
4.0

ENVIRONMENTAL CONSEQUENCES

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

This section describes the potential environmental consequences of the proposed activities by comparing them with the potentially affected environmental components. Sections 4.1 through 4.6 provide discussions of the potential environmental consequences of these activities. Potential impacts are discussed in terms of construction, operation, and cumulative impacts. The amount of detail presented in each section is proportional to the potential for impacts. Sections 4.7 through 4.15 provide discussions of the following with regard to proposed GBI VOC test site 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 Federal Actions to Protection of Children from Environmental Health Risks and Safety Risks (Executive Order 13045).

4.1 FORT GREELY, ALASKA

As discussed in chapter 2, the Preferred Alternative is to establish the GBI VOC test site at Fort Greely. Proposed activities at Fort Greely include:

- Construction and operation of six GBI silos and corresponding support facilities such as an Interceptor Storage Facility, mancamps, and the Readiness and Control Station
- Repair and interior modification of existing facilities to house managers and test facility operators
- Installation and Operation of an Execution Level BMC2 Node
- Construction and operation of one IDT
- Construction and operation of BMC3 facilities required to support test activities including one DSCS earth terminal with one antenna
- Installation of FOC
- Electricity distribution upgrades
- Solid waste landfill extension, construction debris disposal, and landfill access road
- Repairs to the Allen Army Airfield runway

These activities are analyzed below by applicable resource. Resources that have a potential for impacts were considered in the analysis to provide the decisionmakers with sufficient evidence and analysis for evaluation of potential effects of the action. The GBI silos and support facilities are grouped together as "GBI" for analysis, except for the on post mancamps. Given the retention of previously surplus facilities on Fort Greely, it may not be necessary to construct mancamps. Therefore, the potential impact of constructing and operating onpost mancamps has been separately analyzed to assist the decision maker in determining whether to provide the temporary facilities. The BMC2 node, IDT and DSCS are grouped together as "BMC3" for analysis. Initial analysis indicated that the Proposed Action would not result in short-or long-term impacts to airspace. Under the Proposed Action, there are no requirements for any restricted airspace as a result of the Proposed Action; therefore, there would be no impact to this resource area and it is not analyzed further.

4.1.1 AIR QUALITY

This section addresses potential environmental impacts caused by changes to the air quality environment due to the proposed construction and operation of the GBI VOC test site. Impacts considered include potential effects from ongoing or planned activities at these sites. Potential impacts were determined using the following criteria:

- Operations within attainment areas that could cause a detrimental change in attainment status of the area
- Operations within non-attainment areas that could impede or delay attainment of the NAAQS or state standards
- Increase in ambient air pollutants concentrations that could increase exceedances of the NAAQS or state standards
- Increases in air pollutant concentrations greater than 1 microgram per cubic meter (averaged over 24 hours) from new or modified major stationary sources within 10 kilometers (6 miles) of a Class I area

Construction

GBI and BMC3

If Fort Greely were selected as the site of the Proposed Action, most activities would occur south of the main base cantonment area. Although it is estimated that the proposed GBI, IDT, and DSCS facilities could require up to 162 hectares (400 acres), this also includes ESQD areas that would not result in ground disturbance. This total also includes approximately 54 hectares (134 acres) of land at Fort Greely that was previously disturbed during initial site preparation activities in 2001.

The proposed construction would cause temporary localized increases in air emissions. Emissions associated with construction activities include fugitive dust from ground disturbance, combustion byproducts from construction equipment and vehicles, and emissions from solvents and architectural coatings.

Ground disturbance would generate dust (PM-10) in the immediate vicinity of the construction. The levels of dust generated would change through time depending on the

level of activity, the weather, and the condition of the ground. It is expected that the majority of grading would be accomplished during the first 12 months of construction and that the majority of heavy equipment activities and overall ground disturbance would occur during the first 2 years.

Base-wide PM-10 emissions prior to realignment totaled 320 metric tons (353 tons). According to calculations performed for the NMD Deployment EIS based on clearing 243 hectares (600 acres), approximately 983 metric tons (1,084 tons) of PM-10 would be generated during 2 years of construction. Clearing anticipated for the Proposed Action would fall within this parameter.

Although the construction would cause an increase in air pollutants, the impact would be both temporary and localized. Once construction ceases, air quality would return to its former levels. Construction would be conducted in accordance with applicable regulations and permit requirements. It is anticipated that the proposed construction would not cause exceedances of the NAAQS or state standards beyond the immediate construction zone and would not have a long-term impact to air quality in the area.

Increases in mobile emissions could also cause increases in ambient levels of some pollutants. Pollutants from mobile sources would include hydrocarbons, carbon monoxide, nitrogen oxides, and particle emissions. The primary pollutant of concern from mobile sources in Alaska is carbon monoxide. As such, this is the only pollutant from mobile sources analyzed in the NMD Deployment EIS and this study. Up to 80 percent of carbon monoxide emissions contributing to exceedances of the NAAQS in Fairbanks have been attributed to mobile sources. Cold starts during moderately cold weather, prolonged idling periods, and low-level temperature inversions all contribute to pronounced air quality impacts from motor vehicle emissions in cold climates.

For analytical purposes, it was assumed in the EIS that all personnel would commute individually an average of 40 kilometers (25 miles) one way to and from work at an average speed of 56 kilometers per hour (35 miles per hour). These assumptions are conservative and result in higher emission estimates than would actually be expected. Under these conditions each person would cause the emission of up to 430 kilograms (948 pounds) of carbon monoxide per year. Construction and use of the proposed administrative mancamp and/or use of existing facilities for temporary housing on Fort Greely would result in fewer vehicle trips and consequently substantially lower carbon monoxide emissions. Base emission inventory operations emissions do not include traffic emissions. However, there are allowances for anticipated traffic increases in the area's transportation budget. As such, project-related traffic is not expected to impact air quality.

The implementation of standard dust suppression techniques and a vehicle maintenance program would minimize fugitive dust emissions and vehicle exhaust emissions and would help to maintain the area's current high air quality.

Electricity Distribution Upgrades

A new power transmission line from the Jarvis Creek substation to the Fort Greely test site would require placing 24-meter- (80-foot-) high metal or wood poles that would support three transmission lines along the east or west side of the Richardson Highway. Air emissions for all three potential alternatives would be associated with trenching equipment

and pole emplacement, which would be short-term. Measures such as limiting vehicle trips along the right-of-way and keeping construction equipment onsite rather than driving it out on a daily basis (Bureau of Land Management, 1998) would help to reduce the potential for emissions.

Mancamp

The preferred location of the administrative mancamp is a 14.5-hectare (36-acre) area east of the existing housing area as shown in figure 2-12. However, only a small portion of the site would be cleared, leveled, and graveled. Construction impacts would be similar to those discussed above, on a smaller scale. Impacts would be basically the same for all alternative locations on Fort Greely, although use of Site 3 would require additional construction of access roads.

Solid Waste Landfill Extension/Construction Debris Disposal

No modifications to the Fort Greely burn pit would be required. An alternative for solid waste disposal is to construct a new construction debris landfill and access road in the vicinity of the existing landfill at Fort Greely. Another alternative for disposal of debris and other solid waste would involve placing inert construction debris on top of existing closed cells at the Fort Greely landfill or establishing a sixth cell in the current landfill site. Solid waste could also be transported to the North Star Landfill in Fairbanks.

ADEC solid waste regulations promote cost-effective, environmentally sound solid waste management and ensure that landfills are designed, built, and operated to minimize health and safety threats, pollution, and nuisances.

Disposal of solid waste from the GMD VOC activities would be in accordance with 18 AAC 50 Alaska Air Quality Control regulations, which outline requirements for permits needed to ensure compliance with ambient air quality standards. Adherence to these regulations would minimize the potential for impacts to air quality on Fort Greely.

Allen Army Airfield Repair

Repairing the airfield would include rebuilding a 335-meter (1,100-foot) section of the runway subgrade and repaving the rest of the runway with a 10-centimeter (4-inch) overlay of new asphalt. Although the construction would cause an increase in air pollutants, the impact would be both temporary and localized. Once construction ends, air quality would return to its former levels. Construction would be conducted in accordance with applicable regulations and permits. It is anticipated that the proposed construction would not cause exceedances of the NAAQS or state standards beyond the immediate construction zone and would not have a long-term impact to air quality in the area.

Operations

Potential operational air quality impacts could occur from the use of new or upgraded boilers and power generators, as well as emergency power supplies, vehicular emissions, and normal maintenance-related activities. Fort Greely is currently classified as a major source under the Prevention of Significant Deterioration (PSD) regulations. GMD Joint Program Office, U.S. Army Space and Missile Defense Command, and U.S. Army Alaska intend to apply for minor source reclassification by accepting facility-wide restrictions such

that emissions (with controls and proposed operating restrictions) will be maintained under the 227 metric tons per year (250 tons per year) emission limits for all PSD-regulated pollutants. Fort Greely contains a number of air emission sources, including an existing power plant with a total nominal capacity of approximately 5 MW and a number of smaller sources. Diesel Grade Arctic Fuel is the primary fuel for the existing Fort Greely sources and the GMD VOC test site.

Offsite power sources are planned for use at most proposed locations, with emergency generators supplying backup power. All emission sources at Fort Greely (including GMD VOC emission sources) would be operated under a facility-wide restriction (Synthetic Minor Permit) to maintain the emission of regulated pollutants under the 227 metric tons per year (250 tons per year) PSD threshold.

Normal maintenance activities would result in the emission of relatively minor levels of pollutants, consisting primarily of particulate and volatile organic compound emissions. None of the potential sites have high ambient levels of either of these pollutants. As such, the small amounts of solvents, cleaners, paints, and grit involved in normal maintenance activities would not cause a significant impact to air quality. However, potential emissions from these activities would be accounted for in applicable operating permits, such as a Title V Air Permit. MDA would apply for a separate Title V permit, if required.

GBI and BMC3

The current proposal would require the installation of generators ranging in output from 30 to 1,650 kW at the GBI site. Each generator or boiler would have a dedicated AST ranging in capacity from approximately 1,890 to 34,065 liters (500 to 9,000 gallons). The GMD VOC test site at Fort Greely may also include the installation of two 113,500-liter (30,000-gallon) bulk fuel storage tanks. It is assumed the generators would each be operated up to 250 hours per year (Boeing, 2001). All areas under consideration are in attainment areas and as such no General Conformity Applicability Analysis requirements are anticipated under the Proposed Action. The GMD Joint Program Office will conduct an air quality analysis of the GMD VOC test site facilities proposed at Fort Greely.

Standard day-to-day operations at the MAB or the EKV Assembly and Checkout Facility would add incrementally to the current emission levels. The average number of personnel at the site would be approximately 12 to 15, resulting in a slight potential increase in mobile source emissions. Normal maintenance activities would result in the emission of relatively minor levels of pollutants, consisting primarily of particulate and volatile organic compound emissions. None of the potential sites have high ambient levels of either of these pollutants. As such, the small amounts of solvents, cleaners, paints, and grit involved in normal maintenance activities would not cause a significant impact to air quality. However, potential emissions from these activities would be accounted for in applicable operating permits, such as a site's Title V Air Permit.

The IDT would be powered by an offsite commercial source with a backup 250- to 300-kW emergency generator operated for maintenance cycling and emergency power conditions in accordance with applicable permits. The generator would be fueled through

an AST with a capacity of approximately 3,785 liters (1,000 gallons), also used under applicable permits. The backup generator would be operated for up to 250 hours per year. (Boeing, 2001) The Fort Greely DSCS terminal would operate a series of 16 30 kW microturbine generators with one 34,068-liter (9,000-gallon) AST and one 2,460-liter (650-gallon) day tank to provide emergency or backup power and heat 24 hours per day. No impact to air quality is anticipated from these minimal releases. No adverse impacts to air quality are anticipated from operation of the IDT or DSCS terminal. Impacts to Fort Greely air quality would be the same at all proposed IDT and DSCS terminal location alternatives.

Electricity Distribution Upgrades

Maintenance of the upgraded electricity distribution system is not expected to result in impacts to air quality.

Mancamp

The administrative mancamp would provide office space for approximately 120 personnel and living and dining facilities for 200 personnel. As discussed above, the small amounts of materials involved in normal maintenance activities would not cause a significant impact to air quality. However, potential emissions from these activities would be accounted for in applicable operating permits, such as a site's Title V Air Permit.

Use of the proposed mancamp on Fort Greely would lower the number of vehicle trips and consequently would result in carbon monoxide emissions substantially lower than those indicated in the NMD Deployment EIS.

Solid Waste Landfill Extension/Construction Debris Disposal

Operation of the landfill extension or the new landfill, placing inert construction debris such as concrete rubble on top of the existing closed cells, or transporting debris and solid waste to North Star Landfill would all be in accordance with applicable Federal, state, and local regulations governing landfills, and no air quality impacts are anticipated. Continued use of the existing Fort Greely burn pit to dispose of burnable waste such as paper product and wood would not be expected to generate significant air emissions.

