air monitoring station, located on South Vandenberg AFB near the Power Plant (U.S. Army Space and Missile Defense Command, 2002b).

Vandenberg AFB has used EnviroCom, an air quality database, since 1996 to track sources and inspections, monitor permits, and generate standardized emission reports (U.S. Army Space and Missile Defense Command, 2002a).

3.2 BIOLOGICAL RESOURCES

At Vandenberg AFB, rare species inventories, sensitive habitat protection, maintenance of geographic information system databases of rare and listed species, and threatened and endangered species monitoring, management and protection are the responsibility of the Natural Resources Section of the 30th Civil Engineer Squadron/Environmental Management (30 CES/CEVPN). The Endangered Species Act of 1973 requires the U.S. Fish and Wildlife Service to identify plant and wildlife species that are threatened or endangered. Federal agencies are required to assess the effect of any project on threatened and endangered species under Section 7 of the Endangered Species Act.

Region of Influence

The ROI for biological resources includes the area within and adjacent to the proposed launch and support facilities, located in northern Vandenberg AFB, and the proposed communication cable routes that would be affected by ground disturbance or site preparation noise. Much of the ROI is located within areas previously disturbed by launches, mowing, and other activities.

Affected Environment

Vegetation

Fourteen major vegetation and habitat types have been described and mapped on Vandenberg AFB. Among these vegetation types, coastal sage scrub and native and nonnative grasslands are the major communities found in the proposed project area.

The launch facilities proposed for use are located in a grasslands community situated in northern Vandenberg. LF-24 is the westernmost launch facility and is located approximately 731.5 meters (2,400 feet) from the coast. The launch facilities are located on a marine terrace in a remote, relatively flat grasslands area, where vegetation consists primarily of grasses and small herbs, such as sea rocket, sand verbena, heliotrope, and phacelia (U.S. Department of the Air Force, 1997). In certain areas, the wind force is indicated by the comparatively stunted growth of many floral species (U.S. Department of the Air Force, 1991).

Some of the support facilities (Buildings 1819, 1900, and 1801 and the IDT site) are situated on the San Antonio Terrace, which is located within, and adjacent to, the largest expanse of stabilized sand dunes on Vandenberg AFB. Swales (low areas), dune, grassland, and freshwater wetland are all found within this area. Representative plants include coastal lupine, coyote brush, mock heather, cudweed-aster, common phacelia, beach grass, veldt grass, seacliff buckwheat, and sticky monkey flower. (U.S. Department of the Air Force, 1997)

The IDT site is a heavily disturbed area composed of non-native grassland (dominated by veldt grass) and central coast scrub (dominated by coyote brush and mock heather). This area has been used for cattle grazing and more recently was used as a temporary launch site. Kellogg's

horkelia (*Horkelia cuneata sericea*) was the only special status plant species found during a 2001 survey. This plant is not listed under the Federal Endangered Species Act or the California Endangered Species Act, but nonetheless is declining at a rate that could result in listing, or historically it has occurred in low numbers and known threats to its persistence currently exist. (U.S. Army Space and Missile Defense Command, 2002b)

Wildlife

Vandenberg AFB plant communities provide habitat for many resident and migratory animals. The Western fence lizard, garter snake, pocket gopher, California ground squirrel, and deer mouse are typical examples of smaller wildlife species. Also common are brush rabbit, badger, and mule deer. Birds such as ring-billed, Heerman's, and glaucous-winged gulls, as well as the western wood-pewee, rhinoceros auklet, red-winged blackbird, red-tailed hawk, great horned owl, and golden eagle, have also been sighted. (U.S. Department of the Air Force, 1997; U.S. Department of the Air Force, 2000)

Because Vandenberg AFB is near the southern limit of the breeding ranges for many seabird species, a long-term program was begun in 1999 to annually monitor population dynamics and breeding biology of seabirds breeding on Vandenberg AFB. The total breeding seabird population at Vandenberg AFB was estimated to be 1,300 in 2001. (Point Reyes Bird Observatory, 1999)

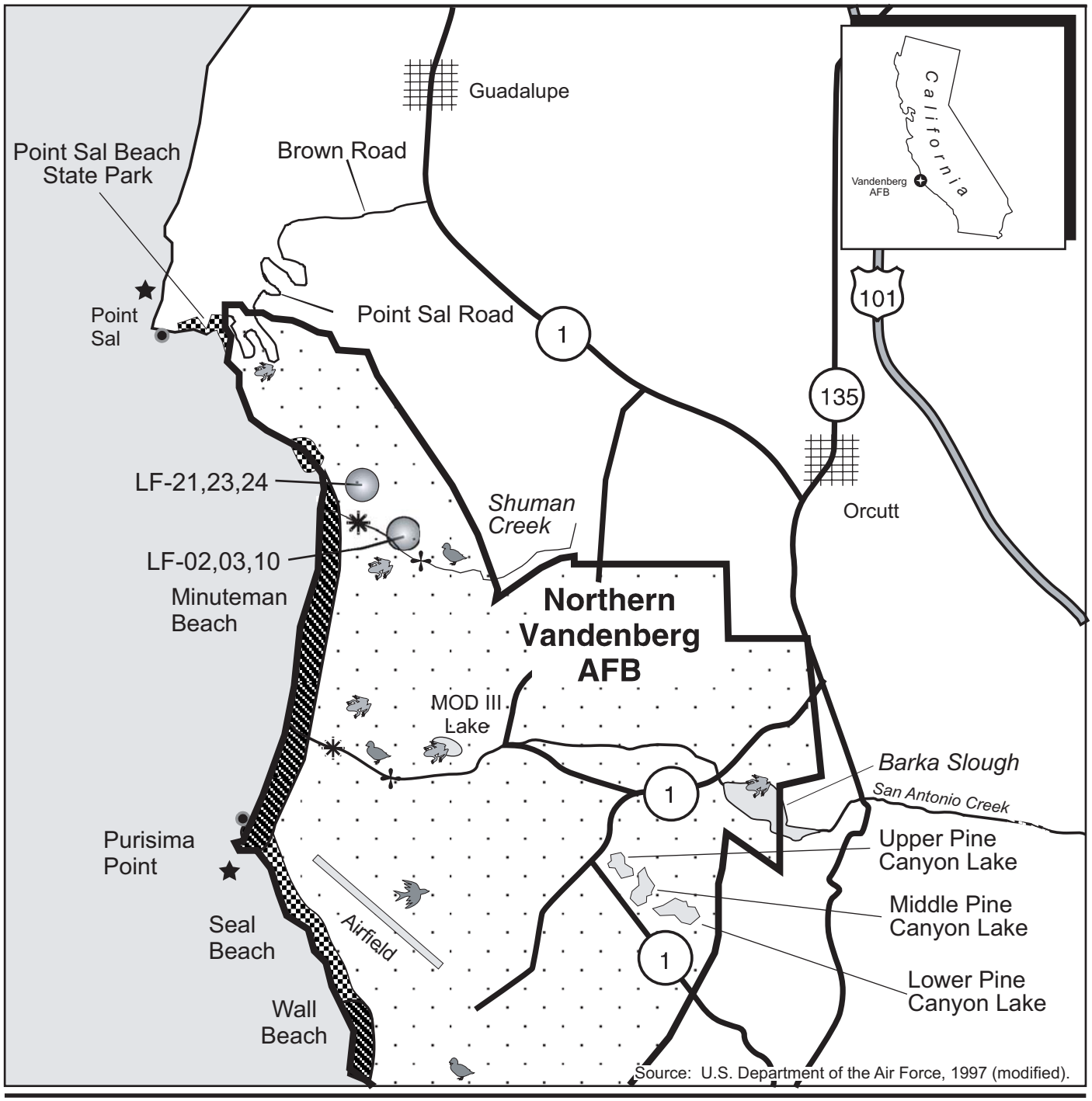
The loggerhead shrike (*Lanius ludovicianus*) and the western burrowing owl (*Speotyto cunicularia hypugea*) were identified as being or potentially present in the project area. Both species are listed as federal special concern species as well as California Species of Concern. (U.S. Army Space and Missile Defense Command, 2002b)

Historical sightings of the recently federally delisted and state endangered American peregrine falcon (*Falco peregrinus*) in the Point Sal area have been reported (Right-to-Know Network 1999). This raptor has been the subject of an active state reintroduction program since the 1970s (U.S. Department of the Air Force, 1997).

The Pacific harbor seal, California sea lion, and other pinnipeds such as the elephant seal and northern fur seal, observed periodically along the coastline of the base and in nearby haulout/rookery areas, would be outside the ROI for site preparation and operation activities.

Threatened and Endangered Species

Vandenberg AFB's diverse habitats support a wide variety of listed species. Those with the potential to occur within the ROI are shown in figure 3-1 and table 3-1.



EXPLANATION

- Nesting Location of California Least Tern/ Western Snowy Plover (Least Terns Have Nested Only at Purisima Point in Recent Years)
- Haulout Location of California Sea Lion, Northern Elephant Seal, and Pacific Harbor Seal
- Tidewater Goby
- Unarmored Threespined Stickleback
- Roosting and Foraging Location of California Brown Pelican
- Southern Sea Otters
- Building

LF = Launch Facility

- California Least Tern Foraging Areas
- California Red-legged Frog (Wide Distribution Also Includes Ponds and Vernal Pools)
- Mountain Plover (Winters Only)

NORTH

Scale
0 2.4 4.8 kilometers
0 1.5 3 miles

08-20-03 Sensitive Habitat ABV

Sensitive Habitat for Federally Listed Wildlife Species on Vandenberg Air Force Base

Northern Vandenberg Air Force Base, California

Figure 3-1

Table 3-1: Listed Species Known or Expected to Occur in the Vicinity of the Proposed Action

Scientific Name	Common Name	Status	
		State	Federal
Fish			
Eucyclogobius newberryi	Tidewater goby	--	E
Gasterosteus aculeatus williamsoni	Unarmored threespine stickleback	E	E
Amphibians			
Rana aurora draytoni	California red-legged frog	CSC	T
Birds			
Charadrius alexandrinus nivosus	Western snowy plover	CSC	T
Charadrius montanas	Mountain plover	CSC	PT
Pelecanus occidentalis californicus	California brown pelican	E	E
Sterna antillarum browni	California least tern	E	E
Mammals			
Enhydra lutris nereis	Southern sea otter	*	T
Plants			
Eriodictyon capitatum	Lompoc yerba santa	R	E
Hemizonia increscens ssp. *villosa*	Gaviota tarplant	E	E

Source: U.S. Army Space and Missile Defense Command, 2002a; U.S. Fish and Wildlife Service, 2001; U.S. Fish and Wildlife Service, 2003.

NOTES:

*Fully Protected Animal		PT	Proposed Threatened
CSC	California Species of Concern	R	Rare
E	Endangered	T	Threatened

Status Definition

California Species of Concern—Native species or subspecies that have become vulnerable to extinction because of declining population levels, limited ranges, or rarity. The goal is to prevent these from becoming endangered by addressing the issues of concern early enough to secure long-term viability.

The four known locations of Lompoc yerba santa (*Eriodictyon capitatum*), a federally endangered plant species, occur in western Santa Barbara County. Two of these locations, composed of three groups, are on Vandenberg AFB approximately 12 kilometers (7 miles) south of LF-23. This plant is associated with the central maritime (Burton Mesa) chaparral and bishop pine forest, which are threatened habitat types with limited distribution. (U.S. Environmental Protection Agency, 2001)

The U.S. Fish and Wildlife Service has listed the Gaviota tarplant (*Hemizonia increscens* ssp. *villosa*) as endangered. It occurs within a narrow band of coastal terrace grassland between Gaviota and Santa Barbara (U.S. Environmental Protection Agency, 2001). It has also recently been identified as occurring in two locations on Vandenberg AFB along Point Sal Road near Lion's Head, north of the proposed launch silos and other locations scattered throughout the base (Vandenberg Air Force Base, 2003).

A resident population of federally threatened southern sea otters (*Enhydra lutris nereis*) has been observed off Purisima Point, typically foraging and rafting in kelp beds; however, semi-migratory individuals may be found all along the coastline. Breeding and pupping have only been observed in the Purisima Point area (Right-to-Know Network, 1999). Otters found near the Point Sal area (Friends of the Sea Otter, 2002) are the nearest to the proposed launch facilities.

The California brown pelican (*Pelecanus occidentalis californicus*), a federally and state endangered subspecies, and the western snowy plover (*Charadrius alexandrinus nivosus*), a federally threatened shorebird, are commonly observed in the Vandenberg AFB area, which provides winter roosting for the former and nesting and roosting sites for the latter. The pelicans roost at Point Sal, northwest of the proposed launch sites. California brown pelicans and western snowy plovers are also known to use areas near Purisima Point. (U.S. Army Space and Missile Defense Command, 2002a; U.S. Department of the Air Force, 1997)

The federally proposed threatened mountain plover (*Charadrius montanus)* winters annually in the vicinity of the Vandenberg AFB airfield. No other locations on the base have been identified for this species. (U.S. Department of the Air Force, 1997)

Shuman Creek is the main water body closest to the proposed project launch sites. It offers foraging areas for the federally and state endangered California least tern (*Sterna antillarum browni*). The beach at the mouth of Shuman Creek is also occasionally used by the California brown pelican (Missile Defense Agency, 2003). The federally endangered tidewater goby (*Eucyclogobius newberry*) occurs in Shuman Creek. (U.S. Department of the Air Force, 1997)

San Antonio Creek, located south of Building 1801 and north of Building 1768, is one of the largest streams on base. Several freshwater marshes have been recorded along the San Antonio that, along with the creek itself and the lagoon at its mouth, are frequented by both common and rare Vandenberg species; the unarmored threespine stickleback *(Gasterosteus aculeatus williamsoni*), a federally and state endangered fish, and the tidewater goby can be found there. This may represent the northern limit for the unarmored threespine stickleback, which uses adjoining feeder streams during the wet season. (U.S. Army Space and Missile Defense Command, 2002a; U.S. Department of the Air Force, 1997)

The federally threatened California red-legged frog *(Rana aurora draytoni)* is located in the San Antonio Creek and the man-made Mod III Lake located on the southern edge of the San Antonio Terrace. This lake's fish, such as *gambusia*, are all introduced species. The California red-legged frog is found in surrounding riparian areas, as well as in freshwater ponds neighboring the area and Barka Slough. The California red-legged frog is also found in riparian wetland areas in the northwestern Vandenberg AFB portion near Minuteman Beach, and it shows a preference for freshwater pools and ponds associated with arroyo willow, cattails, and other thickets of emergent aquatic vegetation. In March 2001, the U.S. Fish and Wildlife Service designated 1.6 million hectares (4.1 million acres) in 28 California counties as critical habitat for the threatened California red-legged frog, but excluded Vandenberg AFB since its integrated natural resource management plan provided adequate management for the on-base population (Jumping Frog Research Institute, 2001). (U.S. Department of the Air Force, 1997)

Environmentally Sensitive Habitat

The installation envelops one of the major southern California dune systems, with areas still resembling their original condition, and occupies one of the state's six remaining coastal dune systems. Extensive central foredunes and coastal dune scrub are located on the North Vandenberg coast. (U.S. Department of the Air Force, 1997)

Along with a network of swales, several wetlands (including two man-made) occur near Building 1819; the closest is approximately 1.6 kilometers (1 mile) to the northwest. These wetlands, ranging between 0.8 and 2.8 hectares (2 and 7 acres) in size, support such typical species as arroyo willow, wide-leaf cattail, California bulrush, water smartweed, and bog rush. Wetlands associated with San Antonio and Shuman Creeks (figure 1-1) are also within the ROI (Vandenberg Air Force Base, 2003).

3.3 CULTURAL RESOURCES

Cultural resources include prehistoric and historic artifacts, archaeological sites (including underwater sites), historic buildings and structures, and traditional resources (such as Native American and Native Hawaiian religious sites). Paleontological resources are fossil remains of prehistoric plant and animal species and may include bones, shells, leaves, and pollen. Cultural resources of particular concern include properties listed or eligible for inclusion in the National Register of Historic Places (National Register). Section 106 of the National Historic Preservation Act requires Federal agencies to take into consideration the effects of their actions on significant cultural properties. Implementing regulations (36 CFR 800) specify a process of consultation to assist in satisfying this requirement. To be considered significant, cultural resources must meet one or more of the criteria established by the National Park Service that would make that resource eligible for inclusion in the National Register. The term "eligible for inclusion in the National Register" includes all properties that meet the National Register listing criteria which are specified in Department of Interior regulations at 36 CFR 60.4. Therefore, sites not yet evaluated may be considered potentially eligible to the National Register and, as such, are afforded the same regulatory consideration as nominated properties. Whether prehistoric, historic, or traditional, significant cultural resources are referred to as historic properties.