Allen Army Airfield Repair

Repair of the Allen Army Airfield would result in additional air traffic in and out of Fort Greely. This increased air traffic is not expected to exceed the NAAQS or state standards. The airfield is currently used for existing missions and emergency civilian use. No substantial adverse impacts to air quality in the region as a result of past and current airfield operations have been identified.

Cumulative Impacts

One program has been identified that could have a cumulative impact with implementation of the Proposed Action at Fort Greely. This program is the construction of new power lines from the Richardson Highway to the Alascom Microwave site. Emissions from mobile

sources would add cumulatively to emissions from other traffic sources in the area, but these emissions would be temporary and are not anticipated to result in a measurable impact on air quality within the ROI. The implementation of standard dust suppression techniques would minimize the potential for cumulative impacts from fugitive dust. The installation of the power lines would have relatively little impact on air quality and is not a potential source of cumulative impacts. In addition, as noted above, construction and operation of the GBI VOC test site components combined with ongoing base activities would not result in long-term cumulative air quality impacts.

4.1.2 BIOLOGICAL RESOURCES

This section addresses potential impacts to biological resources including vegetation, wildlife, threatened and endangered species, and environmentally sensitive habitat due to the proposed construction and operation of the GBI VOC test site on Fort Greely. Ground disturbance, habitat loss, noise from construction, and an increase in personnel during construction and operation of a GBI VOC test site at Fort Greely could result in impacts to biological resources present in the area.

Construction

GBI and BMC3

Vegetation. The GBI field and BMC3 sub-components would be constructed mainly in areas that have been disturbed by past and present training missions and areas that were cleared in 2001. Most of the vegetation at the proposed sites was burned in a 1999 wildfire. The GBI field and BMC3 sub-components would be sited in areas that were once composed of mixed forest and deciduous/high brush, which represents a small percentage of the total vegetation on Fort Greely. The areas where roads would be upgraded or constructed and FOC laid are also composed of mixed forest and deciduous high brush. No sensitive vegetation species have been identified within the proposed project areas.

Wildlife. There are no designated anadromous streams near the proposed GBI and BMC3 sites that would be impacted. Given the flat terrain and little rainfall in the region, runoff would not disturb any local water bodies. Although there are currently no plans that would affect inland anadromous fish, the National Marine Fisheries Service recommends that cables crossing anadromous streams be directionally bored, with no surface disturbance within 30 meters (100 feet) of ordinary high water on each side of the stream (National Marine Fisheries Service, 1999).

Construction ground disturbance and equipment noise-related impacts could include loss of habitat, displacement of wildlife, increased stress, and disruption of daily/seasonal behavior. Noise rather than the sight of machines appears to cause disturbance to wildlife. Typical noise levels at 15 meters (50 feet) from construction equipment range from 70 to 98 dBA. The combination of increased noise levels and human activity would likely displace some small mammals and birds that forage, feed, nest, or have dens within this 15-meter (50-foot) radius. However, additional similar habitat is adjacent to the area proposed for the GBI VOC test site location. Flushing would slightly increase individual energy expenditure. Some wildlife may leave the area permanently, while others may likely

become accustomed to the increased noise and human presence. The presence of personnel may cause wildlife to avoid the area, at least temporarily, but would therefore potentially reduce the potential for impacts from elevated noise levels. Wildlife in the immediate area (moose, bison, caribou, lynx, and migrating and resident birds such as the olive-sided flycatcher, northern goshawk, and harlequin duck) could be startled by construction noise and possibly avoid or leave the area during construction. Unique or sensitive wildlife habitat associated with the Delta River is located approximately 6 kilometers (4 miles) to the west of the area proposed for use by the program. The disturbance is not expected to alter migration patterns or wildlife corridors.

Threatened and Endangered Species. No Federal or state listed threatened or endangered species have been identified at Fort Greely. Protected bird species and the peregrine falcon, which was recently delisted but will continue to be monitored, migrate through the area during the spring and fall migration periods, and therefore could potentially be disturbed by construction-related noise. However, there have been no confirmed sightings within 16 kilometers (10 miles) of Fort Greely.

Environmentally Sensitive Habitat. Wetlands can be impacted both directly and indirectly. Direct impacts can result from filling, dredging, or flooding. Indirect impacts can be caused by disturbance to adjacent land that results in degradation of water quality from chemical or sedimentary runoff. Construction of the GBI VOC test site is not likely to directly impact wetlands. Indirect disturbance to wetlands would be further minimized by implementing appropriate techniques to control runoff and other BMPs such as stabilizing fill slopes from erosion and the use of hay bales to filter sediment from storm water runoff from construction sites, which would minimize water quality impacts to wetlands that could occur adjacent to the site. Selection of IDT Site 1, the preferred site, would have a lower potential to result in indirect impacts to adjacent wetlands than would selection of IDT Sites 2 or 3, which are closer to identified wetlands.

Electricity Distribution Upgrades

Golden Valley Electric Association has used several measures to minimize the potential for environmental impacts at similar construction projects in the area. These measures, which are discussed below, would also be implemented as applicable along the selected route.

Vegetation. Rights-of-way along existing roads and trails would be used where possible for construction of the transmission line. Clearing streamside vegetation would only be done to the extent necessary to allow access and provide clearance for transmission lines. Selected birch and cedar trees about 6 to 9 meters [20 to 30 feet] tall would be removed when necessary. (Bureau of Land Management, 1998) No sensitive vegetation species have been identified within the proposed project area.

Wildlife. No designated anadromous streams would be impacted. As discussed above, ground disturbance and equipment noise-related impacts could include loss of habitat, displacement of wildlife, increased stress, and disruption of daily/seasonal behavior. The combination of increased noise levels and human activity would likely temporarily displace some small mammals and birds that forage, feed, nest, or have dens within a 15-meter

(50-foot) radius of construction noise sources. However, additional similar habitat is adjacent to the proposed transmission routes. The disturbance is not expected to alter migration patterns or wildlife corridors.

Threatened and Endangered Species. No Federal or state listed threatened or endangered species have been identified at Fort Greely, and there have been no confirmed sightings of protected bird species within 16 kilometers (10 miles) of Fort Greely. No adverse impacts to threatened and endangered species are anticipated.

Environmentally Sensitive Habitat. Except for small areas at pole locations where pilings would be driven, soil would not be disturbed and thus construction would not likely adversely impact wetland functions. Clearing streamside vegetation would only be done to the extent necessary to allow access. Clearing in these areas would be done by hand where possible. Poles would be placed to avoid sensitive habitat as much as possible. (Bureau of Land Management, 1998) Implementing appropriate techniques discussed above would minimize disturbance to wetlands for all three potential alternatives. Activities would comply with any required wetlands permit guidance.

Mancamp

Vegetation. Ground disturbance during construction of the administrative mancamp would result in removal of vegetation within the proposed site. The proposed mancamp locations are all in areas partially composed of mixed forest and deciduous/high brush. No sensitive vegetation species have been identified within the proposed project areas.

Wildlife. The cantonment area at Fort Greely does not provide quality wildlife habitat compared to the surrounding undeveloped areas. Resident wildlife is limited to small rodents, bats, and a variety of songbirds. Impacts to wildlife in the area would be the same as those discussed above. The disturbance is not expected to alter migration patterns or wildlife corridors.

Threatened and Endangered Species. No Federal or state listed threatened or endangered species have been identified at Fort Greely.

Environmentally Sensitive Habitat. Construction of the administrative mancamp is not likely to directly impact wetlands. Implementing appropriate techniques discussed above would minimize disturbance to wetlands. Activities would comply with any required wetlands permits.

Solid Waste Landfill Extension/Construction Debris Disposal

Vegetation. Extension of the landfill and disposal of construction debris would take place in an area already sited and in use as a landfill. Constructing new cells south of the landfill could impact vegetation; however, no sensitive plant species have been identified on Fort Greely. No additional impacts to vegetation are anticipated.

Wildlife. Activities associated with extension of the existing landfill, construction of a new landfill, and disposal of inert construction debris would take place in an area already sited and in use as a landfill or immediately adjacent to the area. No additional impacts to wildlife are anticipated.

Threatened and Endangered Species. No Federal or state listed threatened or endangered species have been identified at Fort Greely.

Environmentally Sensitive Habitat. Activities associated with extension of the landfill and disposal of construction debris are not likely to directly impact wetlands. Implementing appropriate techniques discussed above would minimize disturbance to wetlands. Activities would comply with any required wetlands permits.

Allen Army Airfield Repair

Vegetation. The proposed repair of the Allen Army Airfield would take place in an area previously disturbed during original construction. Vegetation would continue to be maintained by mowing, and no additional impacts to vegetation are anticipated.

Wildlife. The proposed repair of the Allen Army Airfield would take place in an area previously disturbed during original construction and still used as an airfield. No additional impacts to wildlife are anticipated.

Threatened and Endangered Species. No Federal or state listed threatened or endangered species have been identified at Fort Greely.

Environmentally Sensitive Species. No impacts to wetlands are expected.

Operations

GBI and BMC3

Vegetation. No impacts to vegetation are anticipated during operation of the GBI VOC test site and BMC3 sub-components.

Wildlife. During operation, the GBI field would be dormant except for occasional building maintenance activities (painting, building repair, landscaping). Only minor, short-term impacts to wildlife, such as startling, are anticipated as a result of these activities. Security lighting could potentially attract wildlife to the project areas; however, any impacts would be minimal.

During normal operations the IDT would not transmit except for a few minutes during annual testing of the equipment. Given the short duration of transmission, no adverse impacts to biological resources are anticipated from operations.

Most operational impacts to wildlife from the IDT and DSCS terminal would come from security lighting and noise from the electrical generators required for the site. The lighting

and noise could encourage species less tolerant of these disturbances to avoid the area. Generator noise levels expected at the site could range from 80 to 85 dBA at up to 105 meters (344 feet). These noise levels would only occur a couple of hours a week during maintenance activities for backup generators or continuously if no commercial power is available to the site.

Threatened and Endangered Species. No Federal or state listed threatened or endangered species have been identified at Fort Greely. Protected bird species and the recently delisted peregrine falcon migrate through the area during the spring and fall migration periods; however, there have been no confirmed sightings within 16 kilometers (10 miles) of Fort Greely.

Environmentally Sensitive Habitat. No impacts to sensitive habitat are anticipated during operation of the GBI VOC test site and BMC3 sub-components.

Electricity Distribution Upgrades

Operation of the upgraded electricity distribution system would not result in additional impacts to biological resources other than a slight increase in the potential for bird collisions with the new transmission poles and lines.

Mancamp

Vegetation. No impacts to vegetation are anticipated during operation of the administrative mancamp.

Wildlife. Only minor, short-term impacts to wildlife, such as startling, are anticipated due to the presence of personnel at the mancamp. Security lighting could potentially attract wildlife to the area; however, any impacts would be minimal.

Threatened and Endangered Species. As stated above, no threatened or endangered species have been identified at Fort Greely.

Environmentally Sensitive Habitat. No impacts to sensitive habitat are anticipated during operation of the mancamp.

Solid Waste Landfill Extension/Construction Debris Disposal

Operation of the landfill extension or the new landfill, placing inert construction debris such as concrete rubble on top of the existing closed cells, transporting debris and solid waste to the North Star Landfill, or use of the burn pit to dispose of burnable waste such as paper product and wood would all be in accordance with applicable Federal, state, and local regulations governing landfills and no impacts to biological resources are anticipated.

Allen Army Airfield Repair

Applicable measures that were in place on Fort Greely to protect wildlife near the Allen Army Airfield, such as habitat management plans, ongoing raptor habitat surveys, and a Bird Air Strike Hazard Program would be reactivated. The Allen Army Airfield Airport Master Plan (City of Delta Junction, 2000) considered the NMD program as part of the High Forecast Scenario. This Scenario included delivery of up to 100 GBIs and an additional 4 to 5 flights per year for missile maintenance. According to the plan, none of the scenarios considered, including the High Action Scenario, appear likely to significantly impact wildlife or wildlife habitat. (City of Delta Junction, 2000) No substantial adverse impacts to biological resources in the region as a result of past and current airfield operations have been identified.

Cumulative Impacts

Impacts would include increased activity during construction and the loss of a small amount of habitat at the proposed site. Given the small amount of loss of wildlife habitat in the region of Fort Greely from past and current development, the additional loss of habitat from the proposed GBI VOC test site would not result in a substantial cumulative reduction in habitat. Cumulative effects from other proposed activities were considered minimal in the EA to Construct Munitions Storage Facility Cold Regions Test Center, Bolio Lake (U.S. Department of the Army, 1997) due to the small size of the projects when compared to the vast amount of undeveloped land in the area.

4.1.3 CULTURAL RESOURCES

This section addresses the potential for impacts to cultural resources due to construction and operation of the GBI VOC test site at Fort Greely.

Potential impacts on historic properties occur through:

- Disturbance of a National Register-listed, potentially eligible, or eligible prehistoric or historic archaeological site or traditional cultural property
- Modification of or visual intrusion upon a National Register-listed, potentially eligible, or eligible historic buildings or structures
- Disturbance of a paleontological site

Construction

GBI and BMC3

Prehistoric and Historic Archaeological Resources. Archaeological surveys indicate that there are no known prehistoric or historic archaeological resources within the ROI. The area is heavily disturbed from previous clearing and operational activities, and the likelihood of historic properties being present is low.

Based on a 1997 survey, the entire cantonment, including the area around the runway, was considered clear of cultural resource concerns due to the lack of subsurface artifacts.

Historic Buildings and Structures

Review of the 1998 study by the Alaska SHPO and subsequent consultation between the U.S. Army and the SHPO indicate that there are 26 buildings and structures eligible for listing in the National Register. Of these 26 historic properties, three (buildings 605, 656, and 675) may require modification for the GBI VOC test site program for use as warehouse and equipment maintenance space.

A Memorandum of Agreement between the U.S. Army and the Alaska SHPO regarding the 26 historic buildings stipulated that all of the properties “may be altered, demolished, leased with no restrictions, or transferred out of federal ownership with no restrictions” following completion of HABS Level 1 recordation. The SHPO accepted the U.S. Army’s submission of products as meeting the minimum requirements of the Memorandum of Agreement on 15 May 2000.

Prehistoric and historic archaeological sites, traditional cultural properties, and/or paleontological sites do have the potential to occur. If during the course of GBI VOC test site program activities, cultural items are inadvertently discovered, activities would cease in the immediate area and the SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow guidance provided.

Native Populations/Traditional Resources

No traditional cultural properties have been identified within the ROI or Alaska Native issues identified for the Proposed Action.

Paleontological Resources

Paleontological remains have been recorded within the Fort Greely area; however, none have been identified within the ROI. Given the topography of the site and the types of locations within which paleontological resources typically occur, the likelihood for them to be encountered during the course of proposed activities is very low. Therefore, no effects are expected.

Electricity Distribution Upgrades

Placing poles along the east or west side of Richardson Highway has the potential to disturb cultural resources. No cultural resources concerns have as yet been identified for any of the alternative routes. However, if during the course of the proposed activities, cultural items are inadvertently discovered, activities would cease in the immediate area and the Alaska SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow the guidance provided.

Mancamp

The proposed administrative mancamp would be constructed within an area adjacent to the cantonment area. The alternative locations were selected to minimize potential impacts to cultural resources. Due to the lack of subsurface artifacts, the entire cantonment has been

cleared of cultural resource concerns. No impacts to cultural resources are anticipated. However, if during the course of mancamp construction cultural items are inadvertently discovered, activities would cease in the immediate area and the Alaska SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow the guidance provided.

Solid Waste Landfill Extension/Construction Debris Disposal

Proposed GBI VOC test site activities associated with extension of the landfill and disposal of construction debris would take place in an area already sited and in use as a landfill, and potentially the adjacent area to the south. No impacts to cultural resources are anticipated. However, if during the course of mancamp construction cultural items are inadvertently discovered, activities would cease in the immediate area and the Alaska SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow the guidance provided.

Allen Army Airfield Repair

The proposed repair of the Allen Army Airfield would take place in an area previously disturbed during original construction. Due to the lack of subsurface artifacts, the entire cantonment area, including the area around the runway, has been cleared of cultural resource concerns. No impacts to cultural resources are anticipated. However, if during the course of mancamp construction cultural items are inadvertently discovered, activities would cease in the immediate area and the Alaska SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow the guidance provided.

Operations

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. No impacts to cultural resources are anticipated during operation of the GBI VOC test site at Fort Greely. However, if during operation at any GMD VOC component cultural items are inadvertently discovered, activities would cease in the immediate area and the Alaska SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow the guidance provided.

Cumulative Impacts

Future projects have been identified for Fort Greely that involves construction of new facilities or infrastructure. In addition, there is the potential reuse of base facilities in the cantonment area. None of these projects would occur in the vicinity of the GBI VOC test site ROI; therefore, no cumulative impacts are expected.

4.1.4 GEOLOGY AND SOILS

This section addresses the potential impacts to geology and soils at Fort Greely due to the construction and operation of the GBI VOC test site.

Construction

GBI and BMC3

It is estimated that the proposed GBI, IDT, and DSCS facilities could require up to 162 hectares (400 acres) which is less area than was analyzed for the NMD Deployment EIS (243 hectares [600 acres]). The NMD Deployment EIS determined that there was no significant impact to geology and soils around Fort Greely resulting from similar proposed activities. In 2001, initial site preparation activities were completed, which disturbed 54 hectares (134 acres).

Construction of a new GBI field, IDT, DSCS terminal, access roads, and support facilities (including a possible administrative mancamp) would require additional grubbing and grading for site preparation beyond that which was already cleared in 2001. The main issue during construction is associated with soil erosion from the site. However, at Fort Greely the soils are predominately well drained sands and gravels overlaid with a thin layer of silt, surface relief is relatively flat, and the area receives minimal annual precipitation (33 centimeters [13 inches]) and light winds; therefore, minimal soil erosion to adjacent areas would be expected. BMPs would be used to reduce the potential for soil erosion. These measures could include limiting the amount of area exposed, creating sediment basins to control flow, and adding protective covering to the slopes to enhance long-term stability. Once construction is complete and vegetation is replaced, there should be little soil erosion from operation of the site.

Geotechnical studies conducted at the potential GBI site in 1999 did not discover any ice lenses or other permafrost features; therefore, no impacts to permafrost would be expected.

The potential GBI VOC test site is near historic sources of sand and gravel and placer gold along Jarvis Creek. Assuming the lands remain closed to mineral location, leasing, and sales, there would be no impact on the mineral resource except for local extraction to support construction; however, this should not deplete the available resources in the area. Purchase of state-owned gravel would be under a materials sale contract.

Construction of GBI VOC test site facilities would incorporate seismic design parameters consistent with the critical nature of the facility and its geologic setting. Facility construction would incorporate earthquake-resistant designs to reduce the potential of impacts occurring from a seismic event, including surface rupture.

Electricity Distribution Upgrades

Impacts to geology and soils along all three potential routes would be associated with disturbance to soils during trenching and pole emplacement, which would be short-term.

BMPs would be used to reduce the potential for soil erosion as applicable such as limiting the amount of area exposed, creating sediment basins to control flow, and adding protective covering to slopes to enhance long-term stability. Geotechnical studies conducted in the vicinity did not discover any ice lenses or other permafrost features; therefore, no impacts to permafrost would be expected.

Mancamps

The preferred location for construction of the mancamp is a 14.5-hectare (36-acre) area east of the existing housing area as shown in figure 2-12. However, only a small portion of the selected site would be cleared, leveled, and graveled. Construction impacts would be similar to those discussed above for the GBI and BMC3 sub-components, on a smaller scale. Impacts would be basically the same for all alternative locations, although use of Site 3 would require construction of access roads. Geotechnical studies conducted in the vicinity did not discover any ice lenses or other permafrost features; therefore, no impacts to permafrost would be expected.

Solid Waste Landfill Extension/Construction Debris Disposal

Establishing a sixth cell at the existing landfill or the creation of a new construction debris landfill and access road in the vicinity of the existing landfill could potentially result in impacts to soils; however, these would be short-term and localized. BMPs would be used to reduce the potential for soil erosion. Geotechnical studies conducted in the vicinity did not discover any ice lenses or other permafrost features; therefore, no impacts to permafrost would be expected.

Allen Army Airfield Repair

Repair of the airfield would involve excavating approximately 1 meter (3 feet) down from the top of the runway and rebuilding the section with 102 centimeters (40 inches) of compacted sub-base, a 15-centimeter (6-inch) drainage layer, 10 centimeters (4 inches) of new asphalt, and upgrades to the stormwater collection system. BMPs would be used to reduce the potential for soil erosion. These measures could include limiting the amount of area exposed, creating sediment basins to control flow, and adding protective covering to the slopes. Geotechnical studies conducted in the vicinity did not discover any ice lenses or other permafrost features; therefore, no impacts to permafrost would be expected.

Operations

Once construction is complete and vegetation is replaced, there should be little soil erosion from operation of the GBI VOC test site and no impacts to geology and soils are anticipated.

Cumulative Impacts

No cumulative impacts are anticipated as a result of current ongoing training range activities, planned reuse of the Fort Greely cantonment area, or the construction of a new power line from the Richardson Highway to the Alascom Microwave Site in conjunction with construction and operation of the GBI VOC test site. Construction would include measures to reduce soil erosion on the site and to limit the extent of the erosion. Potential

reuse of the cantonment area would not result in significant new construction or ground-disturbing activities and, therefore, should not result in cumulative impacts. Once site vegetation is restored, no long-term cumulative impacts to soils would be expected from erosion at the site. Overall, no cumulative impacts to geology and soils in the area are expected from construction and operation at Fort Greely.

4.1.5 HAZARDOUS MATERIALS AND WASTE

This section addresses potential environmental impacts that could result from the storage and use of hazardous materials and the generation and disposal of hazardous waste associated with construction and operation of the proposed GBI VOC test site on Fort Greely. It also addresses potential impacts to ongoing IRP activities.

Construction

Hazardous Materials Management

Construction activities would be centralized to the greatest extent possible and would occur at the selected project site just south of the main base cantonment and on specified construction laydown areas and access roads. Temporary storage tanks and other facilities for the storage of hazardous materials would be located in protected and controlled areas designed to comply with site-specific spill prevention and countermeasure plans. Fort Greely's Oil Discharge Prevention and Contingency Plan and SWPPP would also be updated.

Hazardous Waste Management

Hazardous wastes generated during construction would consist of materials such as motor fuels, heating fuels, paint, used acetone and paint thinner, waste oils, hydraulic fluids, cleaning solvent, cutting fluids, used batteries, and waste antifreeze. These hazardous materials would be containerized and properly disposed of by the individual contractors. Table 4-1 summarizes estimated quantities of hazardous materials and wastes that could be used and generated during the construction phase of the GBI and BMC3 sub-components as analyzed in the NMD Deployment EIS. Construction of the GBI VOC test site would be expected to require and generate smaller quantities.

Any spill of a hazardous material or hazardous waste that may occur during construction would be quickly remediated in accordance with the contractor's SWPPP and Project Spill Prevention, Control, and Countermeasure Plan that would be developed for each site. All hazardous materials used and hazardous waste generated during construction would be handled in accordance with the 1995 Hazardous Waste and Hazardous Materials Standard Operating Procedure Manual as well as applicable Federal, state, and local regulations.

Pollution Prevention

Under the Proposed Action, the GBI VOC test site system-wide Pollution Prevention Plan would be implemented for proposed activities at Fort Greely. In addition, Fort Greely's existing Pollution Prevention Plan would be updated and implemented.

Table 4-1: Hazardous Materials and Wastes – Construction Activities

Source	Hazardous Material	Estimated Annual Usage in kilograms (pounds)	Estimated Annual Wastes in kilograms (pounds)
Construction equipment	Diesel fuel, gasoline, lubricants, oils, hydraulic fluids, antifreeze	100,000 (220,462)	100 (220.5)
Construction vehicles	Diesel fuel, gasoline, lubricants, oils, solvents	100,000 (220,462)	100 (220.5)
Contractor portable offices and personnel support facilities	Heating fuel, cleaning solvents	5,000 (11,023)	10 (22)
Paints, coatings and solvents	Paints, paint thinner	5,000 (11,023)	10 (22)
Portable electric generators	Diesel fuel, oil, lubricants	1,000 (2,204)	5 (11)
Storage batteries	Battery acid	100 (220.5)	1 (2.2)
Cloth rags, paper products	Oil, solvents	100 (220.5)	1 (2.2)

Installation Restoration Program

Prior to beginning construction, activities would be coordinated with appropriate installation personnel and state regulators to minimize impacts to remediation efforts and program activities. In addition, construction contractors would be notified of potential ground contamination before construction so appropriate health and safety measures could be taken to avoid human contact with any contaminated areas.

The Family Housing Landfill, referred to as Landfill 6, is located within the proposed GBI field site at Fort Greely and covers an area of approximately 4.5 hectares (11 acres). It was originally used for disposal of grubbing material and debris from the construction of the housing units. Although no documentation concerning landfill operations exists, the landfill was reportedly closed in 1960, and is now used as a disposal area for snow collected from the main cantonment area during the winter. This landfill would be avoided to the extent possible with the placement of the GBI silos. However, if ground disturbance is required, further investigations of the landfill may be necessary.