Numerous laws and regulations (section 1.4) require that possible effects to cultural resources be considered during the planning and execution of federal undertakings. These laws and regulations stipulate a process of compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship among other involved agencies (e.g., SHPO, the Advisory Council on Historic Preservation).

Region of Influence

Generally speaking, the ROI is synonymous with the Area of Potential Effect (APE). However, in cultural resource management, the APE also includes areas that may be indirectly impacted by the proposed activities (see 36 CFR 800.16[d] for complete definition). Because of this, the APE is generally larger than the area of ground disturbance or the building being remodeled. In general, the ROI for cultural resources encompasses areas requiring ground disturbance (e.g., areas of new facility/utility construction) and all buildings or structures requiring modification,

renovation, demolition, or abandonment. The currently defined ROI for the Proposed Action includes construction sites and any other areas where ground disturbance could occur (e.g., fiber optic cable routes, roads), along with any other areas that may be indirectly impacted by the Proposed Action.

Affected Environment

Prehistoric and Historic Archaeological Resources

Numerous archaeological surveys at Vandenberg AFB have identified more than 2,000 prehistoric and historic cultural sites. Prehistoric sites include dense shell middens, stone tools, village sites, stone quarries, and temporary encampments. Historic artifacts include those typically used in mission establishment, ranching, and military activities (U.S. Department of the Air Force, 1998). Cultural resource sites located in the ROI include the site of the former Rancho Guadalupe, which dates from the mission period.

Historic Buildings and Structures

In 1941, the U.S. Army in support of the World War II effort acquired much of the area. Named Camp Cooke, the area served as a training area for armored and infantry units. In 1950 the base was re-activated in support of the Korean War. In 1957, the U.S. Air Force took over the northern 26,305 hectares (65,000 acres) of Camp Cooke and renamed it Cooke Air Force Base. In 1958, the Strategic Air Command took control of the base and renamed it Vandenberg AFB. (Vandenberg Air Force Base, 2002a)

Vandenberg AFB has primarily been used to develop several types of intermediate and long-range ballistic missiles and has been largely associated with the launch of military and civilian payloads since the mid-1950s. The 30 SW is currently the host command at Vandenberg AFB and controls the WR, which conducts military and civilian space and missile launch operations (U.S. Department of the Air Force, 1998).

Vandenberg AFB currently manages 110 early historic structures and 77 historic Cold War-era facilities. The latter Cold War sites have been determined eligible for listing on the National Register as the result of a recently concluded consultation with the SHPO. (Missile Defense Agency, 2003)

LF-02, LF-03, and LF-10, along with Buildings 1819, 1900, and 1978, are eligible for listing on the National Register. Prior to the reuse of these facilities, consultation must occur with the SHPO through the 30 CES/CEVP to ensure their protection or to determine appropriate mitigations that would be performed to preserve information concerning these facilities. Building 1978, a former Minuteman Missile Alert Facility, was decommissioned about 6 years ago after a SHPO consultation and has been abandoned since then. It was decommissioned without any adverse effect in part because the Minuteman weapon system has been well documented at Ellsworth AFB. There would be no National Register-related issue with the proposed use of Building 1978 if any proposed modifications would be minor and limited to the aboveground portion of the facility.

Native Populations/Traditional Resources

At the time of European contact, the Vandenberg AFB area was occupied by inhabitants who spoke one of the major languages of the Chumashan branch of the Hokan language family. Several villages were located in the area that is now northern Vandenberg AFB.

It was not until the mid-1700s that the Spanish began to colonize the area and establish missions. In 1901, the Chumash received 30 hectares (75 acres) of reserved land from the U.S. Government which is presently the only land held by the Chumash people. This reservation is located approximately 32 kilometers (20 miles) east of Vandenberg AFB. The base has maintained a cooperative relationship with the Chumash reservation for several years.

Vandenberg AFB manages approximately 140 Native American traditional cultural properties (Missile Defense Agency, 2003). Several Chumash-related traditional resources sites have been found at Vandenberg AFB including villages and campsites, rock art panels, and burial grounds (U.S. Department of the Air Force, 1998). Among these is Joe's Pond on the San Antonio Terrace, which is considered to be a traditional resource area by the Santa Ynez Band of Mission Indians (Chumash) (Missile Defense Agency, 2003).

Paleontological Resources

The Miocene Monterey Formation and Later Miocene (13 to 25 million years before present) deposits identified at northern Vandenberg AFB have yielded imprints of algae, fish fragments, coprolite, and whalebone. Fossils of both vertebrate and invertebrate animals have been found in the vicinity of Vandenberg AFB (U.S. Department of the Air Force, 1998).

3.4 GEOLOGY AND SOILS

Geology and soils include those aspects of the natural environment related to the earth, which may affect or be affected by the Proposed Action. These features include physiography, geologic units and their structure, the presence/availability of mineral resources, soil condition and capabilities, and the potential for natural hazards.

Region of Influence

The ROI for impacts to geology and soils includes the areas within a 0.8-kilometer (0.5-mile) radius of project areas affected by construction and operation activities where a natural or geologic hazard could occur as a result. Most areas proposed for disturbance have minimal topographic relief or are along existing roads.

Affected Environment

Geology

The proposed GMD IDOC facilities are located in the northern portion of Vandenberg AFB within the northwest-southeast trending Casmalia Hills, which are underlain by unconsolidated sedimentary rocks. Steep rounded northwest-southeast trending slopes best visually characterize the area and drain northeast into the Santa Maria Valley and southwest into the Pacific Ocean. Elevation varies within the Casmalia Hills from sea level along the coast to 500

meters (0 to 1,650 feet) above sea level at Mount Lospe near the base's northern boundary. (U.S. Department of the Air Force, 1999)

Soils

Soil layers at Vandenberg AFB are primarily made up of sand deposits and are generally shallow, with thickness ranging between 0 and 1 meter (0 and 3 feet) (U.S. Army Space and Strategic Defense Command, 1994). Soils within the ROI are classified as Climara-Toomes and Toomes-Climara complexes. The Toomes soil is excessively drained and moderately permeable. The Climara soil is well drained, slowly permeable, and moderately fertile. Both exhibit rapid to very rapid surface runoff and moderate to slow permeability. (U.S. Department of the Air Force, 1999)

Erosion hazards are slight to high depending on slope and vegetative cover, with steeper slopes exhibiting a higher potential for erosion (U.S. Army Space and Missile Defense Command, 2002a;b). Developed slopes are often strategically stabilized to prevent erosion. Presently no soils on Vandenberg AFB have been identified by the U.S. Department of Agriculture as prime farmlands. (U.S. Department of the Air Force, 2000)

3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

In general, hazardous substances (materials) and wastes are defined as those substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, would present substantial danger to public health and welfare or to the environment when released into the environment.

Several regulatory agencies (e.g., EPA, Occupational Safety and Health Administration [OSHA], and DOT) have differing definitions of a "hazardous material" as applied to a specific situation. Of these definitions, the broadest and most applicable is the definition specified by the DOT for regulation of the transportation of these materials. As defined by the DOT, a hazardous material is a substance or material that is capable of posing an unreasonable risk to health, safety, or property when transported in commerce and has been so designated. Solid waste materials are defined in 40 CFR 261.2 as any discarded material (i.e., abandoned, recycled, or "inherently waste-like") that is not specifically excluded from the regulatory definition. This waste can include materials that are solid, liquid, and gaseous (but contained). Hazardous waste is further defined as any solid waste not specifically excluded which meets specified concentrations of chemical constituents or has certain toxicity, ignitability, corrosivity, or reactivity characteristics.

Existing information on hazardous materials and waste was obtained by reviewing the Vandenberg AFB *Hazardous Waste Management Plan* (Vandenberg Air Force Base, 2000) and *Spill Contingency Plan*.

Region of Influence

The ROI for potential impacts related to hazardous materials and waste would be limited to locations within the northern portion of Vandenberg AFB used for GMD IDOC activities. These locations include the proposed launch facilities, support facilities, and fiber optic cable routes.

Affected Environment

Hazardous Materials Management

30th Space Wing Commander (30 SW/CC) is responsible for the management of hazardous materials and waste at Vandenberg AFB. Due to the diversity in missions performed at Vandenberg AFB, a wide variety of hazardous material types and quantities are in use. Use of hazardous materials must conform to DoD, U.S. Air Force, and other federal hazardous materials management requirements. Vandenberg AFB requires all contractors and organizations using hazardous materials on base to submit an Environmental Protection Plan (EPP) to the Contracting Officer before starting any work. The EPP outlines the methods and procedures to be used by the contractor to maintain air and water quality, protect cultural and natural resources and transport, use, dispose or recycle/reuse/recover materials. The EPP includes a Hazardous Materials Spill Contingency Plan and Storm Water Pollution Prevention Plan, if necessary. Hazardous materials obtained from off base suppliers are coordinated through Vandenberg AFB's Hazmart Pharmacy. A base supply contractor runs the Hazmart Pharmacy and inventories all hazardous materials, whether purchased by the U.S. Air Force or its contractors. Such hazardous materials fall into two basic use categories: materials used in base maintenance activities and those used in various missile test operations, including fuels, oxidizers, and cleaners. The majority of these materials are consumed in operational processes, leaving the remainder to be collected as hazardous waste.

Typical hazardous materials used in base maintenance activities include various cleaning solvents (chlorinated and non-chlorinated) fluids, paints, pesticides, motor fuels, and other petroleum products. Range testing operations, such as missile launches, also employ a wide variety of hazardous materials. Cleaning solvents (chlorinated and non-chlorinated), chlorinated fluorocarbons, various painting compounds, explosive materials, oxidizers, and toxic propellants are typical examples. Hazardous materials used in conjunction with these programs are brought on base by the agency responsible for testing the individual systems. Each agency using Vandenberg AFB is responsible for procurement, safe storage, distribution, and management of its hazardous materials, which must conform to the requirements of Vandenberg AFB hazardous material management procedures, and for the cost of proper collection and disposal of any potential hazardous waste generated as a result of their on-base activities.

The 30 CES/CEV is responsible for the preparation and submittal of spill reports to the appropriate regulating/government agency. The Vandenberg AFB *Spill Prevention Control and Countermeasures Plan* establishes responsibility, outlines personnel duties, and provides resources and guidelines for use in the control, clean-up, and emergency response for spills/releases.

Hazardous Waste Management

Vandenberg AFB is classified as a large quantity generator, generating approximately 770 to 910 metric tons (850 to 1,000 tons) of hazardous waste yearly as a result of ballistic missile and

space launch missions. The California Environmental Protection Agency Department of Toxic Substances Control regulates hazardous wastes at Vandenberg AFB under the California Health and Safety Code, Sections 25100 through 67188. These regulations require that wastes be handled, stored, transported, disposed, or recycled according to defined procedures. The Vandenberg AFB *Hazardous Waste Management Plan* outlines the procedures to be followed for hazardous waste disposal (Vandenberg Air Force Base, 2002b). The Comprehensive Environmental Response, Compensation and Liability Act (42 USC 9601 *et seq.*) process requires its own waste management plan, very similar to the base plan except that storage and onsite disposal is not regulated by the Resource Conservation and Recovery Act (42 USC 6901 *et seq.*).

Hazardous wastes generated during Vandenberg AFB activities are initially collected at the point of generation and, if not reused or recycled, transported to the consolidated Collection Accumulation Point managed by the base Environmental Compliance Programs Office in Civil Engineering. Here they are containerized and segregated by type. Following initial containerization, waste must be removed from the consolidated Collection Accumulation Point within 90 days, at which time all hazardous waste must be transported to a permitted off-site Treatment, Storage, and Disposal Facility. The Defense Logistics Agency is responsible for the disposal of hazardous waste generated on Vandenberg AFB. The Defense Reutilization and Marketing Service, through a local Contracting Officer Technical Representative, oversees disposal activities at Vandenberg. A Collection Accumulation Point Contract Operator serves as the agent responsible for receipt and storage of specified hazardous wastes, and for arranging the removal of hazardous wastes to the off-site treatment, storage, or disposal facilities. (Vandenberg Air Force Base, 2002b)

Much of the activities associated with the GMD IDOC program would take place at facilities or areas that are managed under the Vandenberg AFB Installation Restoration Program (IRP). Buildings 1768, 1777, 1970, 2001, 6819, and 8500 have no records of hazardous substance release (Category 1). Buildings 1801, 1819, 1900, 1959, 1978, and 6510 and the IDT area are properties where release, disposal, and/or migration of hazardous substances have occurred, but at concentrations that do not require removal or remediation (Category 3). Although all of the LFs have been designated as Category 6 (areas where release, disposal, and/or migration of hazardous substances have occurred, but required actions have not been implemented), none of them require remedial or removal action. Underground and aboveground storage tanks at Vandenberg AFB are installed and maintained in compliance with appropriate local, state, and federal standards and regulatory requirements.

3.6 HEALTH AND SAFETY

Health and safety includes consideration of any activities, occurrences, or operations that have the potential to affect one or more of the following:

The well-being, safety, or health of workers—Workers are considered to be persons directly involved with the operation producing the effect or who are physically present at the operational site.

The well-being, safety, or health of members of the public—Members of the public are considered to be persons not physically present at the location of the operation, including workers at nearby locations who are not involved in the operation and the off-base population. Also included within this category are hazards to equipment, structures, flora, and fauna.

Region of Influence

The ROI for health and safety of workers includes the immediate work areas, launch facilities and support sites, and the fiber optic cable routes. The ROI for public safety includes locations off base that may have the potential to be impacted by the Proposed Action.

Affected Environment

Vandenberg AFB is involved in the ongoing test and evaluation of various missiles, with safe procedural practices as a primary objective. To accomplish this, an aggressive safety evaluation and control system has been implemented, based on more than 40 years experience in test and evaluation.

Health and safety requirements on Vandenberg AFB include industrial hygiene and ground safety. Industrial hygiene is the joint responsibility of Bioenvironmental Engineering, 30th Space Wing Safety Office (30 SW/SE), and contractor safety departments. Responsibilities include monitoring contract and base worker exposure to workplace chemicals and physical hazards, hearing and respiratory protection, medical monitoring of contractor and base workers subject to chemical exposures, and oversight of all hazardous or potentially hazardous operations.

Ground safety includes protection from hazardous situations and hazardous materials. If personal protective equipment must be used, safety requires a general description of the commodity in use; the hazardous qualities of the material; and data showing compliance with allowable limits for airborne vapors for workplace, workplace emergencies, and public exposures.

Proposed on-base program operations must receive prior approval, accomplished by the user through presentation of the program via an EPP to 30 CES/CEV through the Contracting Officer. All safety analyses, standard operating procedures, and other safety documentation applicable to those operations affecting Vandenberg AFB or the WR and its controlled range space must be provided, along with an overview of mission objectives, support requirements, and schedule. The 30 SW/CC, Chief of Safety, Flight Safety Analysis, and Mission Control Officer are responsible for ensuring safety during ballistic and space launches at Vandenberg AFB. Responsibility and final authority of the safe conduct of ballistic and space vehicle operations on the WR lies with the 30 SW/CC. Establishing and managing the overall safety program at Vandenberg AFB is the responsibility of the 30 SW/SE. (U.S. Army Space and Missile Defense Command, 2002a)

Vandenberg AFB possesses significant emergency response capabilities that include its own Fire Department, Disaster Control Group, and Security Police Force, in addition to contracted support for handling accidental releases of regulated, hypergolic propellants and other hazardous substances. The Readiness Flight (30 CES/CEX) manages the overall base emergency response program and is responsible for developing and updating the Vandenberg AFB Hazardous Material Emergency Response Plan. Additionally, the 30 CES/CEX chairs the

Hazardous Materials Planning Team, ensures that follow-on elements of the Disaster Control Group are assembled as required by the On-Scene Commander in the event of a release response, and maintains training certificates for spill response team members. (U.S. Army Space and Missile Defense Command, 2002a)

The Vandenberg AFB Fire Department, with the support of the 30 CES/CEV, ensures base-wide compliance with the Emergency Planning and Community Right-To-Know Act and the California Business Plan Program. Each facility or item of installed equipment that contains or processes a hazardous material in excess of the threshold quantity requiring a Business Plan is inspected at least once every 3 years to ensure the accuracy and completeness of the associated Business Plan. (Vandenberg Air Force Base, 2002b)

3.7 INFRASTRUCTURE

Infrastructure addresses transportation routes and those facilities and systems that provide power, water, wastewater treatment, and the collection and disposal of solid waste.

Region of Influence

The ROI includes the transportation routes leading to Vandenberg AFB, over which the GMD IDOC components are to be transported and utility systems in the northern part of Vandenberg AFB that could potentially be affected by the Proposed Action.

Affected Environment

Transportation

Roadways. U.S. 101 provides access to Vandenberg AFB and connects the base with San Francisco to the north and Santa Barbara to the south. State Route (SR-) 1, SR-135, and SR-246 connect the base to U.S. 101.