GBI VOC test site activities on Fort Greely are not anticipated to impact ongoing cleanup efforts. However, construction activities would be coordinated with installation personnel, state, and Federal regulators to ensure no conflicts develop.

Asbestos

Some of the facilities proposed for modification as part of the Proposed Action at Fort Greely may contain asbestos. Prior to any existing building modification or demolition, surveys would be conducted to determine if asbestos is present in the modification area. If asbestos is present, it would be removed and disposed of or encapsulated, depending on

its condition, before any modification or demolition is allowed to begin. Any asbestos removal work would occur in accordance with appropriate Federal, state, and local regulations by certified personnel.

Polychlorinated Biphenyls

There are no PCB-containing materials at Fort Greely. No PCB-based materials would be used as part of the Proposed Action.

Lead-based Paint

Some of the facilities proposed for modification as part of Proposed Action at Fort Greely may contain lead-based paint. Prior to any existing building modification or demolition, surveys would be conducted to determine if lead-based paint exists in the modification area. In most cases, lead-based paint would be encapsulated by painting. However, if lead-based paint cannot be encapsulated, it would be removed and disposed of in accordance with appropriate Federal, state, and local regulations before any modification or demolition is allowed to begin.

Radon

In areas where existing radon surveys have been found to exceed U.S. EPA recommendations, appropriate design techniques would be utilized for occupied facilities to ensure exposure levels would not exceed recommended levels.

Operations

Hazardous Materials Management

Regular maintenance and operation activities at the GBI and BMC3 sites would involve a continuous but relatively low level of activity requiring the use of hazardous materials. The anticipated amounts of hazardous materials used at the site are not known but are expected to be small. They could include protective coatings, lubricants and oils, motor and generator fuels, cleaning agents (isopropyl alcohol), backup power batteries, adhesives, and sealants. These materials would be incorporated into Fort Greely's Oil Discharge Prevention and Contingency Plan and SWPPP as well as the 1995 Hazardous Waste and Hazardous Materials Standard Operating Procedure Manual. The hazardous materials would be stored in a centralized location for distribution when needed for maintenance. Material Safety Data Sheets would be posted at all locations where hazardous materials are stored or used.

A site-specific hazardous materials management plan and Spill Prevention, Control, and Countermeasures Program would be developed for the GBI VOC test site. The use and storage of hazardous materials would be in accordance with these regulations and applicable Federal, state, and local regulations.

One piece of equipment used on the EKV consists of a klystron tube, which contains small amounts of beryllium. Beryllium is listed on the Toxic Substance Control Act Inventory. If

maintenance were required, a new tube would be brought onsite and the replaced tube sent back to the manufacturer for repair.

The only new hazardous materials at the proposed GBI field would be the nitrogen tetroxide and hydrazine that constitutes the liquid propellant inside the EKV (8 liters [2 gallons] of hydrazine and 6 liters [1.5 gallons] of nitrogen tetroxide). The amount of solid propellant could be more per interceptor than that analyzed in the NMD Deployment EIS, but the total amount for the GMD VOC activities would be much less because of the fewer number of missiles that would be onsite. The NMD Deployment EIS described the integration of the entire GBI (rocket boosters and EKV) into a canister (creating a CAV) at an integration facility before shipment to the GBI VOC test site. Because of a potential change in the interceptor design configuration since the NMD Deployment EIS was published, there are now three revised concepts for integration of the GBI: The GBI may arrive at the GBI field totally assembled and fueled in the CAV as discussed in the NMD Deployment EIS-the analysis of which is incorporated by reference; the GBI and EKV components may arrive uncanisterized at the GBI field to be assembled onsite; or the GBI may arrive canisterized with the un-fueled EKV attached requiring the bi-propellant tanks to be installed in the MAB or EKV Assembly and Checkout Facility. These liquid propellants would be loaded within the EKV prior to emplacement of the GBI into the silo. The EKV bi-propellant tanks would be stored in the EKV Fuel and Oxidizer Storage facilities until mounted onto the EKV subassembly. The hydrazine, which is included in the EPA's Extremely Hazardous Substance List, would be reported to local authorities in accordance with the EPCRA. Both hydrazine and nitrogen tetroxide are reported in EPA's Toxic Substances Control Act Inventory.

Although Fort Greely has been realigned, it continues to be operated as a training range, which includes the use of hazardous materials and the generation of hazardous waste from testing long- and medium-range weapon systems, artillery, and rockets (U.S. Department of the Army, 1999). Operation and maintenance of the MAB or EKV Assembly and Checkout facility would slightly increase the amounts of hazardous materials used and hazardous waste generated at the installation. These would include paints, solvents, acids, bases, ethylene glycol, and alcohol. The Proposed Action would also require the incorporation of the liquid bi-propellant (fuel and oxidizer) into the site-specific hazardous materials management plan and Spill Prevention, Control, and Countermeasures Program. No hazardous waste from these components is anticipated to be generated. Existing procedures, personnel, and facilities would be used to manage the additional hazardous materials and wastes. Pollution prevention efforts would apply to assembly and checkout activities and pollution prevention plans and the 1995 Hazardous Materials and Hazardous Waste Standard Operating Procedures would be updated and implemented as required.

No more than two fully loaded missiles would be transported to the GBI VOC test site per month. A canisterized booster and separate fueled EKV could also be delivered. Only up to a total of 113.5 liters (30 gallons) of EKV liquid fuel is expected to be delivered to the site for storage and use. Transportation of propellants would be in accordance with U.S. Department of Transportation regulations. In addition, emergency response personnel and equipment would accompany the fueled EKV during transport to handle and contain hazardous materials in the unlikely event of an accident and spill during transportation.

The hazardous materials generated during the unlikely event of an accidental release during transportation would be disposed of in accordance with Federal, state, and local regulations.

Hazardous Waste Management

As discussed above, there would be minimal use of hazardous materials at the GBI field. Any hazardous waste generated from the use of these materials would be handled in accordance with appropriate Federal, state, and local regulations. Hazardous waste generated would be temporarily stored onsite before transfer to Fort Greely's main hazardous waste storage facility for appropriate disposal. The appropriate hazardous waste management plan would be developed for the site. Realignment of Fort Greely has changed the current hazardous waste practices on the installation, but the GBI VOC test site program personnel would work with environmental management at the host installation to ensure disposal of all hazardous waste in accordance with appropriate regulations.

Fort Greely has the mechanisms in place to store, manage, and dispose of hazardous waste, including any additional propellant waste that could be generated if a release within the EKV should occur. If a release were to occur, all hazardous waste would be handled in accordance with appropriate regulations. In addition, a trained spill containment team would manage any release of the liquid propellants at the GBI VOC test site.

Pollution Prevention

A GBI VOC test site system-wide Pollution Prevention Plan would be implemented for proposed activities at Fort Greely. This plan would control and reduce the use of hazardous materials on the installation. In addition, the program would comply with the existing base Pollution Prevention Plan. Program personnel would continue to update the system-wide Pollution Prevention Plan, which outlines strategies to minimize the use of hazardous materials over the lifecycle of the Proposed Action.

Installation Restoration Program

One building at Fort Greely that is a potential support facility for the GBI VOC test site is on the State Priorities List: Building 605, which includes a maintenance shop, paint bay, and battery storage facility.

Currently scheduled investigations and remediation required at solid and non-solid waste management units, which include the site south of Building 626, the nuclear waste pipeline and dilution well, the 12 potentially contaminated areas within the cantonment area, and seven sources of potential contamination on properties adjoining the cantonment area would not be affected by the Proposed Action.

Environmental cleanup at Fort Greely has been addressed under both the IRP and the Base Realignment and Closure Environmental Cleanup Program. Numerous sites have been investigated and remediated under these programs. Investigations are now complete at all known sites. Cleanup of the nuclear waste line from the past activities of the SM-1A

nuclear reactor has been completed, and other cleanup actions at Building 110 and the old firefighter training pits are currently underway. Building 101, on retained property, and several other sites, on surplus property, are being characterized for the extent of contamination and scheduled for cleanup. (Spiers, 2001b) GBI VOC test site activities are not anticipated to impact these ongoing cleanup activities on Fort Greely.

Asbestos

No impacts from asbestos are anticipated during operation of the GBI VOC test site.

Polychlorinated Biphenyls

There are no PCB-containing materials at Fort Greely. No PCB-based materials would be used for the Proposed Action.

Lead-based Paint

No lead-based paint would be used in the new and modified proposed GBI VOC test site facilities.

Pesticides

Under the Proposed Action, pesticides used within the GBI VOC test site area would be EPA-approved and applied in accordance with Fort Greely's Integrated Pest Management Plan using personnel certified by the DoD as pesticide applicators. The small amount of pesticides required would be similar to the quantities already applied in developed areas of the installation. Overall, there would be little change in pesticide usage amounts at Fort Greely.

Cumulative Impacts

The construction and operation of a GBI VOC test site at Fort Greely in combination with ongoing Installation activities and future base reuse activities would result in an increase in the amounts of hazardous materials used and hazardous waste generated on Fort Greely. It is anticipated that Fort Greely would return to its pre-base realignment status as a large quantity generator of hazardous waste. However, Fort Greely has the mechanisms and management systems in place to store and manage the increased quantity of hazardous materials and hazardous waste. Overall, it is not expected that there would be any cumulative hazardous materials or hazardous waste management issues at Fort Greely.

4.1.6 HEALTH AND SAFETY

This section addresses the potential impacts to health and safety associated with construction and operation of the proposed GBI VOC test site on Fort Greely.

Construction

None of the proposed GBI facilities would fall within the airfield Clear Zones or within hazardous military operation areas on Fort Greely.

The construction of new facilities is routinely accomplished for both military and civilian operations and presents only occupational-related effects on the safety and health of workers involved in the performance of construction activity. Siting of the GBI VOC test site and any related support facilities would be in accordance with DoD standards, taking into account facility compatibility issues. All facilities would be designed to take into account regional natural hazards such as earthquakes, which would reduce the potential for one of these environmental factors causing a mishap at the GBI facility. With the appropriate design, earthquakes should not pose a potential significant risk to facilities and system components. Facility and equipment design would incorporate measures to minimize the potential for and impact of accidents. Construction materials would be delivered to the site by truck in accordance with U.S. Department of Transportation and Fort Greely regulations. Construction would be conducted in accordance with applicable regulations and permits and no impacts to health and safety are anticipated. Since many pilots use rivers and land features for navigation, and often fly close to the ground during low visibility conditions, poles and wires would be marked with high-visibility devices as required by the FAA (Bureau of Land Management, 1998).

Operations

GBI and BMC3

The GBI silos, MAB, Interceptor Storage Facilities, EKV Assembly and Checkout Facility, and EKV Fuel/Oxidizer Storage Facility would all require the establishment of ESQDs. The establishment of the ESQDs would go through DoD review to ensure there are no incompatible health and safety issues. The proposed ESQDs associated with the six GBI VOC test site silos would fall within the base boundary; therefore, an explosion of the GBI within the facilities should not pose a public health and safety risk.

During operation the GBI field would be dormant and BMC3 facilities unmanned except for the occasional maintenance and test activities and personnel in the Readiness Control Station. A fire department will remain on the base even after realignment of the cantonment area is completed. Fire protection, alarm, and suppression systems would be provided to GBI VOC test site facilities as appropriate. Any GBI mishap that would result in a solid propellant fire could generate hazardous air pollutants. At no time would it be expected that peak hydrogen chloride (the toxic constituent of main concern of burning solid propellants) emission levels would exceed public exposure guidelines. The potential for an aircraft mishap to occur over the GBI field would be remote.

Security requirements would be an integral component of program safety. Security measures would be incorporated within the project design and operation procedures. Components of test site security would include a security fence, clear zone, security lighting, security standby power, intrusion detection system, and security patrol roads. The clear zone on the inner side of the fence would contain remotely operated lights and cameras. All vegetation would be cleared inside the security fence. Vegetation would be cleared to approximately 15 meters (50 feet) outside the security fence.

Selected steps in the GBI installation would provide greater risk to human health, environment, and property, and therefore are evaluated for possible mishap scenarios.

Such possible mishap scenarios include mishandling of the missile components, accidents in transporting the GBI, liquid propellant mishaps, accidental launches, and natural hazards such as earthquakes.

Transportation. The interceptor boosters and unfueled EKV would be transported by air to the GBI VOC test site if an adequate runway is available at the site, then transported over the military installation by truck to the MAB and EKV Assembly and Checkout Facility. If no adequate runway is available at the GBI VOC test site the interceptor boosters and unfueled EKV would be transported by air to Eielson AFB. The interceptor boosters and components may be temporarily stored in a proposed Missile Transfer Facility at Eielson AFB (see section 2.2.5) before being trucked to the GBI VOC test site. The EKV bi-propellant tanks and large GBI related items (e.g., silos and silo liners) could be barged to Valdez, Alaska then transported over land by truck, transported from the manufacturer by truck, or shipped by rail; however, the shipping method has not been determined. The bi-propellant tanks would be stored in the EKV Fuel and Oxidizer Storage facilities until mounted onto the EKV subassembly. GBI components, sub-components and all fuels would be transported in accordance with U.S. Department of Transportation, U.S. Air Force, and U.S. Army regulations.

An aircraft accident during transportation is considered highly unlikely. The potential for a major (destruction of the aircraft) cargo aircraft accident is approximately 1 to 3 accidents per 100,000 hours flown. Overall, the potential for an aircraft accident while transporting the GBI would have no greater risk than any other commercial or military aircraft cargo flight and thus is considered very remote.

An accident of the transporter moving the GBI components from the landing base to the GBI VOC test site is also considered remote. Ground transportation of the GBI would be similar to that used for Minuteman and other DoD missile systems. The U.S. Air Force has a long record of safe handling and maintenance of missiles. Approximately 804,650 kilometers (500,000 miles) have been driven by transporter-erectors carrying Minuteman missiles (I, II, and III) between the deployment bases and the launch facilities. In roughly 30 years, only six rollover accidents have occurred, with none involving propellant ignition (U.S. Department of the Air Force, 1999—Final EIS, Minuteman III Missile System Dismantlement). Since the proposed transportation method would be similar to that used by the U.S. Air Force, it is expected that the potential for an accident and resulting fire or explosion would be remote.

A transportation safety plan in accordance with the appropriate DoD and U.S. Department of Transportation regulations would be written before any shipment, and transportation crews would receive the appropriate training in accordance with the plan. In addition, the emergency response personnel and equipment would accompany the GBI components during transport to handle and contain hazardous materials in the unlikely event of a release during transport.

EKV Assembly. The EKV would contain less than 19 liters (5 gallons) of liquid hypergolic propellants. Hypergolic propellants are fuels and oxidizers that ignite on contact with each

other and need no ignition source. This is the same amount and type of fuel and oxidizer described and analyzed in the NMD Deployment EIS. The fuel and oxidizer (bi-propellants) would arrive at the EKV Checkout and Assembly Facility or the MAB already loaded in bi-propellant tanks. A propellant detection system would detect an accidental release of the liquid bi-propellants. A release of either propellant could result in the release of hazardous materials inside the canister. The liquid bi-propellants tanks would have multiple safeguards, such as an internal bladder system, requiring several system failures before a release would occur, thereby making the potential for a release very remote. However, to estimate the type and magnitude of potential impacts, a catastrophic (and unlikely) event of an instantaneous release of each of the liquid bi-propellants was analyzed in the NMD Deployment EIS to evaluate the magnitude of the potential consequences. This catastrophic event would require penetration (e.g., by a forklift or a sharp object) of the liquid bi-propellant tank.

The health and safety analysis in the NMD Deployment EIS assumed the fuel was 100 percent monomethylhydrazine due to its greater toxicity in order to provide conservative results. The propellant is toxic and corrosive to the skin. A spark may easily ignite the vapors, and the liquid is not shock sensitive. Hydrazine-type liquid fuels present a serious fire hazard and a toxic vapor hazard and are suspected human carcinogens. Literature searches did not reveal any irreversible health effects from hydrazines resulting from levels of exposure below workplace exposure guidelines. The Occupational Safety and Health Administration (OSHA) has established the Permissible Exposure Level to monomethylhydrazine in a work environment at 0.35 milligrams per cubic meter (0.2 ppm).

Nitrogen tetroxide supports combustion of all hydrocarbons and is hypergolic with hydrazine. It is highly corrosive to human tissue. A pungent, acid odor is detectable at 0.12 ppm; therefore, it is considered a substance with adequate warning properties. The OSHA Permissible Exposure Level for nitrogen tetroxide (as nitrogen dioxide) is 9 milligrams per cubic meter (5 ppm). The Immediately Dangerous to Life or Health exposure limit for nitrogen dioxide is 38 milligrams per cubic meter (20 ppm). Exposure to low-levels of fumes may cause eye and nose irritation and yellow staining of the skin. Higher levels of exposure (10 to 20 ppm) have resulted in reports of mild irritation (Center for Disease Control and Prevention, 1995). At higher levels of exposure (25 ppm), there is respiratory irritation with cough and chest pain. Exposure to levels of nitrogen dioxide vapors below workplace exposure guidelines is not known to result in irreversible damage.

A release would be conservatively characterized as an evaporating liquid, or as a gaseous cloud that is generally neutral buoyant, or heavier than air. A class of dispersion models, commonly known as cold spill models, was developed to model the dispersion of neutrally buoyant or denser-than-air gases produced from liquid spills. The U.S. Air Force Toxic Program was used to model these releases and to provide an estimate of downwind concentrations. Only cold spills were evaluated because, in general, spills involving unreacted hypergolic propellants pose the greatest health hazard to human and ecological populations.

A release of the liquid bi-propellants was modeled assuming an instantaneous outdoor release (e.g., the entire container leaks at once). A propellant detection system would be in place during bi-propellant tank installation and emergency equipment would be near facility. Table 4-2 shows the results of modeling. Only a release of the nitrogen tetroxide is expected to exceed the OSHA Permissible Exposure Limit for workers. The most likely area for this to occur would be within the MAB, EKV Assembly and Checkout Facility, Interceptor Storage Facility, and the GBI missile field. Hazardous emissions from a propellant release at Fort Greely could affect up to 14 hectares (35 acres) of land outside the base boundary. However, the potentially affected area is undeveloped and there are no public structures or roads.

Table 4-2: Results of U.S. Air Force Toxic Program Modeling

Standard	Monomethylhydrazine		Dinitrogen Tetroxide	
	Guidance in milligrams per cubic meter (parts per million)	Exceedance Distance	Guidance in milligrams per cubic meter (parts per million)	Exceedance Distance
OSHA Permissible Exposure Limit	0.35 (0.2)	Not applicable ⁽¹⁾	9 (5)	760 meters (2,493 feet)
Immediately Dangerous to Life or Health	38 (20)	Not applicable ⁽¹⁾	38 (20)	Not exceeded

⁽¹⁾ Safe exposure levels should not be exceeded under most meteorological conditions. Any exceedance would be less than nitrogen tetroxide distances and contained within the site boundary.

An indoor release would be expected to result in a much shorter exceedance distance. Neither liquid propellant would exceed the Immediately Dangerous to Life or Health standard. The level of exposure for the nitrogen tetroxide as a result of a release would not cause irreversible damage. Exposure at these levels would be mildly irritating to the eyes and nose and could include coughing.

Facility and equipment designs would incorporate measures to minimize the potential for and impact of accidents. A sensor system could be used to monitor the condition/status of the EKV propellant system during installation and checkout operations. Operating procedures and training would be instituted to minimize the potential for and impact of releases of hazardous materials. Specific health and safety plans would be developed including evacuation plans, and notification of local and offsite emergency response as required. An emergency response team would be on call during tank installation. The local fire departments (within a 161-kilometer [100-mile] radius) would be notified through the existing cooperative agreements with the installation.

In the event of a liquid bi-propellant release, the emergency response team would ensure the area would be evacuated, ignition sources would be removed, and vapors would be ventilated. All liquid would be contained for treatment and neutralization and disposed of in accordance with all applicable regulations. Releases would be absorbed with appropriate materials and transferred to containers for disposal. (Raytheon Electronic Systems, 1999)

The primary health and safety issue associated with the BMC3 is the potential for EMR impacts to personnel and the public. During normal operations, the IDT and DSCS would not transmit except during testing of the equipment. A power/calibration test of the transmitter would occur once a year. During this test EMR would be generated by the IDT, but EMR levels would not exceed established personnel exposure limits. No impacts to health and safety are anticipated from operation of the GBI VOC test site components.

GBI Integration. The Class 1.1 propellant that could potentially be used in the GBI is principally considered a blast hazard, although in a fire it will burn at a rate comparable to that of rubber tires. If detonated, Class 1.1 propellant would produce blast overpressure and fragments beyond 305 meters (1,000 feet) (U.S. Department of the Air Force, 1992).

Accidental ignition of solid propellant can be caused by static discharge, lightning, or a nearby fire or explosion. Lightning strikes and static discharges are very unlikely events. In the 30 years of operations in the Minuteman Missile Wing, there has been no record of lightning striking a transporter. Measures would be taken to prevent static buildup during transportation. Additionally, impact of the rocket motor casing against any object or penetration of the rocket motor's casing may produce enough internal or external frictional energy release to cause ignition. However, detonation resulting solely from an impact is highly unlikely.

Results of modeling for the NMD Deployment EIS indicated that peak hydrogen chloride emissions from a detonation would be 14 milligrams per cubic meter, which is well below the Immediately Dangerous to Life or Health exposure limit of 75 milligrams per cubic meter. The peak 1-hour time-weighted average would be 1.3 milligrams per cubic meter, which is also below the Short-Term Public Emergency Guidance Level of 1.5 milligrams per cubic meter.

Integration and assembly of the GBI components could include installing electronics, wiring, and ordnance in each of the stages; mating the stages together; and mating the EKV to the flight vehicle. Facility designs would incorporate measures to minimize the potential for and impact of accidents. Operating procedures and training would be instituted to minimize the potential for and impact of releases of hazardous materials. Appropriate emergency response plans would be established and implemented to deal with potential chemical release. In the event of a liquid propellant leak, the area would be evacuated, ignition sources would be removed, and vapors would be suppressed with a water fog. All liquid would be contained for treatment and neutralization and disposed of in accordance with all applicable regulations. Small spills would be absorbed with earth, sand, or other non-combustible materials and transferred to containers for disposal.

Current plans for the GBI include a sensor system to monitor the condition/status of the EKV propellant system. A specially designated emergency response team would handle a leak with appropriate equipment at the site to reduce any health and safety risk to workers and the general public.

As part of standard fire fighting practices on Fort Greely, fire breaks would be built around any proposed GBI VOC test site location. The fire protection status required for the proposed activities would be Full Protection, which refers to areas that receive maximum detection coverage and immediate and aggressive initial response. For the GBI component, this fire protection status would have to be changed to Critical Protection, which refers to land that receives maximum detection coverage and is of the highest priorities for response. This status along with the appropriate fire breaks and fire equipment should limit the potential for forest fires spreading into the proposed GBI field.

GBI handling would be in accordance with standard safety procedures developed by DoD for the handling of solid and liquid propellants. Most of the procedures that would be utilized are based on those used for the Minuteman and other military systems where a long history of safety procedures has been developed; therefore, handling the GBI would not present a significant health and safety risk. In addition, separation of the GBIs in the silos would prevent any potential for a mishap impacting more than one GBI at any time.

A health and safety plan would be prepared that would include procedures to handle emergencies involving the GBI. This plan would describe how to handle each type of emergency, the appropriate base and off-base contacts, and an evacuation plan, if necessary. Cooperative agreements with local fire departments would need to be updated to inform them of the additional hazards and safety considerations of the GBI VOC test site.

Allen Army Airfield Repair

Use of the Allen Army Airfield for the NMD Program was considered as part of the High Forecast Scenario in the 2000 *Allen Army Airport Master Plan* (City of Delta Junction, 2000). No health and safety impacts were identified. The use of the airfield included delivery of up to 100 GBIs and 4 to 5 flights per year for missile maintenance. Repair of the airfield for the GBI VOC test site activities would fall within these use parameters. (City of Delta Junction, 2000) The use of the airfield to fly in equipment and personnel for GBI VOC test activities would potentially mitigate the risk inherent in highway movement.

Solid Waste Landfill Extension/Construction Debris Disposal

The landfill area would remain fenced to limit access to site workers. In addition, limited operating hours would minimize exposure of waste to humans and ecological receptors. Therefore, long-term impacts during operation of the expansion area are not anticipated.

No health and safety impacts associated with other proposed activities (electricity upgrades or mancamps) are anticipated.

Cumulative Impacts

Potential cumulative health and safety impacts are not expected to occur at Fort Greely with the combination of the proposed activities and ongoing health and safety risk from current military activities. No new or future programs are planned that could add to potential cumulative impacts. The main cumulative impacts could come from a potential

increase in fires or a combination of hazardous activities increasing the health and safety risk.

4.1.7 INFRASTRUCTURE

This section addresses the potential for impacts to infrastructure due to the proposed construction and operation of the GBI VOC test site.

Fort Greely has been realigned and therefore the number of personnel assigned to Fort Greely has been reduced. This has resulted in a loss of approximately 700 personnel. This reduction in the number of personnel has resulted in an increase in available utility capacities. GBI VOC test site construction and operation would result in an increase of up to approximately 400 personnel, which is only 57 percent of the estimated personnel reduction; therefore, there should be sufficient utility capacity in the ROI and on base to handle GBI VOC test site activities.