Many of the personnel and employees of Vandenberg AFB live within the suburban areas of Santa Barbara County and in the cities of Lompoc, Santa Maria, Guadalupe, Buellton, Solvang, and Santa Barbara. Primary access roads to the base also include Santa Lucia Canyon Road and Central Avenue (U.S. Army Space and Missile Defense Command, 2002a). Figures 2-4 and 2-5 show the main roads in the vicinity of the proposed GMD IDOC locations.

Airports. There are four airports within the surrounding area of Vandenberg AFB. These include Santa Barbara Municipal, Santa Ynez, Lompoc, and Santa Maria Public airports. Vandenberg AFB also maintains its own runway, which is capable of handling large aircraft (U.S. Department of the Air Force, 1997).

Utilities

Water. The ROI for water supply and distribution consists of Lompoc and Santa Maria valleys. Water supplies in these areas are provided by wells located in the Santa Ynez, San Antonio Creek Valley, and Santa Maria watersheds. In 1997, Vandenberg AFB was connected to the State Water Project for supplemental water supply. Vandenberg's drinking water now comes

from surface water purchased via the State Water Project (the majority of water used on base) and groundwater via a wellfield on the San Antonio Aquifer. Wellfield groundwater is used to supplement the supply when base demand is relatively high, or when State Project Water is unavailable during routine maintenance activities. (Rohr, 2002)

The supply from the San Antonio Creek Valley wells is 15,899 liters (4,200 gallons) per minute each day. From the state, the daily maximum is 20,820 liters (5,500 gallons) per minute. Vandenberg AFB can meet base-wide demands during the majority of the year with only state supplied water. Maximum daily demand for Vandenberg AFB is approximately 21,198 liters (5,600 gallons) per minute. Water from ground wells supplements the water supply during times of peak demand. (Vandenberg Air Force Base, 30th Civil Engineer Squadron, 1999) Figures for 2002 indicate usage was 534 million liters (141 million gallons) from the San Antonio Creekwells and 5.0 billion liters (1.3 billion gallons) from the State Water Project (Savinsky, 2003).

Wastewater. Domestic wastewater from the main cantonment is conveyed to and treated at the City of Lompoc's publicly operated Regional Wastewater Treatment Plant. Vandenberg AFB has a permit from the City of Lompoc restricting the types and quantities of industrial wastewater allowed. Domestic wastewater from facilities outside the main cantonment area in both North and South Base is conveyed and treated by onsite wastewater treatment systems; in most cases, septic tank systems are used. The base also has two extended aeration units serving the South Base cantonment area and the Vandenberg Tracking Station.

Figures for 1996 indicated the Lompoc Regional Wastewater Treatment Plant had a capacity of 18.9 million liters (5 million gallons) per day; Vandenberg AFB contributed approximately 4.88 million liters (1.29 million gallons) per day to the plant (U.S. Department of the Air Force, 1998). These levels are consistent with current levels of use (Rush, 2002).

Industrial wastewater on Vandenberg AFB is handled in accordance with the *Industrial Wastewater Management Plan.* The industrial wastewater treatment facility consists of an ultraviolet/ozone treatment unit, evaporation ponds, several storage tanks and sumps, and an inactive precipitation/reverse osmosis system.

Solid Waste. Santa Barbara County maintains the Class III Vandenberg AFB on-base landfill, four off-base landfills, three transfer stations, and a proposed Materials Recovery Facility. Of these, Vandenberg AFB primarily uses its own landfill located on the northern part of the base. (U.S. Department of the Air Force, 1998) The landfill, a 70-hectare (172-acre) waste management facility, is located in the northern part of the base and managed by the RISC Management Joint Venture. The Solid Waste Facility Permit #42-AA-0012, issued on 10 January 2000, authorizes disposal of 363 metric tons (400 tons) per operating day of solid waste. The average quantity of waste generated for the first three quarters of 1999 was 172.4 metric tons (190 tons) per operating day; an average of 36.7 metric tons (40.5 tons) per day was buried in the landfill. Launch complexes and their ancillary facilities are the primary sources of industrial waste generated on southern Vandenberg AFB.

On occasion, the base uses the Lompoc and Tajiguas landfills (U.S. Department of the Air Force, 1998). The Tajiguas Landfill, approximately 70.8 kilometers (44 miles) from the Vandenberg AFB Main Gate, is operated and managed by Santa Barbara County. It is permitted to accept up to 1,361 metric tons (1,500 tons) per day. Upon obtaining local, state, and federal permits

required by law, the Santa Barbara Board of County Supervisors will proceed with the expansion of the landfill, increasing its capacity by 15 years and allowing it to accept an additional 4.4 million metric tons (4.9 million tons) of waste, starting in 2006 (University of California, Santa Barbara, Department of Electrical and Computer Engineering, 2002).

Electricity. Electricity for Vandenberg AFB is supplied by Duke Energy-North America through its Morro Bay Power Plant; power relays to the base's main substation and is then distributed through the base distribution system. Diesel-powered generators are also used to support technical facilities. In 1995, the base consumed approximately 452 megawatt hours per day (U.S. Department of the Air Force, 1998).

3.8 LAND USE

Land use can be defined as the human use of land resources for various purposes including economic production, natural resources protection, or institutional uses. Land uses are frequently regulated by management plans, policies, ordinances, and regulations that determine the types of uses that are allowable or protect specially designated or environmentally sensitive uses. Potential issues typically stem from encroachment of one land use or activity on another, or an incompatibility between adjacent land uses that leads to encroachment.

Region of Influence

The ROI for land use includes all proposed sites and locations on base that may have the potential to be impacted (for example, through restricted access) by proposed activities.

Affected Environment

Numerous communities are located less than 16 kilometers (10 miles) from the base, but are separated by wide buffers of agricultural areas. The county's predominant land uses are agriculture and natural forest. A Federal Correctional Institution is adjacent to Vandenberg Village and along the eastern base boundary.

Approximately 33 percent of the base has been disturbed, leaving the remainder in its natural state. The installation is bounded on the west by 56 kilometers (35 miles) of Pacific Ocean coastline, and occupies approximately 6 percent of the county's total land area. The composition of base land uses consists of residential, commercial, industrial, service, and administrative activities, requiring 340 kilometers (520 miles) of roads, 27 kilometers (17 miles) of railroad tracks, and approximately 1,000 buildings. (U.S. Department of the Air Force, 1997)

In order to document and classify various land use types to establish and maintain Vandenberg AFB's natural resources and serve as a guide for multiple-use/sustained-yield management, a base land management plan has been developed. In addition to these guidelines, various U.S. Air Force safety regulations, such as the Range Safety Requirements, EWR 127-1, and the Vandenberg AFB Comprehensive Plan, restrict on-base development, as do several state and federal regulations designed to preserve cultural, historical, and environmental integrity. (U.S. Department of the Air Force, 1997)

The installation is divided into northern and southern regions by the Santa Ynez River and West Ocean Avenue. Most development is on North Vandenberg AFB and consists primarily of administrative, industrial, and residential facilities. Launch complexes include the former facilities for Peacekeeper and Minuteman intercontinental ballistic missiles. Land use in the area adjacent to the northern boundary of the base is predominantly dedicated to grazing of livestock. (U.S. Department of the Air Force, 1997)

Vandenberg AFB's 56 kilometers (35 miles) of undeveloped coastline exist as a fraction of the 1,352 kilometer (840 mile) long California Coastal National Monument composed of small, federally owned islands, rocks, and exposed reefs. Currently the Bureau of Land Management has begun the process to prepare a Resource Management Plan for the California Coastal National Monument. (Missile Defense Agency, 2003)

As of November of 1999 Congress directed the National Park Service to conduct a resource feasibility study to determine whether the Gaviota Coast or any portion of it is eligible and/or suitable to be managed as an entity of the National Park System. The Gaviota Coast is composed of 80,937 hectares (200,000 acres) from Coal Oil Point on the University of California Santa Barbara campus in Isla Vista to Point Sal at the northern boundary of Vandenberg AFB. The Park Service study focuses on private lands, four state parks, parts of Los Padres National Forest, and all of Vandenberg AFB. The feasibility study, its release for public review, and recommendation to the U.S. Congress are expected in 2003. (Missile Defense Agency, 2003)

Coastal Zone Management

A federal activity in or affecting a coastal zone requires preparation of a Coastal Zone Consistency Determination by the proponent in coordination with the Vandenberg AFB Environmental Division. All federal development projects in a coastal zone and all federal activities which could directly affect a coastal zone must be consistent to the maximum extent practicable with the CZM Program as authorized by the Coastal Zone Management Act of 1972. The CZM Programs are administered at the federal level by the Coastal Programs Division within the National Oceanic and Atmospheric Administration Administration's Office of Ocean and Coastal Resource Management. The area along the western coast of Vandenberg AFB is within the North Coast Planning Area. (U.S. Department of the Air Force, 1998)

Recreation

County and state parks, as well as public access beaches on Vandenberg AFB proper, are some of the few public coastal access points between Gaviota and Point Sal. The only coastal areas of Vandenberg AFB that are open to public access are the beach west of Ocean Beach County Park and Surf Station (approximately 0.8 kilometer [0.5 mile] south of Ocean Park on the same stretch of beach). Access rules and restrictions are in place seasonally for protection of threatened species (western snowy plover) during nesting season (1 March through 30 September). Public access along the shoreline is 5.9 kilometers (3.7 miles) south of the Santa Ynez River and 1.8 kilometers (1.1 miles) north of the river outside the nesting season. Two public access beaches exist on, or immediately adjacent to, northern Vandenberg AFB (Point Sal Beach State Park and Ocean Beach County Park). Both are especially popular for surf fishing and are open to the public, except during planned missile launches when access roads can be closed and visitors evacuated under an agreement between the base and Santa Barbara County. All closure and evacuation agreements have been consolidated under an Evacuation

Agreement, giving the base the right to evacuate and close the beaches up to 48 hours before a planned launch. In addition to the state beach and county parks, several coastal areas on Vandenberg AFB itself are open to public use. (U.S. Department of the Air Force, 1997)

3.9 NOISE

Noise is usually described as unwanted sound. Characteristics of sound include amplitude, frequency, and duration. Sound can vary over an extremely large range of amplitudes. The decibel (dB) is the accepted standard unit for the measure of the amplitude of sound because it accounts for the large variations in amplitude and reflects the way people perceive changes in sound amplitude. Sound pressure levels are easily measured, but the variability is subjective, and physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound sensation by subjective terms such as “loudness” or “noisiness.”

Sound also varies with frequency or pitch. When describing sound and its effect on a human population, A-weighted sound levels, measured in A-weighted decibels (dBA), are typically used to account for the response of the human ear. The term “A-weighted” refers to a filtering of the sound signal to emphasize frequencies in the middle of the audible spectrum and to de-emphasize low and high frequencies in a manner corresponding to the way the human ear perceives sound. The American National Standards Institute established this filtering network. The A-weighted noise level has been found to correlate well with people’s judgments of noisiness of different sounds and has been used for many years as a measure of community noise.

Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying. Noise levels often change with time; therefore, to compare levels over different time periods, several descriptors have been developed that take into account this time-varying nature. These descriptors are used to assess and correlate the various effects of noise on humans and animals, including land-use compatibility, sleep interference, annoyance, hearing loss, speech interference, and startle effects.

The primary environmental noise descriptor used in environmental noise assessments is the A-weighted Day-Night Equivalent Sound Level (which is abbreviated DNL and symbolized as L_{dn}). The DNL was developed to evaluate the total daily community noise environment. The DNL is the average A-weighted acoustical energy during a 24-hour period, with 10 dBA added to all signals recorded within the hours of 10:00 p.m. and 7:00 a.m. The 10 dBA are a penalty accounting for the extra sensitivity people have to noise during typical sleeping hours.

Almost all federal agencies having non-occupational noise regulations use DNL as their principal noise descriptor for community assessments.

Region of Influence

Under federal OSHA regulations in 29 CFR 1910.95, employers are required to monitor employees who have exposure to an 8-hour time-weighted average of 85 dBA. Therefore, the

ROI for noise analysis at Vandenberg AFB is defined as the area within the Maximum Sound Level (L_{max}) 85-dB contours generated by proposed project activities.

Affected Environment

Noise at Vandenberg AFB is typically produced by automobile and truck traffic, aircraft landings and takeoffs, and space vehicle launches. Railroad traffic is also a significant base noise. Existing noise levels on Vandenberg AFB are typically low; the higher levels occur near industrial facilities and transportation routes. Vandenberg AFB follows state regulations concerning noise, and maintains a Community Noise Equivalent Level (CNEL) equivalent to 65 dBA for off base areas.

Rocket launches from Vandenberg AFB produce less frequent but more intense sources of noise in the region. Current launches include Minuteman missiles and Delta II rockets launched from the North Base and Titan and Atlas rockets from the South Base. Typical noise levels for familiar sources and Vandenberg AFB launch vehicles, such as the Minuteman, are summarized in table 3-2.

Table 3-2: Noise Levels of Common Sources

Source	Noise Level (dBA)	Comment
Sonic Boom	140	
Minuteman launch	Approx. 125	At 3 kilometers (1.8 miles)
Ground-Based Interceptor launch	118	At 3 kilometers (1.8 miles)
Rock concert	110	
Airplane, 747	102.5	At 304.3 meters (1,000 feet)
Jackhammer	96	At 3 meters (10 feet)
Power lawn mower	96	At 0.9 meters (3 feet)
Vacuum cleaner	85–78	At 1.5 meters (5 feet)
Minuteman launch	80	At 12.7 kilometers (7.9 miles)
Long range airplane	80–70	Inside
Vacuum cleaner	70	At 3 meters (10 feet)
Typical aircraft traffic	70	Maximum any location in flight path
Conversation	60	
Typical suburban background	50	
Bird calls	44	
Quiet urban nighttime	42	
Quiet suburban nighttime	36	
Library	34	
Audiometric (hearing testing) booth	10	Normal threshold of hearing

Source: Cowan, 1994; Right-to-Know Network, 1999.

3.10 SOCIOECONOMICS

Socioeconomics describes a community by examining its social and economic characteristics. Several demographic variables are analyzed in order to characterize the community, including population size, the means and amount of employment, and income creation. In addition, socioeconomics analyzes the fiscal condition of local government and the allocation of the assets of the community, such as its schools, housing, public services, and healthcare facilities.

Region of Influence

The ROI for socioeconomics is defined as the communities and areas surrounding Vandenberg AFB. Primary areas of analysis will concern the larger more populous communities including the cities of Lompoc, Santa Maria, and wider Santa Barbara County.

Affected Environment

Vandenberg AFB is in the western part of unincorporated Santa Barbara County. The Santa Ynez River and SR-246 divide the base into North and South Vandenberg AFB. North Vandenberg AFB generally includes the developed portions of the base, whereas South Vandenberg AFB includes primarily open space. The city of Lompoc lies to the east, the city of Santa Maria to the northeast, and the city of Guadalupe to the north. Two unincorporated communities, Vandenberg Village and Mission Hills, are north of the city of Lompoc. Also, Vandenberg AFB is considered a Census Designated Place, and data regarding Vandenberg AFB from the 2000 census has been examined.

Population and Housing

The total population of Santa Barbara County expanded from 369,608 persons in 1990 to 399,347 persons in 2000, an 8.05-percent increase (County of Santa Barbara, 2003). The city of Santa Barbara, with a population of 92,325 people as of 2000 (County of Santa Barbara, 2003), was the largest city in the county and contained 23.1 percent of the county population. Of the communities adjacent to Vandenberg AFB, the city of Santa Maria, with 77,423 persons is the most populous, followed by the city of Lompoc with 41,103 people (County of Santa Barbara, 2003). Casmalia is a much smaller community with less than 200 people as of 2000. Vandenberg AFB itself with a population of approximately 6,150 showed a larger population than the unincorporated communities immediately adjacent to the base.

As of 2000, there were an estimated 142,901 housing units within Santa Barbara County (U.S. Census Bureau, 2003a) of which 37,076 housing units were located within the City of Santa Barbara and 22,847 and 13,621 units were located in Santa Maria and Lompoc respectively. As of 2000, 1,992 units were located within Vandenberg AFB and 2,366 and 1,072 units were located in the communities of Vandenberg Village and Mission Hills, respectively.

In addition, the U.S. Bureau of the Census reported that vacancy rates of rental housing within Santa Barbara County and city averaged 2.8 percent (U.S. Census Bureau, 2003a) and 2.3 percent respectively during 2000. These were marginally lower than the average vacancy rates of 4.0 percent and 3.1 percent for the cities of Lompoc and Santa Maria respectively. While Vandenberg Village showed a 3.6 percent vacancy rate, vacancy rates within Vandenberg AFB and Mission Hills, at 2.2 percent and 2.1 percent respectively, more closely resembled the county average levels.

Income and Employment

The U.S. Bureau of the Census reported that the per capita income in Santa Barbara County, as of 2000, was $23,059 (U.S. Census Bureau, 2003b), only slightly higher (1.5 percent) than the average per capita income of the state at $22,711. Conversely, as of 2000 the median household income in Santa Barbara County, at $46,677 (U.S. Census Bureau, 2003b), was only slightly lower (1.6 percent) than that of the state, at $47,443. Retail and service industries dominate the employment profile, employing approximately 60 percent of the workforce within the county.

Santa Barbara County's economic growth has been driven by the expansion of local telecommunications, computer and software, medical devices, and electronics firms. Major employers include the University of California, Vandenberg AFB, Lockheed Martin, Vons/Williams Brothers Stores, and Raytheon Systems. The University of California, Santa Barbara has an enrollment of 19,000 students and is the area's largest employer with 8,660 employees. The University of California, Santa Barbara has an annual budget of $400 million, with $240 million being spent locally. In addition, the student population adds over $131 million annually to the local economy. In 1999, Vandenberg AFB employed over 1,500 civilian workers and had a military population of 3,600. (Cumulus Media, Inc., 1999)

3.11 WATER RESOURCES

This section describes the existing water resource conditions at the proposed sites. Water resources include surface water, groundwater, water quality, and flood hazard areas.

Region of Influence

The ROI for impacts to water resources includes the water bodies that could be potentially disturbed by the Proposed Action.

Affected Environment

Surface Water

Vandenberg AFB crosses the northern San Antonio Creek and the southern Santa Ynez River watersheds. Its location in a region of low precipitation results in only the seasonal flow of surface streams and existence of small ponds.

The Santa Ynez River forms the boundary between northern and southern Vandenberg AFB. Northern Vandenberg AFB has three primary drainage systems that terminate in the ocean: Cañada Tortuga Creek, San Antonio Creek, and Shuman Canyon Creek (see figure 1-1). San Antonio Creek is the largest with perennial flow and a yearly runoff of 4.4 million cubic meters (3,600 acre-feet). (U.S. Army Space and Missile Defense Command, 2002a)

Groundwater

Most groundwater on Vandenberg AFB occurs in unconsolidated alluvial deposits beneath river and stream channels in the valleys and canyons (U.S. Department of the Air Force, 2000). The San Antonio Creek groundwater basin underlies the northern portion of Vandenberg AFB. Smaller, isolated aquifers are found beneath alluvial fans on the base or in perched aquifers at

higher elevations. Agricultural irrigation is the main user of the basin's groundwater. (U.S. Army Space and Missile Defense Command, 2002a)

Water Quality

Exposure of Vandenberg AFB's surface water to on-base activities and local agricultural runoff limits potable water to groundwater sources supplied by the San Antonio Aquifer and the Lompoc Terrace Groundwater Basin. Wells used to supplement the purchased potable water supply are monitored by the base for a series of water quality parameters. All of the base's drinking water meets both federal and state drinking standards. (Vandenberg Air Force Base, 2002a)

Flood Hazard Areas

No flood hazard areas exist within the ROI of the Proposed Action.

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4.0
ENVIRONMENTAL CONSEQUENCES

4.0 ENVIRONMENTAL CONSEQUENCES

This chapter describes the potential environmental consequences of the proposed activities by comparing these activities with the potentially affected environmental components. Section 4.1 discusses the potential environmental consequences of these activities. The amount of detail presented in each section is proportional to the potential for impacts. Sections 4.2 through 4.10 discuss the following with regard to proposed program activities: cumulative impacts; environmental effects of the No-action Alternative; adverse environmental effects that cannot be avoided; conflicts with federal, state, and local land use plans, policies, and controls for the area concerned; energy requirements and conservation potential; irreversible or irretrievable commitment of resources; relationship between short-term use of the human environment and the maintenance and enhancement of long-term productivity; natural or depletable resource requirements and conservation potential; and Executive Order 13045, *Federal Actions to Address Protection of Children from Environmental Health Risks and Safety Risks*.

To assess the potential for and significance of environmental impacts from the proposed program activities, a list of activities was developed (chapter 2.0) and the environmental setting was described, with emphasis on any special environmental sensitivities (chapter 3.0). Program activities were then assessed with the potentially affected environmental components to determine the environmental impacts of the proposed activities.

To help define the affected environment and determine the significance of program-related effects, written, personal, and telephone contacts were made with applicable agencies and installations. Chapter 7.0 provides a list of those contacted, and appendix B provides available copies of correspondence to/from the agencies. The impacts associated with trenching/digging have the potential for the greatest environmental, historical, and archaeological effects of all the IDOC activities at Vandenberg AFB. These impacts could include vegetation disturbance and removal; disturbance to wildlife from the accompanying noise and presence of personnel; and damage to historic or register-eligible properties. GMD, in coordination with 30 CES/CEVP, has addressed these potential issues through consultation (California Coastal Commission and SHPO) or correspondence (U.S. Fish and Wildlife Service and National Marine Fisheries Service) with federal and state regulatory agencies having jurisdiction over activities at Vandenberg AFB.

No impacts were identified on airspace or environmental justice, and those resources were not examined further in this EA.

4.1 PROPOSED ACTION

4.1.1 AIR QUALITY

Santa Barbara County has recently met the federal standard for ozone and is in the process of being redesignated by the EPA as being in attainment. Santa Barbara County is in attainment for all other federal and state air quality standards except for state ozone and PM-10 standards. The Proposed Action is not anticipated to impact the regional air quality.

Site preparation activities necessary for the GMD IDOC program would include potential extensions of parking areas at some locations, trenching, potential concrete encasing, and final site finish work involved with fiber optic cable installation, which would have localized, minimal impacts on air quality. Building modifications would mainly consist of interior remodeling. Emissions from site preparation activities would be regulated in accordance with the Memorandum of Agreement between Vandenberg AFB and the SBCAPCD. Vandenberg AFB complies with the SBCAPCD rules and regulations listed below. The Proposed Action would comply with, but not limited to, the following SBCAPCD rules:

- Rule 317, *Organic Solvents,* provides limits to any solvent materials used in the project.
- Rule 323, *Architectural Coatings,* provides for coating materials applied to an architectural structure.
- Rule 330, *Surface Coating of Metal Parts and Products,* applies if metal parts are coated on base before construction.
- Rule 353, *Adhesives and Sealants,* applies if adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, or any other primers are used during the project unless specifically exempted by this rule.
- Only California Air Resources Board-certified blasting medium would be permitted if abrasive blasting were used.
- Any portable equipment powered by an internal combustion engine of 20 brake horsepower or higher used in this project must be registered in the California State-wide Portable Equipment Registration Program or have a valid SBCAPCD Permit to Operate. (Vandenberg Air Force Base, 2001)

Site preparation activities would occur over a period of several months. Emissions would be primarily nitrogen oxide and carbon monoxide from construction equipment and possible portable generators and PM-10 from ground disturbance during the cable installation. Although no significant PM-10 emissions are anticipated, standard dust reduction measures would be implemented: water trucks would be used where necessary to dampen soil to minimize dust, vehicle speed in the area would be restricted, and any stockpiled fill material would be covered until use. Proper tuning and preventive maintenance of construction vehicles would serve to minimize exhaust emissions and maximize vehicle performance. The manufacturing of GBI vehicle components would occur offsite in existing facilities that normally perform this type of production, and emissions at these locations have not been included in the scope of this EA. The booster vehicle would likely be integrated on site in Building 1819, where the test booster is

currently integrated. It then would be moved to Building 1032 for EKV/EKV fuel tank installation and checkout.

GMD IDOC activities would include the transportation of the interceptor missile boosters, payloads, and support equipment either by air or over the road by truck. This transportation would result in some mobile exhaust emission, but these emissions would be intermittent and would not have a measurable impact on regional air quality. The interceptor could arrive at Vandenberg AFB with the EKV attached, or the booster may be shipped separately from the EKV. Either way, integration and assembly operations would be performed at Vandenberg AFB.

Onsite fueling of the interceptor or EKV would not be required; the interceptor motor would utilize pre-loaded solid propellants. Each EKV would contain pre-loaded liquid propellant and oxidizer. The liquid propellants would be delivered to Vandenberg AFB in pre-filled and sealed tanks that would be ready to be installed onto the vehicle. Installation would only require mechanical tubing connections.

During nominal propellant tank installation, the propellants remain sealed inside their tanks. The likelihood of an accidental release of the liquid fuel or oxidizer would be low. However, if such an accident were to occur, it would most likely occur during missile assembly. Table 4-1 indicates the results of analysis using the U.S. Air Force Toxic Corridor Model computer model to determine distances at which the Immediately Dangerous to Life and Health (IDLH) health standard could be exceeded assuming all 7.5 liters (2 gallons) of fuel and 7.5 liters (2 gallons) of oxidizer were released to the atmosphere during an accident. The IDLH is the level of exposure (not time-weighted) above which it is thought a person would suffer life-threatening or irreversible health effects or other injuries that would impair them from escaping the hazardous environment. The IDLH level was the only level of concern as others are based on time-weighted averages over prolonged exposures.

Table 4-1: Potential Exceedances Due to Accidental Oxidizer or Fuel Leak at Vandenberg AFB

Propellant	Health Standard	Standard Limit	Exceedance Distance [b]
Hydrazine	NIOSH IDLH [a]	50 ppm (66.5 mg/m^3)	Not exceeded
Methyl Hydrazine	NIOSH IDLH [a]	20 ppm (38.4 mg/m^3)	Not exceeded
Nitrogen Tetroxide (liquid)	NIOSH IDLH [a]	20 ppm (36 mg/m^3)	60 meters (197 feet)
Nitrogen Tetroxide (gas)	NIOSH IDLH [a]	20 ppm (36 mg/m^3)	30 meters (98 feet)

Source: Center for Disease Control and Prevention, 2002a, b; Asia Pacific Space Launch Centre EIS Site, 2002.
[a]The National Institute for Occupational Safety and Health (NIOSH) Immediately Dangerous to Life and Health (IDLH) is the level of exposure (not time-weighted) above which it is anticipated a person would suffer life-threatening or irreversible health effects or other injuries that would impair them from escaping the hazardous environment.
[b]Exceedance Distance—Average of U.S. Air Force Toxic Corridor model results for 15-minute and 30-minute averaging time and multiple stability classes
ppm = parts per million by volume
mg/m^3 = milligrams per cubic meter

Actual hazard distances would depend on the propellant released, the amount released, meteorological conditions, and emergency response measures taken. Approved standard operating procedures would be implemented and would include personal protection equipment procedures. Establishment of and adherence to these standard operating procedures would minimize the potential hazards to personnel in the unlikely event of an unplanned propellant release. The low likelihood of such an event and the implementation of approved emergency response plans would limit the impact of such a release.

No exceedance of air quality standards or health-based standards of non-criteria pollutants would be anticipated during site preparation activities.

Generator Operation

Operation of the IDT at Vandenberg AFB would have little effect on regional air quality. Power would be provided by offsite commercial sources; however, in the event of a loss of power, a 400-kW diesel generator would be used. Along with the generator itself, there would be a 1,893-liter (500-gallon) aboveground storage tank for fuel. Table 4-2 lists the possible emissions associated with the use of this generator. The emergency generator would be operated less than 200 hours per year, including testing during non-launch periods, and during power outages.

Additional emergency generators would be associated with each silo, the Missile Assembly/EKV/Interceptor Integration Building, and storage facility. Each generator would also have its own dedicated, aboveground fuel storage tank. A 1.5-MW generator would be used at the Readiness Station, a 500-kW generator at the Missile Assembly/EKV/Interceptor Integration Building, a 300-kW generator at the Security Center, a 200-kW generator at each silo, and a 60-kW generator at the storage facility. Each generator would be operated less than 200 hours per year. Table 4-2 lists the potential emissions associated with these generators.

Table 4-2: Potential Generator Emissions for Facilities at Vandenberg AFB

	Emissions (less than 200 hours/year)			
Generator	**Oxides of Nitrogen metric tons (tons)**	**Hydrogen Chloride metric tons (tons)**	**Carbon Monoxide metric tons (tons)**	**PM-10 metric tons (tons)**
400-kW Diesel Generator	0.73 (0.81)	0.10 (0.11)	0.91 (1.00)	0.043 (0.047)
1.5-MW Diesel Generator	2.75 (3.03)	0.39 (0.43)	3.40 (3.75)	0.16 (0.18)
500-kW Diesel Generator	0.92 (1.01)	0.13 (0.15)	1.14 (1.25)	0.055 (0.060)
Four 200-kW Diesel Generators	1.46 (1.61)	0.21 (0.23)	1.80 (2.00)	0.086 (0.095)
60-kW Diesel Generator	0.11 (0.12)	0.015 (0.017)	0.14 (0.15)	0.006 (0.007)
300-kW Diesel Generator	0.55 (0.61)	0.08 (0.09)	0.68 (0.75)	0.032 (0.036)
Total	6.52 (7.19)	0.93 (1.03)	8.07 (8.90)	0.38 (0.43)

SBCAPCD is currently updating permitting applicability for generators. Requirements for installing and operating each of these diesel generators could include New Source Review permitting, possible emission offsets, or emission control equipment.

Determination of Non-Applicability

Santa Barbara County is in non-attainment for the state standards for ozone and PM-10 and is currently in the process of being redesignated by the EPA as being in attainment for the federal ozone standard. The review of the proposed action as required by the General Conformity Rule resulted in a finding of presumed conformity. Total foreseeable direct and indirect emissions caused by the Proposed Action are less than the mandated *de minimis* thresholds as shown in appendix C.

Cumulative Impacts

No exceedance of air quality standards or health-based standards of non-criteria pollutants is anticipated. The emissions from the Proposed Action, when added to existing and proposed actions on Vandenberg AFB and within the South Central Coast Air Basin, would not result in a cumulative impact to the region's air quality. Air quality impacts from similar prior Vandenberg AFB site preparation activities, such as those examined in the 1999 Booster Verification Tests EA, the 2002 ABV Verification Tests EA, and the 2000 Final EA for Installation of the Lion's Head Fiber Optic Cable System, were determined to be insignificant.

4.1.2 BIOLOGICAL RESOURCES

The primary proposed activities that may have a potential effect on the vegetation and wildlife of Vandenberg AFB include site preparation activities such as communication line installation, construction of new facilities and parking areas, and security fence installation. The impacts associated with trenching/digging have the potential for the greatest environmental effects of all the IDOC activities at Vandenberg AFB. These impacts would include vegetation disturbance and removal, and disturbance to wildlife from the accompanying noise and presence of personnel.

All transportation of equipment and materials such as fuels would be conducted in accordance with DOT regulations and U.S. Air Force regulations such as Air Force Policy Directive 24-2, *Preparation and Movement of Air Force Materiel*, and Air Force Instruction 24-201, *Cargo Movement*. Adherence to standard operating procedures for spill prevention, containment, and control measures while transporting equipment and materials would preclude impacts to biological resources.

Vegetation

Site preparation activities (installation of septic tanks, leach fields, new water lines, and expansion of parking areas), new warehouse/storage facilities construction, and fence installation would result in small amounts of ground disturbance and a potential impact to vegetation. However, these activities would occur in areas that have been previously disturbed.

The installation of underground fiber optic cable (for communications purposes) would be required between the proposed LFs and support facilities. The fiber optic cable would be

installed in existing conduit where possible, as shown in figures 2-4 and 2-5. New conduit and fiber optic cable would be installed in previously disturbed areas of soil (usually along the shoulders of existing roads or parallel to existing buried utility routes) along routes designed to avoid sensitive areas and approved by 30 CES/CEV. Trenching for the new communications cable/conduit would have a maximum depth of 0.91 meter (3 feet). This is anticipated to pose only minor impacts to adjacent vegetation.

Threatened and Endangered Vegetation

Surveys would be performed for the Gaviota tarplant and Lompoc yerba santa, which would allow for designs to avoid impacts. Consultation with the U.S. Fish and Wildlife Service would be initiated through 30 CES/CEV if the plants can not be avoided. As stated above, if existing conduits are not available, cable would be installed in new conduits that would be placed in previously disturbed areas of soil along the shoulders of existing roads or along existing utility routes. Biological monitors would be available onsite during communication cable installation, as well as during other site preparation activities that would require ground disturbance. No operational activities are anticipated to impact vegetation, with the exception of routine mowing.

Wildlife

Site preparation activities, would implement procedures to minimize the potential for soil erosion, such as the use of alternate methods of installation, including slant/directional drilling if required, and are not expected to adversely affect waterbodies. Communications cables would be installed in existing cables attached to the bridges at San Antonio Creek and Shuman Creek.

Although fence installation could obstruct movement of wildlife, the majority of the facilities proposed for use have some type of existing fencing. Construction of parking lots and other site preparation such as additional leach fields and upgrading waterlines outside cantonment area could displace some wildlife. However, similar vegetation exists near the affected areas for displaced wildlife.