Solid Waste

Several alternatives exist in order to fulfill the solid waste disposal needs of the GBI VOC test site. The preferred alternative would be to open a sixth cell in the existing Fort Greely landfill area. Alternatives include constructing a new construction debris landfill and access road in the vicinity of the existing landfill at Fort Greely and placing inert construction debris on top of existing closed cells at the Fort Greely landfill. Solid waste could also be transported to the North Star Landfill in Fairbanks. The potential solid waste impacts for construction and operation of the GBI VOC test site are combined and discussed below.

Based on preliminary investigation and analysis in the NMD Deployment EIS, it was determined that approximately 400 construction workers would be in the Fort Greely area for 2 years and that up to 360 employees would be required to support the operational phase of the GMD VOC activities. For the purposes of this evaluation it is assumed that any new landfill construction at Fort Greely would be developed for Fort Greely use, and not the surrounding Delta Junction region.

The per capita solid waste generation rate, based on the Fort Greely rate in 1995, would be approximately 1.8 kilograms (4 pounds) per person per day. Assuming no waste volume reduction, the maximum projected municipal solid waste to be handled for the construction personnel population of 400 would be approximately 3.4 cubic meters per day (4.4 cubic yards per day), or 1,228 cubic meters per year (1,606 cubic yards per year). The maximum projected municipal solid waste to be handled for the operational personnel population of 360 would be approximately 3 cubic meters per day (4.0 cubic yards per day), or 1,105 cubic meters per year (1,445 cubic yards per year). However, continued open pit burning operations are recommended as both a volume reduction and long-term cost savings measure.

Assuming volume reduction through open pit burning, with 50 percent of the collected waste considered burnable and a 90 percent volume reduction of the burnable waste

through open pit burning (as based on burn operation data from Fort Greely), the maximum projected volume of ash and non-burnable municipal solid waste to be disposed of during construction would be approximately 1.8 cubic meters per day (2.4 cubic yards per day), or approximately 675 cubic meters per year (883 cubic yards per year). The maximum projected volume of ash and non-burnable municipal solid waste to be disposed of during operation would be approximately 1.7 cubic meters per day (2.2 cubic yards per day), or approximately 608 cubic meters per year (795 cubic yards per year). At this rate of use, a cell based on current design would be filled in approximately 10 years.

Expansion of the Fort Greely landfill would be in accordance with 18 AAC 50 Alaska Air Quality Control regulations, which outline requirements for permits needed to ensure compliance with ambient air quality standards. If a new landfill were to be constructed at Fort Greely, a new permit application would be required by ADEC. The application must be submitted to ADEC a minimum of 60 days prior to any construction activity. In addition, a 30-day public notice period would be required. However, it is anticipated that a new permit would be obtained without difficulty.

In addition to ADEC solid waste regulations, other regulatory requirements could be applicable, as well, such as 18 AAC 60 Solid Waste Management, which provides requirements for construction, modification, operation, and closure of landfills.

Hauling solid waste by a private contractor to the North Star Landfill in Fairbanks could be conducted by compactor truck, or require construction of a small transfer station, resulting in greater costs to the program. Haul by GMD VOC personnel is assumed to be impractical due to lack of enforcement or accountability for potential illegal dumping. The transfer station would require disturbance of approximately 2 hectares (5 acres) of additional land.

If a transfer station is utilized, the use of two 31-cubic-meter (40-cubic-yard) transfer trailers has been recommended. Trailers would be located at the transfer station for temporary storage of waste. Smaller transport vehicles would haul solid waste to the transfer station. When the trailers reach capacity, they would be hauled to the North Star Landfill. As a result, hauls could be required approximately every 5 to 7 days. Compliance with regulatory requirements is anticipated. No additional requirements to the existing North Star Landfill would be necessary.

Construction

GBI and BMC3

Water. During construction, it is expected that an increase in water use would occur on base as a result of construction personnel and activities usage as well as Government and Prime Contractor personnel living in the on-base administrative mancamp. According to analysis in the NMD Deployment EIS, construction worker-related potable water usage would be approximately 0.12 million liters per day (0.03 million gallons per day). The base potable water system has an available capacity of 3 million liters per day (0.8 million gallons per day). Thus, the existing potable water system at Fort Greely has sufficient available capacity for construction personnel and activities. It is also possible that nonpotable water may be used from Jarvis Creek for construction activities. If so, all

necessary permits will be obtained. Other on-base water usage from construction would be related to site watering and any required batch plants. The available capacity would be sufficient to handle this demand.

Since some of the proposed facilities would be located away from the existing base water system, two new 1,893 liters (500 gallons) per minute wells were constructed during initial site preparation activities in 2001. Any additional wells or proposed water system would be constructed in accordance with local and state regulations and would be certified as required.

Wastewater. During construction, it is expected that most of the wastewater increase would occur on-base as a result of construction personnel and activities usage as well as Government and Prime Contractor personnel living in the on-base administrative mancamp. According to analysis in the NMD Deployment EIS, construction worker-related wastewater generation would be approximately 0.12 million liters per day (0.03 million gallons per day). The wastewater system on the installation had an available capacity of 0.50 million liters per day (0.13 million gallons per day) when all buildings were in use. The increase in wastewater usage would be well within the available capacity. Portable wastewater facilities would be used for construction workers during the workday on Fort Greely.

Since the main GBI VOC test site facilities would be located away from the existing wastewater system, up to five new septic wastewater facilities would have to be constructed. The proposed new system would be constructed in accordance with local and state regulations and would be certified as required.

Electricity (Electricity Distribution Upgrades). Golden Valley Electric Association would construct a new 138-kV power transmission line from the Jarvis Creek substation to the Fort Greely GMD VOC test site. This new transmission line would furnish all power required for the GBI VOC test activities. There would be no adverse impacts to the current electrical system in the region.

Mancamp

Lighting would be installed for security and parking at the administrative mancamp location. All utility services would be provided by the Government, and would be brought to the site with minimum connectivity and there would be no impact to the existing system. Electricity would be provided by Golden Valley Electric Association, with backup power provided by the onsite substation as needed.

Site 2, the preferred location for a mancamp on Fort Greely, is close to an underground utility corridor that supplies electricity, water and sewer service. An electric power transmission line crosses the area and there is road access from all sides. Site 3 has no access roads or nearby utilities and would require further extension of utilities from the cantonment area.

Operations

GBI and BMC3

Water. Most of the operations-related water usage would occur on-base. Water usage would be expected to increase by 0.07 million liters per day (0.02 million gallons per day), based on the increase in operational personnel, which is within the available base capacity. Two new potable water wells were constructed in 2001 and would be operated in accordance with local and state regulations as required.

Wastewater. Wastewater generation would be expected to increase slightly, based on the increase in personnel for operation, which is within the available base capacity.

Electricity (Electricity Distribution Upgrades). The proposed electricity upgrades would provide the 5 MW of electricity required for the proposed GBI VOC test site activities.

Mancamp

All utility services for the administrative mancamp would be provided by the Government, and would be brought to the site with minimum connectivity. Electricity would be provided by Golden Valley Electric Association, with backup power provided by the onsite substation as needed.

Cumulative Impacts

Some additional new military construction is expected to occur on Fort Greely. The construction programs, which consist mostly of range upgrades to infrastructure including the construction of two water wells during initial site preparation in 2001, the construction of leach fields, and septic tanks would result in the increase in utility demands. Increases in utility demand would be accommodated through the construction of a new 138-kV power transmission line from the Jarvis Creek substation to the Fort Greely GMD VOC test site. It is not expected that reuse of the post area in combination with the GMD VOC test site activities would exceed any of the operational capabilities of the existing infrastructure system.

4.1.8 LAND USE

This section addresses the potential impacts to regional and installation land use due to the construction and operation of the GBI VOC test site on Fort Greely.

Construction

GBI and BMC3

Construction of the new facilities at Fort Greely could include a GBI field, an EKV Assembly and Checkout Facility, a MAB, three Interceptor storage facilities, additional support facilities, FOC, and access roads to the site. This construction would occur within an area of approximately 162 hectares (400 acres). The new construction would be of an industrial nature and would be similar to the functions of the existing military facilities.

The proposed activity would take place south of the Main Cantonment Area in the Main Post Area in an area referred to as the Jarvis Site. Adjacent land use and zoning is compatible with activities on Fort Greely. This area is primarily used as a non-firing maneuver area, air drops, training, and troop maneuvers. Fifty-four hectares (134 acres) of land have undergone initial site preparation activities. Approximately 108 hectares (266 acres) of additional undisturbed land would be altered to accommodate the new facilities, which is small portion of the total land base of Fort Greely. The siting of the GBI field and support facilities would be in accordance with DoD standards taking into account ESQD and EMR safety criteria. All of the construction areas fall well within the boundaries of Fort Greely and therefore have no conflicts with adjacent land uses or zoning, and there are no inhabited structures within proximity to the construction sites. Construction would impact the use of this area by the U.S. Army as a training area. However, this is a very small portion of the total land available at Fort Greely for training, and the impact of losing this small portion of the training area would be minimal.

Electricity Distribution Upgrades

The Federal government (Bureau of Land Management and DoD) manages the majority of the land that could be affected by the proposed activities. The alternative routes are located on land that is primarily undeveloped open space and forest that is sparsely populated. The closest inhabited structures, other than military, are in Delta Junction. Two scenic outlook sites are located along the western side of Richardson Highway. Dulled metal finishes could be used on all poles and wire to minimize potential visual impacts, if applicable, and clearing would be minimized to the extent practicable.

Allen Army Airfield Repair

The GBI component on Fort Greely may require repair of the existing runway. This activity would not change any existing land uses or airfield safety zones and would be consistent with the current uses of this area.

Mancamp

The new construction would be of an industrial nature and would be similar to the functions of the existing military facilities.

Operations

The GBI field would be in a dormant state during the operation phase with the exception of testing and occasional maintenance. There would be an ESQD established around the GBI field, MAB, and Interceptor Storage Building. The ESQDs would fall within the proposed site and would be a compatible land use. They would not affect any of the existing facilities at Fort Greely or any of the surrounding land uses. There would be a small loss of land used for training activities, recreational activities, and hunting due to construction and operation of the Proposed Action.

Cumulative Impacts

Construction and operation of a GBI VOC test site at Fort Greely would only affect a very small portion of the base compared to the overall size of Fort Greely and would create no

zoning or land use conflicts. The potential area for the GBI VOC test site is designated for military use and is currently used to conduct military activities. The GBI VOC test site may require the use of some facilities in the cantonment area for housing, administrative, or maintenance-related purposes. No other projects have been identified by Fort Greely that would contribute to cumulative land use or aesthetic impacts.

4.1.9 NOISE

This section addresses the potential impacts to the noise environment due to the construction and operation of the GBI VOC test site on Fort Greely.

Construction

Noise from construction equipment usually falls in the range of 70 dBA to 98 dBA at 15 meters (50 feet) from the source, with earth moving equipment, jack hammers, and rock drills being the noisiest pieces of equipment in this range. The one exception is pile drivers, which fall in the range of 95 dBA to 106 dBA at 15 meters (50 feet). Under current planning, pile drivers would be used for the GBI construction at Fort Greely.

As assumed in the NMD Deployment EIS, construction of GBI, BMC3, support facilities, and the administrative mancamp at Fort Greely would take place 24 hours per day during the summer months. Therefore, due to the 10 dBA penalty added to nighttime noise, the 65 dBA and 75 dBA contours are estimated to occur within approximately 1.9 kilometers (1.2 miles) and 0.87 kilometer (0.54 mile) from the construction site, respectively.

However, since no noise sensitive receptors are known to exist within 1.9 kilometers (1.2 miles) of the proposed GBI VOC test site at Fort Greely, no impacts to the noise environment would be expected from construction equipment noise.

GBI VOC test site construction activities would have a neutral effect on the area traffic volumes due to realignment activities at Fort Greely. Consequently, no impacts from traffic noise during construction are expected.

Operations

According to analysis in the NMD Deployment EIS, up to approximately 720 vehicle trips per day would be added to the Richardson and Alaska Highways during operation of the GBI VOC test site. Realignment of Fort Greely has reduced personnel numbers from 750 to approximately 66 since July 2001. This reduction has left a net decrease in the traffic volume on-base and in the surrounding area. Consequently, no impacts from traffic noise during operation of the GBI VOC test site would be expected.

Allen Army Airfield Repair

Repairs to the airfield would result in a small increase in flights arriving and departing from Fort Greely. However, as no noise sensitive receptors are known to exist within 1.9

kilometers (1.2 miles) of the airfield, no substantial impacts to the noise environment would be expected.

Cumulative Impacts

As no noise sensitive receptors have been identified in the vicinity of the construction site, no cumulative impacts to the noise environment are anticipated.

The net effect of realignment, reuse, and GBI VOC test site activities on Fort Greely could be an increase of up to 360 persons from the total employment before realignment. This employment increase would cause the traffic volumes on-base and in the area to increase accordingly. However, the location of the 67dBA $L_{eq}(1 \text{ hour})$ is estimated to occur well within the approximate 91-meter (300-foot) right-of-way. Consequently, no cumulative impacts from traffic noise are expected.

4.1.10 SOCIOECONOMICS

This section addresses the potential impacts to regional socioeconomics due to construction and operation of the GBI VOC test site at Fort Greely.

Construction

Population

Construction of GBI facilities would take approximately 2 years, employing on average 400 construction workers a year. It is expected that the majority of the construction workers would move to the area on a temporary basis from outside the region. Fairbanks, the nearest community of any size, had just over 1,800 construction workers in 1996 but, with this exception, there is no local pool of labor on which to call for this type of project.

Typically, about 70 percent of construction workers relocate to the area from elsewhere in the United States. If 70 percent of the construction workers for the GBI VOC test site came from outside the area, then 120 workers would come from the local labor pool. The experience gleaned from previous construction and environmental projects at Fort Greely supports the view that the local labor pool of construction workers would support this ratio of local workers to newcomers.

While a project of this scale might be expected to attract dependents, as well as the construction workers themselves, the distance of Fort Greely from main population centers, the lack of available housing and other facilities, and the experience of other construction projects at the base would suggest that the ratio of dependents to workers would be very low. Those bringing dependents with them for previous projects at Fort Greely have, typically, housed them in Fairbanks or Anchorage.

Employment Income and Retail Impacts

The GBI VOC test site construction program would generate additional income in the local economy in two ways. The first is in the form of wages earned by the construction

workers. A proportion of these wages would be spent locally on lodging, food, and transportation. Second, the construction program would include a proportion of locally purchased materials. These purchases, at local stores and from local suppliers, would generate additional income and jobs within the local economy.

At least half of the overall construction cost would include high value equipment, manufactured and assembled at locations throughout the United States, the purchase of which would have no local economic impact. While some non-contract jobs might be created in the communities surrounding Fort Greely, the majority would be in Fairbanks and Anchorage where much of the expenditure would be made.

The impact of construction program expenditures on retailers would be almost entirely concentrated in Fairbanks, as there are few retail outlets in the communities surrounding Fort Greely.

Impacts on Housing, Education, and Health

Most construction workers who have been involved in past projects at Fort Greely have been accommodated at the base or have commuted from Fairbanks. Some have found accommodation in the surrounding communities of Delta Junction and Big Delta. Fort Greely has an existing stock of accommodation, available as a result of the Base Realignment Plan. However, an administrative mancamp may be established at Fort Greely that would provide office space for approximately 120 personnel and living and dining facilities for 200 personnel. Section 4.5.2 discusses the socioeconomic impacts of housing construction workers in Delta Junction.

Primary emergency care would be provided to the construction personnel at the reopened health facility on Fort Greely. The hospital network in Fairbanks would deal with the more serious and longer-term care needs of the construction workers, as they arise. The medical facilities in Fairbanks are adequate to handle the increased demand.

Only a very small number of construction worker dependents are likely to live in the ROI. There would, therefore, be only a small additional enrollment in the local school districts as a result of the construction phase of the action. The additional enrollment would not have a significant effect on the resources of the local school district.

Fiscal Impacts

The main fiscal impact arising from the construction phase would be as a result of purchases made by personnel and their families. Negative fiscal impacts arising from construction activities would be limited to the potential for increased demands on the public safety services of fire, police, and ambulance.

Operations

Population

The operational phase of the GBI VOC test site could directly employ up to 360 personnel, including approximately 115 military and 95 contract positions with an additional 150 direct jobs associated with GMD base support functions mostly joining the project from outside the region. Because there is a small number of existing base support personnel at Fort Greely, the GBI VOC test site would require more personnel than at the alternative GBI VOC test site location at Clear AFS.

Given the specificity of the skills required for the operational phase, almost all those involved would move to Fort Greely from outside of the area. As stated above, it would be expected that few, if any, dependents would accompany the workforce, all of whom would be encouraged to live at Fort Greely rather than in the surrounding community or in Fairbanks.

Employment Income and Retail Impacts

The operational phase of the GBI VOC test site would qualify as one of the preferred uses for this location, as stated in the Fort Greely Final Reuse Plan. As its preferred alternative, the Plan has defined a mixed use industrial complex anchored by, among other activities, a military use. The GMD VOC test site at Fort Greely would qualify as this military use. The NMD Deployment EIS estimated that approximately 360 direct jobs and at least \$9.7 million of direct income would be generated per year. It is estimated that approximately 108 jobs would be generated indirectly by the operational phase of the action.

Cumulative Impacts

The program to construct a new power line from the Richardson Highway to the Alascom Microwave Site would add to the positive economic impact if it overlapped with the Proposed Action.

The siting of the GBI VOC test site at Fort Greely would have a positive cumulative economic impact that would slightly mitigate the negative economic impact of the Base realignment.

4.1.11 WATER RESOURCES

This section addresses the potential impacts to water resources due to construction and operation of the GBI VOC test site on Fort Greely.

Construction

GBI and BMC3

During the 2-year construction period, approximately 162 hectares (400 acres) additional areas of undisturbed land could be altered to accommodate the GBI, IDT, and DSCS facilities and access roads, which is roughly 3 percent of the main post area. Of the total

land required, approximately 54 hectares (134 acres) of land at Fort Greely was previously disturbed during initial site preparation activities in 2001. No impacts to water resources during the site preparation activities occurred in 2001 or are anticipated to occur from the proposed construction for the GBI VOC test site. The proposed GBI and BMC3 sites are not within the 100-year floodplain. Due to the relatively level topography and low precipitation, drainage patterns would only be altered slightly, and surface water runoff and erosion would be minimal. A minor increase in sediment in surface waters is possible, but not likely due to the distance between the construction site and surface water bodies.

Potential impacts to water resources resulting from accidental spills of hazardous materials during construction would be minimized because all activities would follow spill prevention, control, cleanup, and emergency response procedures described in section 4.1.5, Hazardous Materials and Hazardous Waste Management.

Since construction would result in the disturbance of more than 2 hectares (5 acres) of land the activities would be subject to Federal NPDES permitting requirements. A general construction NPDES permit and associated SWPPP would be required before construction. A copy of the Notice of Intent for Storm Water Discharges Associated with Construction Activity under a NPDES General Permit that would be filed with the EPA would also be provided to ADEC. A copy of the SWPPP would also be provided to ADEC. Upon completion of all activities covered under the NPDES construction permit, a Notice of Termination must be filed with the EPA and ADEC.

Two 1,893 liters (500 gallons) per minute potable water wells were established during initial site preparations activities in 2001. As analyzed in the NMD Deployment EIS, the water requirements for the construction workforce would be approximately 0.12 million liters per day (0.03 million gallons per day). These water requirements represent approximately 10 percent of the water use when all buildings were in use. The construction water requirements would result in a total installation usage of approximately 32 percent of the available water well capacity. With this small increase in water usage and the more than adequate recharge of the aquifer by the Delta River, the water requirements would not impact the water supply aquifer.

BMC3 construction activities could result in the disturbance of up to 7 hectares (17 acres) of land per sub-component and would also be subject to Federal NPDES permitting requirements. The water requirements for construction work and water for the construction workforce would be approximately 9,400 liters per day (2,483 gallons per day). The withdrawal of this amount of water would not be expected to impact most water supply aquifers and surface water sources.

Electricity Distribution Upgrades

Construction activities as part of the electric distribution upgrades would include a new power transmission line from the Jarvis Creek substation to the Fort Greely test site and would require placing poles along the east or west side of the Richardson Highway. Impacts to water resources would be associated with trenching and pole emplacement,

which would be short-term. Disturbance to stream channels, drainage patterns, and stream banks would be minimized to the extent practicable.

Solid Waste Landfill Extension/Construction Debris Disposal

Construction of the landfill extension or the new landfill and placing inert construction debris such as concrete rubble on top of the existing closed cells could potentially result in impacts to water resources. BMPs such as limiting the exposure area, creating collection basins, use of geotextiles, and application of dust suppression methods would be used to reduce the potential for impacts to water resources. The current landfill is located in a region where groundwater exists at 61 to 91 meters (200 to 300 feet) below ground surface. Therefore, short-term impacts to groundwater sources during construction of the expansion are not anticipated.

Allen Army Airfield Repair

Repair of the airfield would involve excavating approximately 1 meter (4 feet) down from the top of the runway and rebuilding the section with 102 centimeters (40 inches) of compacted sub-base, a 15-centimeter (6-inch) drainage layer, 10 centimeters (10 inches) of new asphalt, and upgrades to the stormwater collection system. BMPs would be used and could include storm water control measures such as detention areas, and constructed wetlands or ponds to contain runoff from the impervious areas at GBI VOC test site facilities.

Mancamp

The preferred location for construction of the administrative mancamp is on a 14.5-hectare (36-acre) area east of the existing housing area as shown in figure 2-12. However, only a small portion of the selected site would be cleared, leveled, and graveled. Construction impacts would be similar to those discussed above for the GBI and BMC3 sub-components, on a smaller scale. Impacts would be basically the same for all alternative locations, although use of Site 3 would require construction of access roads.

Operations

Once construction and landscaping is complete, there should be little erosion and runoff, and no impacts to water resources are anticipated.

Cumulative Impacts

Construction and operation of a GBI VOC test site at Fort Greely would only affect a very small portion of the base compared to the overall size of Fort Greely. Although the facilities would result in increased runoff and potential decrease in water quality, measures would be incorporated into the final design at each location to maintain the pre-GBI VOC test site storm water runoff levels and quality so as not to contribute to cumulative impacts. Currently there are several projects planned along with most of the cantonment area being excessed. Potential impacts from maneuver exercises would not apply within the ROI as the land will no longer be used for maneuvers. No other future programs have

been identified that when combined with the Proposed Action would contribute to cumulative water resources impacts.

4.1.12 ENVIRONMENTAL JUSTICE

This section addresses the potential environmental justice impacts due to construction and operation of the GBI VOC test site at Fort Greely.

An environmental justice impact would be a long-term health, environmental, cultural, or economic effect that has a disproportionately high and adverse effect on a nearby minority or low-income population. The potential for a disproportionately high and adverse effect could occur under either of two conditions:

- The percentage of persons in low-income or minority populations in the census area meaningfully exceeds the percentage in the regions of comparison.
- The percentage of low-income or minority population in the census area exceeds 50 percent.

Construction and Operation

Potential environmental justice impacts at Fort Greely were addressed in the Alaska Army Lands Withdrawal Renewal Final Legislative EIS and the NMD Deployment EIS, which concluded that there would be no disproportionately high and adverse environmental or human health effects on low-income or minority populations.

Cumulative Impacts

No other projects or activities in the region have been identified that would contribute to potential cumulative environmental justice impacts.

4.2 EARECKSON AS, ALASKA

As discussed in chapter 2, Eareckson AS is a proposed location to establish the BMC3 component, and associated facilities to support GBI VOC test site activities. Proposed activities at Eareckson include construction and operation of one IDT; construction and operation of two co-located DSCS earth terminals; software and hardware upgrades to the existing COBRA DANE radar; construction of terrestrial FOC; overhaul or refurbishment of the existing power plant; establishment of a mancamp; and development of a beach landing and staging area.

Resources that have a potential for impacts were considered in the analysis to provide the decision makers with sufficient analysis for evaluation of potential effects of the action. Initial analysis indicated that the Proposed Action would not result in short-or long-term impacts to socioeconomics.

Under the Proposed Action, there would be a minimal personnel force associated with the construction and operation of the GBI VOC test site. In addition, construction of the site would create minimal construction-related jobs. Therefore, there would be no impact to local or regional socioeconomic resources, and this resource area is not analyzed further.

4.2.1 AIR QUALITY

This section addresses potential environmental impacts caused by changes to the air quality environment due to the proposed construction and operation of an IDT, two co-located DSCS earth terminals, and mancamp, refurbishment of the existing power plant, and the establishment of a staging area.

Construction

Activities at Eareckson AS would occur in the main base cantonment area. The IDT, two co-located DSCS earth terminals, and staging area sites would require minimal ground disturbance over an 18-month construction period. Construction activities associated with the power plant would occur in existing facilities and not involve any ground disturbance.

The proposed construction of the new facilities would cause temporary localized increases in air emissions. However, this would not require modification of Eareckson's Title V operating permit. The Alaska Department of Environmental Conservation has determined that the proposed GMD VOC test site at Eareckson AS would be a new facility, separate from the U.S. Air Force for air permitting purposes. (Baumgartner, 2002). Emissions associated with construction activities include fugitive dust from ground disturbance, combustion byproducts from construction equipment, and emissions from solvents and architectural coatings.