Site preparation may temporarily disturb wildlife in the immediate area, such as the loggerhead shrike and burrowing owl. However, site preparation activities would be limited in duration, and no direct physical auditory changes in wildlife are anticipated. Typically the noise at 15 meters (50 feet) from a construction site does not exceed an equivalent sound level of 90 dBA. There are no absolute standards of short-term noise impacts for potentially noise-sensitive species. The effects of noise on wildlife vary from serious to no effect in different species and situations. Behavioral responses to noise also vary from startling to retreat from favorable habitat, due partly to the fact that wildlife can be very sensitive to sounds in some situations and very insensitive to the same sounds in other situations (Larkin, 1996).

Most of the site preparation noise and human activity would be caused by truck and other heavy machinery traffic to and from the IDOC facilities and the potential short-term use of the heavy machinery. The increased presence of personnel would tend to cause birds and other mobile species of wildlife to temporarily evacuate areas subject to the highest level of noise. Additional ruderal vegetation is nearby for displaced wildlife. Reconnaissance-level pre-construction surveys and construction monitoring would be conducted to minimize the risk of mortality to federal and state species of concern (burrowing owl, loggerhead shrike, California horned lizard,

and silvery legless lizard) during site clearing for those areas requiring grading or vegetation removal.

Vandenberg AFB submits noise monitoring reports to the National Marine Fisheries Service on all launches in accordance with the Programmatic Take Permit. However, the GMD IDOC activities would be operational, not test in nature. Operational launches would only occur in an emergency as an initial defense against a limited long-range ballistic missile attack.

During normal operations, the IDT would not transmit except for a few minutes during annual testing of the equipment. Given the low power and short duration of transmission, no adverse impacts to biological resources are anticipated. Most operational impacts to wildlife from the IDT and other proposed IDOC facilities would come from security lighting and noise from electrical generators required at the sites. The lighting and noise could encourage species less tolerant of these disturbances to avoid the area. Generator noise could range from 80 to 85 dBA at up to 105 meters (344 feet). These noise levels would only occur during power outages or for less than 200 hours per year during monthly tests and maintenance activities.

California sea lions, northern elephant seals, northern fur seals, and other sensitive marine mammals in adjacent offshore areas would normally be at least 731.5 meters (2,400 feet) from the closest launch silo and are not expected to be affected by site preparation noise.

Threatened and Endangered Wildlife

Facility modification activities would not occur in areas that could potentially contain the tidewater goby, unarmored threespine stickleback, or California red-legged frog. The fiber optics cable installation would avoid water bodies or use existing cables attached to the bridges at San Antonio Creek and Shuman Creek, thus minimizing the potential for impacts to tidewater goby, unarmored threespine stickleback, or California red-legged frog habitat. Cable would also be installed along the shoulders of existing roads or along existing utility routes to minimize the potential for impacts to other threatened and endangered species. Biological monitors would be available onsite during installation.

The California least tern, California brown pelican, and western snowy plover preferentially forage and roost along the coast approximately 731.5 meters (2,400 feet) or farther away from the launch silos proposed for modification and are unlikely to be affected by site preparation and operational noise or cable installation. The mountain plover, which winters in the vicinity of the airfield, is also unlikely to be affected by site preparation or operational activities.

Site preparation activities are not anticipated to result in impacts to the southern sea otter or other sensitive marine mammals in adjacent offshore areas due to the distance from the sites being proposed for renovation (approximately 731.5 meters [2,400 feet] or farther).

Environmentally Sensitive Habitat

The coastal dune systems are outside the area that could potentially be disturbed during site preparation activities at the LFs. The GMD IDOC program would mainly use existing facilities. Any new construction would be located within the cantonment area (building), approximately 7.2 kilometers (4.5 miles) from the coast, or in previously disturbed areas (parking areas, fence

installation, infrastructure improvements). Personnel would be restricted from entering sensitive areas to minimize the potential for impacts. Areas of potential wetlands along communication routes would be surveyed by qualified biologists. Wetlands identified during the surveys would be avoided. Site preparation and operational activities are not anticipated to directly or indirectly impact the wetlands in the vicinity of facilities proposed for use. Conduit would be attached to bridges to avoid any direct or indirect impacts to Shuman Creek or San Antonio Creek. The use of other methods of installation for required fiber optic cable, such as slant/directional drilling, would be used in appropriate cases to further avoid the potential for impacts to wetlands.

Cumulative Impacts

Initial defensive operations capabilities being developed at Vandenberg AFB would not include missile launches. However, operations would include backup generators and site preparation activities. The operation of backup generators at each LF and support facility could result in minor cumulative noise impacts (displacement) to wildlife in the vicinity.

The potential for cumulative impacts to biological resources from IDOC activities when combined with past, existing, and proposed activities on Vandenberg AFB (Minuteman launches, GMD ETR site preparation and launches, current alternate booster test activities) would not be substantial. The proposed GMD IDOC would use areas previously developed for booster testing and GMD use (LFs and IDT site), thus minimizing to a degree the need for ground disturbance. The combined activities would also occur on different locations on the base and at different times. Therefore, no significant cumulative impacts to biological resources are anticipated from the proposed GMD IDOC program when combined with other current and planned activities on Vandenberg AFB.

No cumulative impacts to biological resources are expected as a result of fuel and oxidizer transport or filling operations. Accidental releases or spills of liquid or gaseous materials would be contained or dispersed before reaching sensitive vegetation or wildlife.

4.1.3 CULTURAL RESOURCES

This section discusses the effects of the Proposed Action on Vandenberg AFB cultural resources. The disturbance of a cultural site removes material from its original context and, therefore, results in the loss of information about the site.

The impacts associated with trenching/digging have the potential for the greatest effects to cultural resources of all the IDOC activities at Vandenberg AFB. New conduit and fiber optic cable would be installed in routes designed to avoid sensitive areas and approved by 30 CES/CEV. The trenching for cable installation would have a maximum depth of 0.91 meter (3 feet). The proposed cable installation would not impact any known, intact archaeological deposits. Cable trenching operations would be restricted to previously disturbed road shoulders and existing utility corridors. No historic or Register-eligible properties are expected to be affected by proposed trenching activities. The use of other installation methods such as slant/directional drilling for installation of required fiber optic cable under any known archaeological sites could further minimize the potential for impacts to cultural resources. Since all construction would take place within previously disturbed areas, the proposed construction

activities would have no effect on cultural resources, including historic properties. No Traditional Cultural Properties, resource-gathering areas, or other concerns related to the Chumash Reservation's continued access to Vandenberg AFB have been identified. GMD IDOC personnel would initiate any additional required Section 106 and Native American consultations through the 30 CES/CEVP.

The GMD Joint Program Office would be responsible for implementation of any required avoidance of cultural resources or mitigation measures assigned to this project as a condition of approval for this activity by Vandenberg AFB. These measures may include, but are not limited to, having an archaeologist and/or Native American specialist present during site preparation activities, flagging or fencing to protect cultural resources, avoidance of known cultural resources, archaeological testing, data recovery, and report preparation. Personnel would be informed of the sensitivity of cultural resources and the types of penalties that could be incurred if sites are damaged or destroyed. If previously undocumented cultural resource items are discovered during excavation, grading, or other ground-disturbing activities, work would immediately cease. In addition, work would be temporarily suspended within 30 meters (100 feet) of the discovered item until it has been properly evaluated and secured. Any discovery of previously unidentified cultural resources would be reported to the Cultural Resources Section at Vandenberg AFB.

Possible minor modifications may be required for LF-02, LF-03, and LF-10 along with Buildings 1819, 1900, and 1978. These facilities are eligible for listing on the National Register. As discussed in chapter 3, there is no National Register-related issue with the proposed use of Building 1978 because the facility was decommissioned after a SHPO consultation and has been abandoned since then. Also, reuse is not an issue because all modifications would be minor and limited to the aboveground portion of the facility. The office space of Building 1978 would be refurbished and used once again for similar purposes. Consultation with SHPO on the potential effects of the Proposed Action to National Register-eligible properties has been initiated through the 30 CES/CEVP. Prior to the reuse of the other facilities, consultation would continue with the SHPO through the 30 CES/CEVP to ensure their protection or to determine appropriate mitigations that would be performed to preserve information concerning these facilities, such as a Historic American Engineering Record. GMD IDOC operations (routine security inspections, maintenance of the facilities, and generator testing) would not adversely impact cultural resources.

Cumulative Impacts

The proposed cable installation would not impact any known, intact archaeological deposits. No historic or register-eligible properties are expected to be affected by proposed trenching activities. Since the GMD Joint Program Office would be responsible for implementation of any required avoidance of cultural resources or mitigation measures assigned to this project as a condition of approval for this activity by Vandenberg AFB, proposed site preparation activities, when combined with current construction and missions operations on Vandenberg AFB, are not anticipated to result in cumulative impacts to cultural resources.

4.1.4 GEOLOGY AND SOILS

This section addresses the potential impacts to geology and soils due to the site modifications and preparation activities required for the Proposed Action.

Site preparation would require launch support equipment installation, overhead power installation, silo modifications, security fence installation, and minor excavation of existing road shoulders and utility routes to install an underground fiber optic cable to existing facilities at Vandenberg AFB. Launch support equipment installation may result in minor, short-term impacts to adjacent soils. The staging areas for any construction materials and equipment associated with the modification of the missile launch silos or support facilities would be paved, aggregate, or previously disturbed. The communication line trenching would have a maximum depth of 0.91 meter (3 feet) along the shoulder of existing roads or along existing buried utility routes, and the surface would be re-covered. Installation of cable would have a localized, minimal impact on soils.

Although the facilities and roads are located in earthquake-prone areas, no evidence of earthquake-related damage to these facilities has been identified.

A Stormwater Pollution Prevention Plan would be developed for the site by the GMD program in coordination with 30 SW to satisfy the requirements of the National Pollutant Discharge Elimination System. Best Management Practices (BMPs) would be used for erosion and sediment control. Such BMPs could include storm water diversions, sediment barriers, stream protection, dust palliatives, and other stabilization treatments.

The Vandenberg AFB Spill Prevention Control and Countermeasure Plan (30 SW Plan 32-4002C) would provide resources and guidelines for use in the control, cleanup, and emergency response for spills of hazardous material or waste. The Plan also would provide measures to prevent soil erosion. In the event that the release of hazardous material or waste would occur, affected areas would be treated in accordance with applicable federal, state, and local regulations. The risk of accidental spills of hazardous chemicals during project site preparation affecting project soils is expected to be minor and temporary in duration.

Cumulative Impacts

Preparation of the LFs and support facilities for the proposed activities, when combined with current and planned activities on Vandenberg AFB, would not result in cumulative impacts to geology and soils. Adherence to established procedures and implementation of BMPs would minimize the potential for spills and any impacts to soils. The potential for cumulative impacts on soil is considered minor.

4.1.5 HAZARDOUS MATERIAL AND WASTE

Impacts related to hazardous material and waste management include increasing the potential for exposure to hazardous material or waste, or increasing the likelihood of a hazardous material or waste release to the environment. Impacts from hazardous materials and waste management would also be considered significant if they resulted in noncompliance with applicable regulatory guidelines (40 CFR, *Protection of Environment*, 42 CFR, *Public Health*,

and California Code of Regulations Title 27, *Unified Hazardous Waste and Hazardous Materials Management Regulatory Program*) or increased the amounts generated beyond available waste management practices. The proposed site preparation activities are not expected to substantially increase the volume of hazardous materials used, or hazardous waste generated, at Vandenberg AFB. MDA would be responsible for the shipment and distribution of hazardous materials to the base. Vandenberg AFB Safety and Environmental offices would be responsible for the receipt and storage of hazardous materials, and the disposal of hazardous waste.

Modification of several existing launch silos and support facilities would be required to accommodate the GBI. Some buildings would require internal modifications. Hazardous materials that may be used during these site preparation activities include cleaners, solvents, lubricants, and motor and diesel fuel. These materials would be consumed during use, generating minimal waste. Program personnel would procure designated items composed of the highest percentage of recovered material practicable, consistent with the Comprehensive Procurement Guidelines and Executive Order 13101. The order further expands material acquisition requirements to include environmentally preferred products and bio-based products that provide an effective means to minimize hazardous material impacts used in construction and operation. The staging areas for any construction materials and equipment associated with the modification of the LFs or support facilities would be paved, aggregate, or previously disturbed.

Hazardous materials use at Vandenberg AFB must conform to applicable federal, state and local laws and regulations. Hazardous materials obtained from off base suppliers would be coordinated through Vandenberg AFB's Hazmart Pharmacy. A base supply contractor runs the Hazmart Pharmacy and (in accordance with U.S. Air Force Instructions) inventories all hazardous materials, whether purchased by the U.S. Air Force or its contractors. Hazardous materials are tracked using Environmental Management System software. These procedures are in accordance with the 30 SW Hazardous Materials Management Plan, which describes procedures for packaging, handling, transporting, and disposing of hazardous waste.

Hazardous wastes generated during Vandenberg AFB activities would be initially collected at the point of generation and transported to the collection-accumulation point managed by the base. Here it would be containerized and segregated by type. Following initial containerization, waste may remain at the collection-accumulation point for up to 90 days, at which point all hazardous waste would be transported to the off-site Treatment, Storage, and Disposal Facility. (Vandenberg Air Force Base, 2000)

Prior to the initiation of any construction/structural modification, the program contractor would perform surveys and sampling for lead-based paint, asbestos, and PCBs. Since the proposed facilities were constructed in a period during which lead-based paint was used as exterior and interior coating and asbestos was used in equipment and construction materials, the minor modifications planned could result in disturbance of asbestos and/or lead-based paint on exterior or interior surfaces. Remediation may be necessary where modifications are anticipated. Any removal/abatement or disposal of these hazardous wastes would be conducted in accordance with applicable federal and state regulations and the Vandenberg AFB *Lead-Based Paint Management Plan*, *Asbestos Management Plan*, *Asbestos Operating Plan*,

and *Hazardous Waste Management Plan*. Therefore, there is a low likelihood of the potential release of lead-based paint, asbestos, or PCBs.

The potential installation of new conduit and fiber optic cable between the LFs and support buildings would require trenching or other methods of installation such as slant/directional drilling for placement of the conduit, which would not likely result in the release of a potentially hazardous material or waste, such as oil or diesel fuel. The staging areas for any construction materials and equipment associated with cable installation would be paved, aggregate, or previously disturbed.

Although not planned, should any aboveground storage tanks with a capacity of or over 49,210 liters (13,000 gallons) be used, a spill prevention plan would be required. In the unlikely event that a spill or release occurs, the use of procedures outlined in the Vandenberg AFB *Spill Prevention Control and Countermeasures Plan* (30 SW Plan 32-4002C) and *Hazardous Materials Emergency Response Plan* (30 SW Plan 32-4002A) should ensure that the potential impact would be minimal. Although none of the LFs require remedial or removal actions, institutional controls such as dust suppression or personal protective equipment would be used during any earthwork activities.

Cumulative Impacts

Adherence to the hazardous materials and waste management systems on Vandenberg AFB would preclude the potential accumulation of hazardous materials or waste. The base has implemented an emergency response procedure that would aid in the evaluation and cleanup of any hazardous materials released. The Proposed Action is not expected to result in cumulative hazardous materials and hazardous waste impacts.

4.1.6 HEALTH AND SAFETY

An impact would be considered if it involved materials or operations that posed a potential public or occupational health hazard. The Proposed Action is not expected to substantially increase health and safety risk to either base workers and personnel or members of the public.

Site preparation activities, including silo and building modifications, would comply with OSHA, U.S. Air Force safety and health regulations, the U.S. Army Corps of Engineers *Safety and Health Requirements Manual (EM 385-1-1)*, Range Safety requirements and other recognized standards for operations that involve construction or facility modifications as applicable. In accordance with U.S. Air Force Instruction 32-1065 and National Fire Protection Association Standard 780, a certified Lightning Protection System would be properly installed at all launch facilities and on all support buildings/facilities where required. Buildings 1768 and 1801 are inside the ILL of a number of test/space launch facilities. Locating the Readiness Station and the GFC/C Node in either of these facilities would require evacuation during normal Vandenberg AFB launch activities. If any of the facilities requires constant manning, personnel remaining during the required evacuation window would have to be designated as mission essential. Building 1819 would require an explosives waiver/exemption to be used for EKV integration. Building 1900 would require a new explosives site plan in which the current occupants of the facility (Detachment 41) would either have to be moved from the building permanently or some type of timeshare/split shift arrangement would have to be worked out. Depending on the

selection of GMD ETR test silos, the proposed IDT site could fall inside of the ILL of the test launch. Personnel at the IDT site would be designated as mission essential if within the ILL of a test flight operation.

A health and safety plan would be prepared by the contractor and submitted to the base to ensure the health and safety of onsite workers. A formally trained individual would be appointed to act as safety officer. The appointed individual would be the point of contact on all problems involving job site safety. During performance of work, the contractor must comply with all provisions and procedures prescribed for the control and safety of construction team personnel and visitors to the job site. Compliance with regulations should ensure that no health and safety impacts would result from the silo and building modification phase of the Proposed Action.

Transportation of GBI components would be accomplished by aircraft or over road by truck. FAA, DOT, OSHA, and applicable U.S. Air Force safety regulations would be followed. These transportation procedures would minimize the potential for accidents, as well as provide the means of mitigating potential adverse effects should an accident occur. Therefore, no health and safety effects to the public or to the base are anticipated.

Site preparation activities would also consist of transportation and storage of the small amount of liquid propellant and propellant transfer. The transportation and storage of liquid propellants would be conducted in accordance with applicable state and federal requirements. Transportation of liquid propellants would occur entirely by road. Liquid propellants and explosives would be packaged in shipping containers designed according to DOT requirements to protect against release in the event of an accident. All containers would have proper placards and only commercial carriers licensed to handle/transport hazardous materials would be utilized.

The EKV fuel tanks would be stored at an existing Vandenberg AFB facility, under an existing contract. The site already has safety procedures and precautions in place. Access would be limited to mission critical personnel. All personnel associated with the Proposed Action, including those associated with material storage, would be properly trained in compliance with 29 CFR 1910 *Occupational Safety and Health Standards* procedures and other applicable state and federal regulations and guidelines. Personal protective equipment would be available and safety zones would be established. Although there is the potential of spill or release from damaged or leaking containers in storage areas, minimal health and safety impacts would be expected due to storage and containment protocol and worker training. A Spill Contingency Plan would enable rapid response to any leak and minimize the threat such a leak would pose to personnel and to the environment.

There is the potential of ignition in an accident because the liquid propellants and explosives are sensitive to heat. The DoD has considerable experience with shipment of rockets and sensitive rocket components, including liquid propellants and explosives. Also, hypergolic fuels, which may ignite due to mixing, would be shipped separately.

Missile components, such as the solid propellant boosters and pre-filled bi-propellant tanks, would be handled and stored by program personnel in accordance with applicable federal, state, and U.S. Air Force regulations. The three stage boosters would contain no more than 20,500

kilograms (45,000 pounds) of a hydroxyl-terminated polybutadiene, solid rocket fuel propellant. The GBI EKV would contain 7.5 liters (2 gallons) of monomethylhydrazine and 7.5 liters (2 gallons) of nitrogen tetroxide liquid propellant. An ESQD would be established around applicable facilities on Vandenberg AFB based on the equivalent explosive force of propellant contained within the GBI missile. Business plans for each GMD silo and facility would be prepared in accordance with the California Health and Safety Code and submitted to 30 CES/CEV and the installation Fire Department to assist in emergency planning and response. Associated radiofrequency emissions from the IDT are considered to be of sufficiently low power that there would be no exposure hazard. Security measures, such as fencing, would prohibit public access to the IDT site and keep the area free from any equipment that could cause electronic interference with the IDT receiving band.

Cumulative Impacts

Adherence to the safety systems on Vandenberg AFB would minimize the potential for any impacts to worker or public health and the environment as a result of the Proposed Action. The Proposed Action, when added to current and planned activities on Vandenberg AFB such as the GMD ETR activities, is not expected to result in cumulative health and safety impacts.

4.1.7 INFRASTRUCTURE

Impacts to transportation typically occur as a result of deterioration of the roadway system, a significant increase in traffic, or a disruption in Vandenberg AFB flightline operations. Thresholds of impact levels for traffic and circulation analyses for NEPA environmental reports have not been standardized.

A project may have substantial effects on infrastructure if it increases demand in excess of utility system capacity to the point that substantial expansion would be necessary. Environmental impacts could also result from system deterioration due to improper maintenance or extension of service beyond its useful life.

U.S. Air Force approval for work at the project sites would be requested and received prior to any silo or building modification or road excavation. These permits require the notification and approval of the Utilities Shop, the Communication Squadron, and the Explosive Ordnance Disposal Flight to avoid impacting existing utilities, telephone cables, and fiber optic lines, or unexpected encounters with Explosive Ordnance Disposal. Upon notification, these divisions would flag the location of the lines at the project site. The Electrical Division would be consulted for the identification and location flagging of underground electric lines on site.

Existing infrastructure for Buildings 1777, 1900 (short term), 1959, 2001, 6510, and 8500 is sufficient for support of the Proposed Action. Existing infrastructure such as commercial power, water, sewer, communication lines, roadways, and storm drainage are all available and adequate in the cantonment area where, if required, the storage and warehouse facilities are to be located. Additional exterior lighting and a security fence could be installed at each facility. Cameras would be installed at each LF and Building 1978. Required infrastructure upgrades are discussed below as applicable.

Transportation

The fiber optic cable would be installed in existing conduit where applicable, as shown in figures 2-4 and 2-5 along existing roads. The areas affected by cable installation would be repaired, as required, following installation of the conduit, with only minor temporary disturbance to use of the roadways.

A temporary limited increase in traffic volume may occur during facility modification and other site preparation activities, particularly along the roads leading to the LFs and support facilities. Existing roadways and paved areas near Building 1768 may be repaved, and some additional paved or aggregate areas could be constructed for the parking of vehicles outside of the security fencing at Buildings 1768 and 1801. The presence of equipment and personnel may result in a temporary disruption in traffic patterns in the immediate vicinity of the work sites. Any potential effect on base roadways and parking would be short-term.

Transportation of the GBI missile components would be accomplished by aircraft or over road by truck. These modes of missile transport are routine at Vandenberg AFB, and there would be no impacts to the ongoing base operations. Transportation procedures would comply with FAA, DOT, OSHA, and applicable U.S. Air Force safety regulations. These procedures would minimize the potential for accidents, as well as provide the means of mitigating potential adverse effects should an accident occur. These limited events would not have any substantial impact on existing transportation patterns or volume on or off base.

Site preparation activities, which would involve a peak number of 361 personnel, would have no long-term adverse impact on transportation on Vandenberg AFB and would have no impact to off base transportation. Operational activities such as routine maintenance of the facilities and generator testing would have no impact to on- or off-base transportation.

Utilities

Water

Additional water lines (upgrades) would be installed at Buildings 1768, 1970, and 6819 as a result of site preparation activities. Potable water is available at Building 1768. However, the installation of a new distribution line or the installation of a water storage tank and associated distribution pump may be required. Potable water is available at Building 1801; however, additional water lines (upgrades) may be required. If new or modified potable water distribution lines are required, the Civil Engineering Utilities Shop would be contacted for guidance.

Any potential increase in water use resulting from the nominal increase in personnel required for preparation and operational activities would be minimal and would not substantially increase demand on available base water supply.

Wastewater

A septic tank and leach field are available at Building 1768, but they may require some upgrades for the facility to be used for the Proposed Action. Some re-grade (for proper storm drainage) may be required in the area outside of the existing fence at Buildings 1768 and 1801 if an additional parking area is constructed. A septic tank and leach field would need to be

installed at Building 1801. If new or modified sewer, leach field or septic system service is required, the Civil Engineering Utilities Shop would be contacted for guidance. Wastewaters that result from rainfall episodes, pad/equipment washdowns, hazardous chemical spills, or other wastewater producing processes would be anticipated, captured and contained for waste disposition.

Any potential increase in wastewater resulting from the nominal increase in personnel required for preparation and operational activities would be minimal and would not substantially increase demand on available sewer service.

Solid Waste

The potential increase in solid waste generated from the nominal increase in personnel required for preparation and operational activities would be minimal (nonhazardous materials removed during renovation of facilities, general office type waste) and would not substantially increase demand on the capacity of the Vandenberg AFB landfill.

Electricity

Overhead power would be supplied from the Vandenberg AFB main substation to the LFs. Compliant diesel generators would be used as a backup power source at each LF and support facility so secondary distribution lines would not be required. Area lighting, telephone communications, warning lights, and a public address system would also be installed at the sites.

Commercial power is available at Buildings 1768 and 1801. A 1.5-MW diesel generator would be required for backup power if one or both of these buildings were used for the Proposed Action. The construction of new pole-mounted and facility-mounted exterior lighting may be required at Buildings 1768 or 1801.

If required at Building 1900 or Building 1819, exterior lighting, a 500-kW diesel generator (for use as a backup electrical power source), and associated aboveground storage tank would be installed. No adverse impacts to the affected environment are expected, and any potential disruption to existing base electricity or communication systems would be short term. The electrical requirements for the Proposed Action are within base capacity.

Cumulative Impacts

Any potential increase in the demand for infrastructure resulting from the nominal increase in personnel required for preparation and operational activities would be minimal. No adverse impacts to the affected environment from the Proposed Action are expected. No other projects, programs, or activities have been identified that, together with the Proposed Action, would have the potential for cumulative impacts on infrastructure and transportation in the ROI.

4.1.8 LAND USE

This section addresses the potential impacts to land use due to site preparation activities.

Site preparation of existing Vandenberg AFB facilities for the GMD IDOC program would not alter the overall land use and management of the base. Similarly, since the program would use existing facilities on a military installation already used for launching missiles, no adverse direct or indirect visual impacts would occur. The potential for future dual target launches from LF-03 and LF-06 was addressed in the GMD ETR EIS. If LF-03 is selected for use as a GMD IDOC GBI facility, additional studies would need to be conducted to obtain the use of an additional silo on Vandenberg AFB for dual target launches.

A Coastal Zone Consistency Determination, stating that the Proposed Action is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program, was approved by the California Coastal Commission. The GMD IDOC program would comply with federal Coastal Zone Consistency Regulations (15 CFR Part 930) and the California CZM Program and Plan. No public access to parks, popular visitor destination points, and recreation areas, including water-oriented recreational activities would be restricted by this program. Thus no adverse impacts to on-base land use, recreation, or commercial and sport fishing are anticipated.

Cumulative Impacts

Since the proposed activities would (1) be compatible with existing Vandenberg AFB land use plans and policies, (2) primarily use existing facilities, and (3) must be scheduled and approved by 30 SW/SE, the possibility of adverse, incremental cumulative land use impacts on Vandenberg AFB would be avoided. Construction and facility modification occur regularly on Vandenberg AFB. Cumulative impacts could occur to land use if all the activities occurred at the same place and same time. However, these activities occur at different times and are generally located on different areas of the base, which decreases the potential for cumulative impacts. Since specific needs for dual ETR target launches have not been identified, the potential for cumulative mission impacts is unknown.

4.1.9 NOISE

Noise impact criteria are based partly on land use compatibility guidelines and partly on factors relating to the duration and magnitude of noise level changes. Noise impacts include those that substantially increase the ambient noise levels for areas with noise sensitive uses. There are two areas of concern for the Proposed Action: noise effects on the local populace and on site preparation personnel.

Noise from site preparation, including silo and building modifications, would comply with the Occupational Safety and Health Act, the U.S. Air Force Occupational Safety and Health regulations, the U.S. Army Corps of Engineers *Safety and Health Requirements Manual (EM 385-1-1)*, Range Safety requirements, and other recognized standards for operations that involve construction or facility modifications. Restricted public access to the proposed project site would be ensured through use of signs and fencing. This, and the fact that the proposed sites are well within the boundaries of Vandenberg AFB, eliminates any concerns about noise exposure to the

local public outside the base who would be too far removed. A health and safety plan, requiring the use of hearing protection when appropriate, would be prepared by the contractor and submitted to the base to ensure the health and safety of onsite workers.

Cumulative Impacts

Noise from the Proposed Action would not result in public noise exposure. Personnel would be protected by enforcement of existing DoD and OSHA regulations. Therefore, the Proposed Action, when combined with current and planned mission activities on Vandenberg AFB, would not be expected to result in cumulative noise impacts.

4.1.10 SOCIOECONOMICS

This section addresses the potential impacts to socioeconomics due to IDOC activities.

Site preparation activities related to the GMD IDOC program would not cause any displacement of populations, residences, or businesses within Santa Barbara County. The accommodations for GMD IDOC security personnel would be provided through housing on Vandenberg AFB. There is currently excess housing available and therefore no impact would be expected. The accommodations for other GMD IDOC personnel would be provided by local hotels and similar facilities. Given the extent of available facilities in the Vandenberg AFB area, this is not considered a potentially significant impact.

By spending money in the local economy, mainly via accommodation and procurement of goods and services, the additional GMD IDOC personnel would represent both a potential increase in local service-based employment opportunities and a small but positive temporary economic impact to the local community. The overall impact would however be slight and would not cause any population growth.

Cumulative Impacts

The addition of the GMD IDOC program to the identified ongoing and future programs in the ROI should result in a positive cumulative socioeconomic impact.

4.1.11 WATER RESOURCES

This section addresses the potential impacts to water resources due to IDOC activities.

No LFs or support facilities are located within any floodplain or tidal flood hazard area. Site preparation would not include any withdrawal of or discharge to groundwater. Communications cables would be installed in existing cables attached to the bridges at San Antonio Creek and Shuman Creek. Site preparation and operational activities would follow spill prevention, containment, and control measures and thus would minimize any potential impacts to surface water.

Because the cumulative area disturbed by the Proposed Action would be greater than 0.4 hectare (1 acre), a National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity would apply. The program would

submit a Notice of Intent to comply with this State General Permit for construction activities to the Regional Water Quality Control Board. A Stormwater Pollution Prevention Plan would be developed by the GMD IDOC program in coordination with 30 SW and submitted for review to 30 CES/CEVC to satisfy the requirements of the National Pollutant Discharge Elimination System. During site preparation and construction activities, stormwater BMPs (erosion inhibiting) would be implemented during and after construction and grading. Long term BMPs would be installed to offset stormwater pollution during the GMD IDOC operating phase.

The Vandenberg AFB Spill Prevention Control and Countermeasure Plan (30 SW Plan 32-4002C) would provide resources and guidelines for use in the control, cleanup, and emergency response for spills of hazardous material or waste. In the event that the release of hazardous material or waste would occur, affected areas would be treated in accordance with applicable federal, state, and local regulations. Therefore, the risk of accidental spills of hazardous chemicals during project site preparation affecting ground or surface water is expected to be minor and temporary in duration.

Cumulative Impacts

The proposed site preparation activities when combined with the current activities planned at Vandenberg AFB would not have any adverse effects on water resources. No other future programs have been identified that when combined with the Proposed Action would contribute to cumulative water resources impacts. All construction and actions would be completed in accordance with state and federal water resource regulations.

4.2 CUMULATIVE IMPACTS

The potential for cumulative impacts from GMD IDOC activities when combined with past, existing, and proposed activities on Vandenberg AFB (Minuteman and Peacekeeper launches, current alternate booster test activities, ongoing construction and renovation projects, GMD ETR site preparation and launches) is not expected to be substantial as described below.

No exceedance of air quality standards or health-based standards of non-criteria pollutants is anticipated. The emissions from the Proposed Action when added to existing and proposed actions on Vandenberg AFB and within the South Central Coast Air Basin would not result in cumulative impacts to the region's air quality. Air quality impacts from similar prior Vandenberg AFB site preparation activities, such as those examined in the 1999 Booster Verification Tests EA, the 2002 ABV Verification Tests EA, and the 2000 Final EA for Installation of the Lion's Head Fiber Optic Cable System, were determined to be insignificant.

The potential for cumulative impacts to biological resources from IDOC activities when combined with past, existing, and proposed activities on Vandenberg AFB would not be substantial. The proposed GMD IDOC would use areas previously developed for booster testing and GMD use (LFs and IDT site), thus minimizing to a degree the need for ground disturbance. The combined activities would also occur on different locations on the base and at different times. No cumulative impacts to biological resources are expected as a result of fuel and oxidizer transport or filling operations. The operation of backup generators at each LF and support facility could result in minor cumulative noise impacts (displacement) to wildlife in the

vicinity. Therefore, no significant cumulative impacts to biological resources are anticipated from the proposed GMD IDOC program when combined with other current and planned activities on Vandenberg AFB.

The proposed cable installation would not impact any known, intact archaeological deposits. Cable trenching operations would be restricted to previously disturbed road shoulders and existing utility corridors. The GMD Joint Program Office would be responsible for implementation of any required avoidance of cultural resources or mitigation measures assigned to this project as a condition of approval for this activity by Vandenberg AFB. Site preparation when combined with current missions on Vandenberg AFB is therefore not anticipated to result in cumulative impacts to cultural resources.

Adherence to established procedures and implementation of required BMPs would minimize the potential for spills and other impacts to soils. Preparation of the LFs and support facilities for the proposed activities would not result in cumulative impacts to geology and soils.

Adherence to the hazardous materials and waste management systems on Vandenberg AFB should preclude the potential accumulation of hazardous materials or waste. Thus, the Proposed Action is not expected to result in cumulative hazardous materials and hazardous waste impacts.

Adherence to the safety systems on Vandenberg AFB should preclude any impacts to worker or public health and the environment as a result of the Proposed Action. Thus, the Proposed Action, when added to the typical activities conducted each year at Vandenberg AFB, is not expected to result in cumulative health and safety impacts.

Any potential increase in the demand for infrastructure resulting from the nominal increase in personnel required for preparation and operational activities would be minimal. No adverse impacts to the affected environment from the Proposed Action are expected. No other projects, programs, or activities have been identified that, together with the Proposed Action, would have the potential for cumulative impacts on infrastructure and transportation in the ROI.

Construction and facility modification occur regularly on Vandenberg AFB. Cumulative impacts could occur to land use if all the activities occurred at the same place and same time. However, these activities occur at different times and are generally located on different areas of the base, which decreases the potential for cumulative impacts. The proposed activities would be using existing facilities approved by Vandenberg AFB; thus the possibility of adverse, incremental cumulative land use impacts on Vandenberg AFB should be avoided. Since specific needs for dual ETR target launches have not been identified, the potential for cumulative mission impacts is unknown.

Noise from the Proposed Action would not result in public noise exposure. Personnel would be protected by enforcement of existing DoD and OSHA regulations. Therefore, the Proposed Action, when combined with current and planned mission activities on Vandenberg AFB, would not be expected to result in cumulative noise impacts.

The addition of the GMD IDOC program to the identified ongoing and future programs in the ROI should result in a positive cumulative socioeconomic impact.

The proposed site preparation activities, when combined with the typical construction and renovation activities each year at Vandenberg AFB, should not have any adverse effects on water resources. No other future programs have been identified that, when combined with the Proposed Action, would contribute to cumulative water resources impacts.

4.3 ENVIRONMENTAL EFFECTS OF THE NO-ACTION ALTERNATIVE

If the No-action Alternative is selected, no environmental consequences associated with the GMD IDOC program could occur. Vandenberg AFB would continue to launch missiles as analyzed in prior EAs such as the Theater Ballistic Missile Targets Programmatic EA (U.S. Department of the Air Force, 1997), the Booster Verification Tests EA (U.S. Department of the Air Force, 1999, and the Alternate Boost Vehicle Verification Tests EA (U.S. Army Space and Missile Defense Command, 2002a). GMD ETR test activities, including those activities analyzed in the July 2003 GMD ETR EIS (Missile Defense Agency, 2003), would continue.

4.4 ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

In general, most known effects resulting from implementation of the GMD IDOC program would be minimized through project planning and design measures, consultation with the appropriate agency, and use of BMP. As a result, most potential adverse effects would be avoided, and those that could not be avoided would not result in a significant impact to the environment.

During construction/modification, there would be disturbance to wildlife and the loss of vegetation; however, no long-term impacts to vegetation or wildlife would be expected. Consultation with the appropriate agency would assist in developing mitigation measures to minimize the potential impacts to wetlands. Some short-term construction-related impacts to air quality, soils, and water resources may occur. However, once construction is complete, no long-term impacts would be expected. A Coastal Zone Consistency Determination, stating that the Proposed Action is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program, was approved by the California Coastal Commission. Any hazardous waste generated would be managed in compliance with the Resource Conservation Recovery Act and other applicable federal, state, and local regulations. No adverse impacts would be expected from normal long-term operations.

Impacts from the proposed new fiber optic cable line routes would occur during the construction phase. During this phase there would be temporary disturbance to the immediate area around the fiber optic cable line; however, once the cable is installed, there would be no long-term impacts.

4.5 CONFLICTS WITH FEDERAL, STATE, AND LOCAL LAND USE PLANS, POLICIES, AND CONTROLS FOR THE AREA CONCERNED

All of the proposed program activities would take place at existing suppliers and locations. These activities would not alter the uses of the sites, which were in the past or currently are used to support missile and rocket testing. The proposed activities are compatible with the mission and land uses on Vandenberg AFB. There are no known conflicts with land use plans, policies, and controls at Vandenberg AFB.

4.6 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL

Anticipated energy requirements of the GMD IDOC program would be well within the energy supply capacity of the Base. Energy requirements would be subject to any established energy conservation practices.

4.7 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

The Proposed Action would result in no loss of or impact on threatened or endangered species, and no planned impact to cultural resources, such as archaeological or historic sites. Moreover, there would be no changes in land use or preclusion of development of underground mineral resources that were not already constrained.

The amount of materials required for any program-related activities and energy used during the project would be small. Although the proposed activities would result in some irreversible or irretrievable commitment of resources, such as various metallic materials, minerals, and labor, this commitment of resources is not substantially different from that necessary for many other defense research and development programs carried out over the past several years. Proposed activities would not commit natural resources in significant quantities and would not irreversibly curtail the range of potential uses of the environment.

4.8 RELATIONSHIP BETWEEN SHORT-TERM USE OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Proposed GMD IDOC activities would occur on an existing military facility that is dedicated to supporting the DoD. Proposed GMD IDOC activities would take advantage of existing facilities and infrastructure to the extent practicable. The uses of the proposed sites, which were or are to support missile and rocket launches, would not be altered. No undeveloped land on this installation would be used for construction of GMD IDOC facilities and thus the proposed activities would not result in a reduction of available area in California. All of the proposed construction/modification activities would occur in areas that have already been developed for military activities and therefore would not result in the loss of any sensitive environmental resource areas. All proposed fiber optic cable line would be installed on the base. Once the

construction/modification of facilities is completed and fiber optic cable line is installed, no impacts to the long-term productivity of the environment would be anticipated. Therefore, the Proposed Action does not eliminate any options for future use of the environment for the locations under consideration.

4.9 NATURAL OR DEPLETABLE RESOURCE REQUIREMENTS AND CONSERVATION POTENTIAL

Other than various structural materials and fuels, the GMD IDOC program would require no significant natural or depletable resources.

4.10 FEDERAL ACTIONS TO ADDRESS PROTECTION OF CHILDREN FROM ENVIRONMENTAL HEALTH RISKS AND SAFETY RISKS (EXECUTIVE ORDER 13045)

This EA has not identified any environmental health and safety risks that may disproportionately affect children, in compliance with Executive Order 13045.

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REFERENCES

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Asia Pacific Space Launch Centre EIS Site, 2002. "Nitrogen Tetroxide" [Online]. Available: http://homepage.powerup.com.au/~draymond/space/n2o4.htm [21 August 2002].

Boeing, 2003. Vandenberg Air Force Base Trip Report, 22 April-24 April.

California Air Resources Board, 2000. "Final Recommended Area Designations for the Federal Eight-Hour Ozone Standard Staff Report (Approved 23 March 2000)," [Online]. Available: http://www.arb.ca.gov/desig/8-houroz/8hrozrpt.pdf [14 May 2003].

California Air Resources Board, 2002a. "State and Local Air Monitoring Network Plan," Updated 20 September 2002 [Online]. Available: http://www.arb.ca.gov/Aqd/namslams/namslams.htm [14 May 2003].

California Air Resources Board, 2002b. "Area Designations (Activities and Maps)," Updated 1 August 2002 [Online]. Available: http:// www.arb.ca.gov/desig/desig.htm [14 May 2003].

Center for Disease Control and Prevention, 2002a. "International Chemical Safety Cards: Methyl Hydrazine," *National Institute for Occupational Safety and Health (NIOSH) Homepage* [Online]. Available: http://www.cdc.gov/niosh/ipcsneng/neng0180.html [9 August 2002].

Center for Disease Control and Prevention, 2002b. "NIOSH Pocket Guide to Chemical Hazards: Hydrazine," *National Institute for Occupational Safety and Health (NIOSH) Homepage* [Online]. Available: http://www.cdc.gov/niosh/npg/npgd0329.html [9 August 2002].

County of Santa Barbara, 2003. "Special Projects: Santa Barbara County Redistricting – Census Data," *Office of the County Administrator Home Page* [Online]. Available: http://www.countyofsb.org/cao/specialprojects/redistricting/censusdata.htm [20 May].

Cowan, J., 1994. *Handbook of Environmental Acoustics*, Van Nostrand Reinhold: New York.

Cumulus Media, Inc., 1999. "Cumulus Enters California, Oregon Markets: Acquisitions Add 9 Stations in 3 Markets for $51 Million," *Cumulus News Home Page* [Online]. Available: http://www.cumulus.com/cc_050.html [20 December].

Friends of the Sea Otter, 2002. "Current Range of the Sea Otter in California," *Sea Otter Information: Otter Range Maps Homepage* [Online]. Available: http://www.seaotters.org/Otters/index.cfm?DocID=34 [22 March].

Gipson, C., 2003a. Personal communication between Connie Gipson, Environmental Engineer, Earth Tech, Inc., and Chad Cole, Environmental and Engineering Group, Teledyne Solutions, Inc., regarding photographs of Vandenberg Air Force Base Facilities, Buildings 1768, 1801, and 1819, 28 April.

Gipson, C., 2003b. Personal communication between Connie Gipson, Environmental Engineer, Earth Tech, Inc., and Chad Cole, Environmental and Engineering Group, Teledyne Solutions, Inc., regarding photographs of Vandenberg Air Force Base Facilities, Buildings 1871, 1900, and 1959, 28 April.

Gipson, C., 2003c. Personal communication between Connie Gipson, Environmental Engineer, Earth Tech, Inc., and Rachel Jordan and Wes Norris, EDAW, Inc., regarding fiber-optic cable diagrams (VAFB IDO FOC Routes and Building 6819 Fiber Route) provided by Eddie Ybarra, 30 SCS/SCXY, Vandenberg Air Force Base, 8 August.

Jumping Frog Research Institute, 2001. "Critical Habitat Designated for California Red-Legged Frog," *In the News* [Online]. Available: http://jumpingfrog.org/HTML/news/03_06_01_fws.html [6 March].

Larkin, 1996. *Effects of Military Noise on Wildlife: A Literature Review,* January.

Missile Defense Agency, 2003. *Ground-Based Missile Defense Extended Test Range Draft Environmental Impact Statement,* January.

Point Reyes Bird Observatory, 1999. *Population Monitoring of Seabirds at Vandenberg Air Force Base*. Dan Robinette and J. Sydeman, Stinson Beach, California.

Right-to-Know Network, 1999. *"*Environmental Protection Agency Risk Management Plan, 5113 California Executive Summary Vandenberg Air Force Base, CA*", California EPA Risk Management Plans Search Homepage,* [Online]. Available: http://d1.rtk.net/rmp/CA.php, [21 June].

Rohr, J., 2002. Personal communication between James Rohr, Customer Support Manager, 30 SW/XPR, Vandenberg Air Force Base, and James E. Zielinski, EDAW, Inc., concerning utilities supply and demand for Vandenberg Air Force Base, 1 August.

Rush, P., 2002. Personal communication between Pernell W. Rush, Technical Sergeant, Water Utilities/Water Treatment NCO, USAF 30th CES/CEOIU, Vandenberg Air Force Base, and James E. Zielinski, EDAW, Inc., concerning utilities supply and demand for Vandenberg Air Force Base, 3 July.

Savinsky, D., 2003. Comments received by EDAW, Inc., from Dave Savinsky, Environmental Consultant, 30 CES/CEVC, Vandenberg Air Force Base, on the *Preliminary Draft Ground-Based Midcourse Defense (GMD) Initial Defensive Operations Capability (IDOC) at Vandenberg Air Force Base* (23 May 2003), 5 June.

University of California, Santa Barbara, Department of Electrical and Computer Engineering, 2002. "Alternatives to Tajiguas? 'No easy answers' yet," *Center for Control Engineering and Computation Homepage,* [Online]. Available: http://www-ccec.ece.ucsb.edu/people/dan/tajnews7.html [October].

U.S. Army Space and Missile Defense Command, 2002a. *Alternate Boost Vehicle (ABV) Verification Tests Environmental Assessment*, 14 August.

U.S. Army Space and Missile Defense Command, 2002b. *Liquid Propellant Missile (LPM) Site Preparation and Launch Environmental Assessment*, 25 July.

U.S. Army Space and Strategic Defense Command, 1994. *Theater Missile Defense Extended Test Range Environmental Impact Statement*, November.

U.S. Census Bureau, 2003a. "Table DP-1. Profile of General Demographic Characteristics: 2000; Geographic Area: Santa Barbara County, California," *CenStats Databases Home Page* [Online]. Available: http://censtats.census.gov/data/CA/05006083.pdf [21 May].

U.S. Census Bureau, 2003b. "Table DP-3. Profile of Selected Economic Characteristics: 2000; Geographic Area: Santa Barbara County, California," *CenStats Databases Home Page* [Online]. Available: http://censtats.census.gov/data/CA/05006083.pdf [21 May].

U.S. Department of the Air Force, 1991. *Final Environmental Assessment for the Atlas II Program,* Vandenberg AFB, California, August.

U.S. Department of the Air Force, 1997. *Theater Ballistic Missile Targets Programmatic Environmental Assessment,* Vandenberg Air Force Base, California, December.

U.S. Department of the Air Force, 1998. *Final Environmental Impact Statement Evolved Expendable Launch Vehicle Program*, April.

U.S. Department of the Air Force, 1999. *Environmental Assessment for Booster Verification Test, Vandenberg AFB,* California, March.

U.S. Department of the Air Force, 2000. *Final Environmental Assessment for Installation of the Lion's Head Fiber-Optic Cable System,* Vandenberg Air Force Base, California, 23 February.

U.S. Environmental Protection Agency, 2001. "50 CFR Part 17, Endangered and Threatened Wildlife and Plants; Final Rule for Endangered Status for Four Plants From South Central Coastal California," *EPA's Federal Register Homepage* [Online]. Available: http://www.epa.gov/fedrgstr/EPA-SPECIES/2000/March/Day-20/e6835.htm [May].

U.S. Fish and Wildlife Service, 2001. "Regional News and Recovery Updates," *Endangered Species Program Homepage* [Online]. Available: http://endangered.fws.gov/esb/97/jannews.html [14 June].

U.S. Fish and Wildlife Service, 2003. "Mountain Plover," *Mountain-Prairie Region Endangered Species Program, Mountain Plover Home Page* [Online]. Available: http://mountain-prairie.fws.gov/mtnplover/ [23 June].

Vandenberg Air Force Base, 2000. *Hazardous Waste Management Plan*, *Vandenberg AFB, California*, 15 November.

Vandenberg Air Force Base, 2001. *Ground-Based Midcourse Defense Element Live Fire Test and Evaluation (LFT&E) Targets Environmental Assessment*, October.

Vandenberg Air Force Base, 2002a. "Vandenberg Air Force Base History," *30th Space Wing Homepage* [Online]. Available: http://www.vandenberg.af.mil/30sw/history/index.html [no date].

Vandenberg Air Force Base, 2002b. *Hazardous Waste Management Plan, 30 SW Plan 32-7043-A, Change 1,* 15 April.

Vandenberg Air Force Base, 2003. Comments received by EDAW, Inc., from 30 CES/CEVP, Vandenberg Air Force Base, on the *Coordinating Draft Ground-Based Midcourse Defense (GMD) Initial Defensive Operations Capability (IDOC) at Vandenberg Air Force Base* (27 June 2003) regarding biological resources, 24 July.

Vandenberg Air Force Base, 30th Civil Engineer Squadron (CES/CEVPP), 1999. *Environmental Assessment for the General Plan for the Cantonment Area at Vandenberg Air Force Base, California*, October.

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6.0 LIST OF PREPARERS

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7.0
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7.0 AGENCIES AND INDIVIDUALS CONTACTED

California Coastal Commission

California State Historic Preservation Officer

HQ Air Force Space Command
CEVC, CEVV

Missile Defense Agency
GC, TERC

National Marine Fisheries Service, Southwest Region, Long Beach, CA

U.S. Fish and Wildlife Service, Ventura Field Office

Vandenberg Air Force Base
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APPENDIX A
DISTRIBUTION LIST

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Vandenberg AFB
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APPENDIX B
CORRESPONDENCE

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
GROUND-BASED MIDCOURSE DEFENSE
JOINT PROGRAM OFFICE
P.O. Box 1500
Huntsville, AL 35807-3801

GMW

JUN 26 2003

California Coastal Commission
ATTN: Mr. Mark Delaplaine
45 Fremont Street, Suite 1900
San Francisco, CA 94105-2219

Dear Mr. Delaplaine:

In compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality regulations implementing NEPA, the Missile Defense Agency is having an Environmental Assessment (EA) prepared to support developing a Ground-Based Midcourse Defense (GMD) initial defensive operations capability (IDOC) at Vandenberg Air Force Base (AFB), California.

The Missile Defense Agency is responsible for developing the GMD element, which is designed to intercept and destroy long-range ballistic missiles during the midcourse (ballistic) phase of their flight using ground-based interceptors (GBIs), before the ballistic missile's reentry into the earth's atmosphere. The President directed the Department of Defense to field a set of initial missile defense capabilities that would begin operation on September 30, 2004. This GMD IDOC EA analyzes the environmental effects of establishing such capabilities at Vandenberg AFB.

The defensive capabilities would be achieved by the renovation/modification and use of several existing silos and other facilities at Vandenberg AFB. Several of these facilities may require modifications and the installation of additional infrastructure (i.e., security fencing, lighting, communications lines, etc.). The program would require construction of new parking areas and potentially new warehouse/storage facilities. The GMD IDOC program is an operational and not a testing program. Launches would only occur in an emergency as an initial defense against a limited long-range ballistic missile attack.

Three missile silos would be in an operational state at Vandenberg AFB with GBIs installed, ready to defend the United States against a limited strategic ballistic missile attack. One silo would function as both an operational silo and a test launch silo (as analyzed in the GMD Extended Test Range Environmental Impact Statement). This dual-use capability would enable the GMD program to use the silo, on occasion, for test launches. At all other

times, the dual-use silo would be in an operational state. This would provide for the placement of a fourth GBI at Vandenberg in defense of the United States against a limited strategic ballistic missile attack.

The Coordinating Draft EA is being distributed to various agencies, including your office, for review and comment prior to preparing the Final EA for public review. The proposed site modification activities are not expected to affect sensitive marine mammals in adjacent offshore areas due to the distance from the closest silo (approximately 731.5 meters [2,400 feet]).

Please review this information and provide comments no later than 28 July 2003 to Commander, U.S. Army Space and Missile Defense Command, Attention: SMDC-EN-V (Ms. Vanessa Turner), P.O. Box 1500, Huntsville, AL 35807-3801, by data facsimile (256) 955-5074, or via E-mail to Vanessa.Turner@smdc.army.mil.

If you have any questions or comments, please contact Ms. Vanessa Turner, SMDC, at (256) 955-5971.

Sincerely,

STEVE DAVIS
Colonel, U.S. Army
Director, Site Activation World Wide
Ground-Based Midcourse Defense

Enclosures

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
GROUND-BASED MIDCOURSE DEFENSE
JOINT PROGRAM OFFICE
P.O. Box 1500
Huntsville, AL 35807-3801

GMW

JUN 26 2003

Rodney McInnis, Acting Regional Administrator
National Marine Fisheries Service
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802-4213

Dear Mr. McInnis:

In compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality regulations implementing NEPA, the Missile Defense Agency is having an Environmental Assessment (EA) prepared to support developing a Ground-Based Midcourse Defense (GMD) initial defensive operations capability (IDOC) at Vandenberg Air Force Base (AFB), California.

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JUN 26 2003

Ms. Diane Noda
U.S. Fish and Wildlife Service
Ventura Field Office,
2493 Portola Road, Suite B
Ventura, CA 93003

Dear Ms. Noda:

In compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality regulations implementing NEPA, the Missile Defense Agency is having an Environmental Assessment (EA) prepared to support developing a Ground-Based Midcourse Defense (GMD) initial defensive operations capability (IDOC) at Vandenberg Air Force Base (AFB), California.

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Sincerely,

STEVE DAVIS
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APPENDIX C
AIR CONFORMITY ANALYSIS

APPENDIX C
AIR CONFORMITY ANALYSIS

The Clean Air Act, as amended in 1990, specifies in Section 176(a) that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way, or provide financial assistance for, license or permit, or approve, any activity which does not conform to an implementation plan after it has been approved or promulgated under Section 110 of this title. Conformity is defined in Section 176(c) of the Clean Air Act as conformity to the State Implementation Plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards and achieving expeditious attainment of such standards. These activities would not:

- Cause or contribute to any new violation of any standard in any area
- Increase the frequency or severity of any existing violation of any standard in any area
- Delay timely attainment of any standard or any required interim emission reduction or other milestones in any area

Air quality in the area of Vandenberg Air Force Base (AFB) is under the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD). Santa Barbara has previously been classified as being in serious non-attainment with respect to federal ozone standards. However, as of 8 August 2003, the U.S. Environmental Protection Agency declared that Santa Barbara County is currently in maintenance attainment for the federal 1-hour ozone standard. Even though Santa Barbara County is also in non-attainment with respect to California Ambient Air Quality Standards for ozone and particulate matter under 10 microns in diameter (PM-10), a conformity review is applicable to federal air quality standards only.

Potential emissions are less than the federal *de minimis* (minimal) levels established in 40 Code of Federal Regulations (CFR) 51.853(b)(1). Additionally, maximum daily reactive organic gases and oxides of nitrogen levels are less than 10 percent of the SBCAPCD budget planning values.

No federal *de minimis* levels have been established for state non-attainment areas. However, potential emissions are less than the federal *de minimis* level for moderate federal PM-10 non-attainment.

Technical assumptions used in analysis for communication cable installation at Vandenberg AFB for Initial Defensive Operations capability (IDOC) are based upon assumptions used in the Installation of the Lion's Head Fiber Optic Cable System Environmental Assessment (EA), as specifics of the Proposed Action are still being defined. Table C-1 lists hours of operation, duration of project, and vehicle miles traveled for the Lion's Head Fiber Optic Cable System EA and the estimated values for the IDOC Communication Cable Installation.

Table C-1: Lion's Head Fiber Optic Cable System EA Assumptions and Estimated Values for the IDOC Communication Cable Installation

Lion's Head Fiber Optic Cable System	IDOC Communication Cable Installation
Project duration: 3 months	Project duration: 3 months
Construction Equipment	**Construction Equipment**
1 plow and ripper	3 plows and rippers
1 rockwheel (powered by plow)	3 rockwheels (powered by plow)
1 backhoe	3 backhoes
1 trencher	3 trenchers
1 plate compactor	3 plate compactors
Total hours: 1,920	Total hours: 5,760
Light Duty Mobile Sources	**Light Duty Mobile Sources**
2 light duty truck	6 light duty trucks
8 passenger vehicles	26 passenger vehicles
Heavy Duty Mobile Sources	**Heavy Duty Mobile Sources**
1 water truck	3 water trucks
1 dump truck	3 dump trucks
1 flatbed truck and trailer	3 flatbed trucks and trailers
1 concrete truck	3 concrete trucks
Total vehicle kilometers (miles) traveled: 29,740 (18,312)	Total vehicle kilometers (miles) traveled: 92,271 (57,336)

Additional construction required for IDOC would include some level of modifications and site preparation of existing buildings and facilities at Vandenberg AFB. The duration of construction of this portion of the project would last approximately 5 months and require 150 workers. Table C-2 lists the number and type of construction equipment that would be required.

IDOC Communication Cable Installation

The following technical assumptions were used to calculate emissions and determine the applicability of conformity to the propose installation of the IDOC communication cable.

- Installation scope
  - Installation period estimated at 3 months
  - Installation work force is estimated at 26 persons
  - Project installation includes the following:
    - Approximately 20,000 meters (65,617 feet) of fiber optic cable
    - Approximately 26 manholes

Table C-2: Construction Equipment

Construction Equipment	Number
Dozer	2
Roller compactor	2
Paver	2
Dump truck	3
Excavator	3
Cement truck	7
Pick-up truck	8
Forklift	3
Utility truck	6
Air compressor, gas	6
Portable generator, gas	4
Crew van	5
Stakebed truck	8
Flatbed tractor trailer	10
Sport utility vehicle	12
Welders	4
Chain trencher	6
Truck 4X4	9
Fuel tank	3
Crane	1
Skid steer loader	3

- Installation activities
  - Cable installed at 349 meters (1,144 feet) per day
  - Excavation depth 0.9 meter (3 feet) maximum
  - No fill dirt required
  - Storage pile of excess dirt will be covered to reduce PM-10

- Installation equipment
  - 3 backhoe
  - 3 trencher
  - 3 plate compactor
  - 3 dump truck
  - 3 water truck
  - 3 flat bed truck and trailer
  - 3 plows with rippers (powers rocksaw)
  - 3 concrete truck

- Installation staging and laydown area
  - Installation staging areas would be established at endpoint buildings and at locations along the routes. Each installation staging area would be no more than 6.4 kilometers (4 miles) from the construction zone. When combined with on-base mileage, vehicle miles traveled are estimated at 16 kilometers (10 miles) per day.
  - Excavated soil would be used as fill as needed.
  - Storage piles of excavated soils would be covered.

- Landscaping
  - No additional landscaping would be required.

- Mobile source emissions
  - Construction personnel commuting to and from the job site during the construction phase would use eight light-duty, gasoline-powered vehicles.
  - Average commute would be 32 kilometers (20 miles) per day for each person.
  - Mobile source emissions from construction equipment are included in the analysis.

- Other
  - Approximately 20 project work days per month
  - No substantial increase in base activity or population resulting from the cable upgrade

Tables C-3 and C-4 lists anticipated air emissions based upon emission calculations performed in the Lion's Head Fiber Optic Cable System EA.

Table C-3: Cable Installation Emissions

	Emissions				
Activity	**Oxides of Nitrogen metric tons (tons)/project**	**Sulfur Oxide metric tons (tons)/project**	**Hydrogen Chloride metric tons (tons)/project**	**Carbon Monoxide metric tons (tons)/project**	**PM-10 metric tons (tons)/project**
Cable Installation					
Site Preparation	4.38 (4.82)	0.38 (0.41)	0.61 (0.67)	2.80 (3.09)	0.29 (0.32)
Manhole Installation	1.50 (1.66)	0.13 (0.14)	0.20 (0.22)	0.59 (0.65)	0.10 (0.11)
Mobile Sources					
Site Preparation	0.43 (0.47)	-	0.10 (0.11)	0.41 (0.45)	0.30 (0.33)
Work Force	0.35 (0.39)	-	0.08 (0.09)	0.95 (1.05)	0.019 (0.021)
Total Emissions	6.66 (7.34)	0.51 (0.55)	0.99 (1.09)	4.75 (5.24)	0.71 (0.78)

Table C-4: Cable Installation Emissions

Source	Emissions				
	Oxides of Nitrogen kilogram (pound)/day	Sulfur Oxide kilogram (pound)/day	Hydrogen Chloride kilogram (pound)/day	Carbon Monoxide kilogram (pound)/day	PM-10 kilogram (pound)/day
Front End Loader	0.857 (1.890)	0.083 (0.182)	0.132 (0.291)	0.259 (0.572)	0.078 (0.172)
Trencher	0.659 (1.452)	0.060 (0.132)	0.090 (0.198)	0.599 (1.320)	0.045 (0.099)
Concrete Vibrator	0.119 (0.263)	0.010 (0.022)	0.010 (0.022)	0.050 (0.110)	0.005 (0.011)
Plate Compactor	0.073 (0.160)	0.007 (0.016)	0.007 (0.016)	0.025 (0.056)	0.004 (0.008)
Backhoe	2.195 (4.840)	0.200 (0.440)	0.299 (0.660)	1.497 (3.300)	0.010 (0.220)
Crane	2.087 (4.600)	0.181 (0.400)	0.272 (0.600)	0.816 (1.800)	0.136 (0.300)
Dump Truck	0.531 (1.170)	-	0.076 (0.167)	0.312 (0.688)	0.105 (0.232)
Water Truck	0.531 (1.170)	-	0.076 (0.167)	0.312 (0.688)	0.105 (0.232)
Haul Truck	0.531 (1.170)	-	0.076 (0.167)	0.312 (0.688)	0.105 (0.232)
Concrete Truck	1.882 (4.150)	-	0.248 (0.546)	1.028 (2.267)	0.368 (0.812)
Passenger Vehicle	0.431 (0.950)	-	0.454 (1.000)	5.084 (11.209)	0.101 (0.222)
Light Duty Truck	0.024 (0.053)	-	0.0008 (0.0018)	0.200 (0.441)	0.005 (0.011)

PM-10 Emission Estimates

Emissions estimates for PM-10 also include emissions from dirt piling or material handling, from graded surfaces, passenger vehicles on paved road, and trucks on paved roads. Table C-5 lists these estimates.

- **For dirt piling or material handling (pounds per project)**—Emissions were based on mean wind speed (19 kilometers [12 miles] per hour for a daily maximum at Vandenberg AFB), moisture content of ground surface material (2 percent value taken from South Coast Air Quality Management District [SCAQMD] California Environmental Quality Act [CEQA] guidance document), and estimated pounds of dirt handled or stocked in a storage pile daily.
- **From a graded surface (pounds per project)**—Emissions were based on the area disturbed during installation of the fiber optic cable, the average length of cable installed, and a PM-10 emission factor (from the SCAQMD CEQA guidance document).
- **From passenger vehicles on paved roads (pounds per project)**—Emissions were based on 26 site construction works commuting 16 kilometers (10 miles) each day on base and the emission factor for major street/highways (from the SCAQMD CEQA guidance document).
- **From truck travel on paved roads and parking lots (pounds per project**—Emissions were based on an average of four trucks operating during the length of the project with an estimated commute of 16 kilometers (10 miles) and a PM-10 emission factor.

Table C-5: PM-10 Cable Installation Emissions

Activity	PM-1 metric tons (tons) per day	PM-10 metric tons (tons) entire project
Dirt Piling or Material Handling	0.030 (0.033)	1.80 (2.0)
Graded Surfaces	0.002 (0.003)	0.15 (0.17)
Passenger Vehicles	0.00075 (0.00083)	0.04 (0.05)
Trucks	0.022 (0.024)	1.31 (1.44)

IDOC Facility Modification and Site Preparation Construction

Emissions listed in table C-6 are based upon the conservative estimate that all of the equipment listed in table C-2 would be used everyday during the estimated 5 months of construction and emission factors from the SCAQMD CEQA guidance document.

Table C-6: Potential IDOC Construction Emissions

Emissions	7 Months metric tons (tons)
Carbon Monoxide	19.31 (21.29)
Oxides of Nitrogen	18.32 (20.20)
Volatile Organic Compounds	2.16 (2.38)
Oxides of Sulfur	-
PM-10	1.18 (1.30)

Table C-7 lists potential emissions that would be produced as a result of 100 construction worker commuting vehicles commuting daily up to 97 kilometers (60 miles) a day. The values calculated in table C-7 are based upon table C-4.

Table C-7: Commuting Vehicle Emissions

Activity	Carbon Monoxide metric tons (tons)	Volatile Organic Compounds metric tons (tons)	Oxides of Nitrogen metric tons (tons)	Particulate Matter metric tons (tons)
Daily Commuting Vehicle Emissions	0.039 (0.042)	0.0048 (0.0053)	0.023 (0.026)	0.000020 (0.000023)
Project Commuting Vehicle Emissions	6.21 (6.48)	0.77 (0.85)	3.76 (4.14)	0.003 (0.004)

De Minimis Thresholds

The *de minimis* thresholds are federal limits listed in the 40 CFR 51.583(b)(1). If any of the project emissions would exceed these values, a conformity determination is required. Table C-8 defines the *de minimis* thresholds for this project.

As shown in table C-8, total project emissions per year would be less than the federal *de minimis* thresholds. Therefore, the project meets the *de minimis* requirements for non-applicability.

Table C-8: *De Minimis* Threshold and Potential Project Emissions

Criteria Pollutant	*De Minimis* Threshold	Calculated Emissions (per year) metric tons (tons)
Volatile Organic Compound	90.7 metric tons (100 tons) per year in federal maintenance attainment area	2.93 (3.23)
Oxides of Nitrogen	90.7 metric tons (100 tons) per year in federal maintenance attainment area	41.83 (46.11)
Carbon Monoxide	90.7 metric tons (100 tons) per year in all federal attainment areas	30.27 (33.01)
Sulfur Dioxide or Nitrogen Dioxide	90.7 metric tons (100 tons) per year in all federal attainment areas	0.51 (0.55)
PM-10	90.7 metric tons (100 tons) per year in federal attainment area	5.19 (5.74)

Regional Significance

Santa Barbara County's budget planning values are presented as maximum daily emissions. The determination of regional significance is based on the maximum amount of a pollutant emitted in a single day. In this project it is assumed that both aspects of the IDOC construction would occur simultaneously. Table C-9 lists the relationship between the daily budgeted amounts and potential emissions.

Table C-9: Regional Budget and Potential Emissions for Ozone Precursors

Pollutant	Daily Budget metric tons (tons)	10 Percent of Budget metric tons (tons)	Potential Emissions metric tons (tons)	Regionally Significant
Oxides of Nitrogen	37.53 (41.37)	3.753 (4.137)	0.297 (0.328)	No
Reactive Organic Gas	10.80 (11.91)	1.080 (1.191)	0.029 (0.031)	No

Potential project emissions would not amount to 10 percent or more of the SBCAPCD budget planning values for oxides of nitrogen or reactive organic gases. Therefore, this program would not be regionally significant.

In conclusion, the estimated emissions due to the proposed Initial Defensive Operations Capability at Vandenberg AFB would not exceed the *de minimis* thresholds and would not be regionally significant. Therefore, it should be ruled as being exempt from the requirement for a Conformity Determination due to non-applicability as defined 40 CFR 51.853(c)(1) and CFR 51.853(i).