Ground disturbance would generate dust (PM-10) in the immediate vicinity of the construction. The levels of dust generated would change through time depending on the level of activity, the weather, and the condition of the ground itself. It is expected that the majority of grading would be accomplished during the first several months of construction and that overall ground disturbance would only occur for approximately 18 months.

Potential emissions from mobile and stationary construction equipment as well as asphalt and architectural coating activities are also considered in the air quality analysis. As stated above, it is assumed the majority of the heavy equipment activities would be accomplished during the first 18 months.

Mancamp

The preferred location for construction of the mancamp is in the vicinity of Foundation Village near the center of the island as shown in figure 2-5. The selected site would be cleared, leveled, and graveled. Construction impacts would be similar to those discussed above for the IDT and DSCS components on Fort Greely, but on a smaller scale.

Construction activities would be conducted in accordance with applicable regulations and permits. Related emissions would be intermittent and would not be anticipated to cause exceedances of air quality standards. As such, the proposed construction would have minimal impact on air quality.

Operations

The IDT and two co-located DSCS earth terminals would be powered by the existing onsite power plant source with backup emergency generators. Based on current program plans, one 250- to 300-kW backup generator for the IDT and thirty-two 30 kW microturbine generators for the DSCS would be operated for maintenance cycling and emergency power conditions in accordance with applicable permits. The generators would be fueled through two 2,460-liter (650-gallon) day tank ASTs, and two 34,068-liter (9,000-gallon) ASTs, also used under applicable permits. This varies somewhat from the information previously provided to the State of Alaska (Baumgartner, 2002) and will be reflected in the eventual air permit. Small amounts of materials involved in normal maintenance activities would not cause a significant impact to air quality. However, potential emissions from these activities would be accounted for in applicable operating permits, such as the Title V Air Permit. Maintenance-related emissions are not addressed further in the air quality analysis.

At some of the proposed sites, a small amount of road upgrade or paving may be required. This activity would not cause significant air quality impacts at the respective sites.

Mancamp

The mancamp would provide office space and living accommodations for a minimum of 35 and a maximum of 200 personnel. Utilities are anticipated to be provided by existing on-island resources.

Overall, installation and operation of the Proposed Action would not be expected to generate substantial air emissions.

Cumulative Impacts

Given the limited amount of construction and operational emissions and lack of surrounding communities, no cumulative impacts would be expected.

4.2.2 AIRSPACE

This section addresses potential impacts to airspace due to the proposed construction and operation of GMD facilities on Eareckson AS.

Under the Proposed Action, there are no requirements for any restricted airspace as a result of the Proposed Action; therefore, there would be no impact to this resource area and it is not analyzed further. Proposed hardware and software upgrades to the COBRA DANE radar would not change the power input or output. During GMD test operations and training, radiated peaks and average power and operating bounds would remain the same as current levels.

4.2.3 BIOLOGICAL RESOURCES

This section addresses potential impacts to biological resources including vegetation, wildlife, threatened and endangered species, and environmentally sensitive habitat due to the proposed construction and operation of GMD facilities on Eareckson AS. Ground disturbance, habitat loss, noise from construction, and an increase in personnel during construction and operation of the Proposed Action at Eareckson AS could result in impacts to biological resources present in the area.

Construction

Vegetation

Ground disturbance during construction would result in removal of vegetation and wildlife habitat within the proposed sites. This would only represent a small amount of total available vegetation and should not result in adverse impacts except for the loss of crowberry plants, an important fall food for Aleutian Canada geese.

Wildlife

Impacts to wildlife could occur during the construction of the proposed facilities. Construction ground disturbance and equipment noise-related impacts could include loss of habitat, displacement of wildlife, increased stress, and disruption of daily/seasonal behavior. Typical noise levels at 15 meters (50 feet) from construction equipment range from 70 to 98 dBA. The combination of increased noise levels and human activity would likely displace some small mammals and birds that forage, feed, nest, or have dens within this 15-meter (50-foot) radius. However, additional similar habitat is adjacent to the area proposed for use. Although construction activities could cause flushing (causing birds to suddenly fly up), this is a common reaction to sudden natural sounds and only slightly increases the energy expenditure of individual birds. Wildlife has become accustomed to the current noise and human presence. Given the small area of disturbance and short-duration of the construction period (18 months) it is not anticipated that any adverse impacts would occur.

The movement of equipment and materials to Shemya Island during construction and operation of the Proposed Action would increase the probability of introducing invasive species to the island. Measures would be taken to prevent the introduction of Norway rats, other rodents, or invasive plants.

Threatened and Endangered Species

General construction activities would occur inland and would result in no impacts to threatened and endangered marine mammals. As discussed in the NMD Deployment EIS, barge activities would be limited to a few times a year, would not occur next to Steller seal lion haul out areas, and are not anticipated to adversely affect sensitive species. Shemya Island is not a nesting area for the Aleutian Canada goose, nor a breeding or pupping area for the Steller sea lion. If it is determined that a mancamp is required on Eareckson AS, a site would be selected that would avoid damage to crowberry, the main food source for the Aleutian goose in the fall, to the extent practicable. Loss of this food may cause geese

to shift their feeding distribution closer to the runway and increase the hazard to aircraft. The presence of the short-tailed albatross on Shemya Island is considered unlikely. It is also highly unlikely that the spectacled eider would be present offshore.

Environmentally Sensitive Habitat

Since almost all of Shemya contains wetlands, impacts are unavoidable, but wetlands would be avoided to the extent practicable in accordance with Executive Order 11990, *Protection of Wetlands*. The Executive Order requires that action be taken to minimize the destruction, loss, or degradation of wetlands and that all practicable measures to minimize harm to wetlands are included in the Proposed Action if there is no practicable alternative to construction in wetlands areas. Approximately 5 hectares (12 acres) of wetlands would be disturbed by the GMD VOC proposed construction activities (less than that proposed for disturbance in the NMD Deployment EIS). An additional 2 hectares (5 acres) of wetlands could be filled if the large quantities of peat that would be removed during construction require disposal. Less than 1 percent of the wetlands on the island would be affected.

Minimizing disturbance to wetlands would include Best Management Practices such as controlling runoff from construction and operation sites into adjacent wetlands through stabilizing fill slopes from erosion and the use of berms, silt curtains, straw bales, and other appropriate techniques to filter sediment from storm water runoff. Equipment should be washed in areas where wastewater can be contained and treated or evaporated. Permits under Section 404 of the Clean Water Act and state Section 401 water quality certification would be obtained where wetlands would be affected and before any discharge of fill material. The Alaska water quality certification would require that any discharge to navigable waters comply with applicable provisions of the Clean Water Act, including water quality standards. Maintenance of wetland quality and value would be coordinated with applicable agencies. The permitting process would entail review of proposed activities and possible mitigations through the public and agency review process.

Mitigation measures would be developed during the Section 404 permitting process with the U.S. Army Corps of Engineers. Agency-recommended mitigations would take into account the size and quality of the wetlands involved. The following measures to mitigate or minimize impacts to wetlands were proposed in the NMD Deployment EIS.

- avoidance of direct and indirect disturbance of wetlands through facility redesign
- on-base (if possible) replacement of wetlands
- restoration/enhancement of wetland habitat
- monitoring (until habitat becomes well established) of any replacement wetlands as required to determine the effectiveness of replacement and any remedial measures.

Because the creation or development of wetlands represents a substantial financial investment, and the process may take several years to complete, this option is often reserved for wetland mitigation of high quality or for sizable area of affected wetlands. The probability of success that a newly created wetland would survive and flourish could vary, which sometimes makes this option less desirable than wetland restoration or avoidance.

The USFWS indicated during NMD Deployment EIS consultation that there is no appropriate area on Shemya to mitigate potential impacts to wetlands by replacement. Therefore, they suggested implementing mitigation measures on other Aleutian islands such as reintroducing the Evermann's Rock Ptarmigan to Agattu from Attu and studying the population and distribution of Cormorants in the Near Islands.

Operations

Vegetation

The climate and type of vegetative cover that grows on the island coupled with any disturbance in the area automatically limits the growth of the vegetation and no mowing is required. No operational impacts to vegetation are anticipated.

Wildlife

No adverse impacts to wildlife from operation of the COBRA DANE radar have been identified. Most operational impacts to wildlife from the Proposed Action would come from security lighting and from periodic noise from the electrical generators required for some sites. The lighting and noise could encourage species less tolerant of these types of disturbances to avoid the area. Generator noise levels expected at the site could range from 80 to 85 dBA at up to 105 meters (344 feet). These noise levels would only occur a couple of hours a week during maintenance activities for backup generators. The two 9.1-meter (30-foot) poles associated with the IDTs would not be supported by guy wires and do not represent a potential hazard to migratory birds. The U.S. Air Force and the USFWS are conducting vegetation studies to assist in a bird aircraft strike hazard assessment. This assessment would contain guidelines to minimize the potential safety hazard to aircraft from a bird strike during flight operations from Eareckson AS. It is not anticipated that there would be a substantial change in aircraft traffic as a result of GMD operations. The USFWS allows the U.S. Air Force to maintain vegetation on the island to minimize use by the recently delisted Aleutian Canada goose.

During normal GMD operations the IDT and DSCS would not transmit except for a few minutes during tests of the equipment. Given the short duration of transmission, no adverse impacts to wildlife are anticipated from operations.

Threatened and Endangered Species

Operational activities would mainly occur inland and would result in no impacts to threatened and endangered marine mammals. As mentioned above, barge activities would be limited to a few times a year and would not occur next to Steller seal lion haul out areas. The IDT and DSCS would only transmit for short periods during tests of the equipment. No adverse impacts to threatened and endangered species from operation of the COBRA DANE radar have been identified.

Environmentally Sensitive Habitat

No impacts to environmentally sensitive habitat due to operational activities are anticipated.

Cumulative Impacts

Cumulative impacts would result from increased activity during construction and the loss of a small amount of habitat at the proposed site. Shemya Island is not considered critical habitat. The loss of habitat and wetlands (less than one percent of total wetlands on the island) would result in cumulative impacts to biological resources on the island given past development; however, since most of the island has been developed and previously disturbed the cumulative impacts would be minor. No major future programs have been identified at Eareckson AS or the region that could contribute to cumulative impacts to biological resources.

4.2.4 CULTURAL RESOURCES

The following section discusses the potential for impacts to historic resources due to construction and operation of the Proposed Action.

Construction

Prehistoric and Historic Archaeological Resources

No impacts are anticipated to any known prehistoric and historic archaeological sites on Eareckson AS. 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 during construction of any GMD component cultural items are inadvertently discovered, activities would cease in the immediate area and the Alaska SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow the guidance provided.

Historic Buildings and Structures

The only known historic structure on Eareckson AS is the COBRA DANE radar and only interior modifications are proposed resulting in no impacts to its historic integrity. Since the COBRA DANE facility is eligible for listing on the National Register of Historic Places, consultation with the Alaska SHPO has been initiated. HABS/HAER documentation and guidelines resulting from this consultation would be implemented.

Native Populations/Traditional Resources

During the siting process for the Proposed Action the three prehistoric archaeological sites eligible for conveyance to the Aleut Corporation under section 14(h) (1) of the Alaska Native Claims Settlement Act were avoided, and no impacts are anticipated.

Paleontological Resources

No paleontological resources have been recorded on Shemya Island, however, if fossils are unexpectedly discovered, subsequent actions may be required.

Operation

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. No impacts to cultural resources are anticipated during operation of the Proposed Action at Eareckson AS. However, if during operation at any GMD component cultural items are inadvertently discovered, activities would cease in the immediate area and the Alaska SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow the guidance provided.

Cumulative Impacts

Potential cumulative impacts on historic properties would be minimized through avoidance or through mitigation measures that would be developed in consultation with the Alaska SHPO.

4.2.5 GEOLOGY AND SOILS

This section addresses the potential impacts to geology and soils due to construction and operation of the IDT and DSCS, mancamp, beach landing area, and support facilities of the GBI VOC test site.

Construction

Construction would require grubbing and grading for site preparation. Proposed facility sites on Shemya Island generally have terrain and geologic settings favorable for construction and controlling soil erosion, however, geotechnical studies may be required to ensure suitable foundation design in selected areas. The primary soil management issues would most likely be limited to soil erosion from short-term construction activities. BMPs would be implemented to minimize negative short-term effects of clearing and grading activities during site preparation, as well as excavations and grading for connecting infrastructure, roadways and parking.

Eareckson AS is located within seismic zone 4 and would be subject to a high probability of severe ground shaking during the design life of the proposed facilities. Construction of the Proposed Action would incorporate seismic design parameters consistent with the critical nature of the facility and its geologic setting.

Operation

Once construction is complete and vegetation is replaced, there should be little potential for soil erosion from operations, and no impacts to geology and soils are anticipated.

Cumulative Impacts

Given the limited amount of ground disturbance associated with the Proposed Action, no cumulative impacts to geology and soils are anticipated.

4.2.6 HAZARDOUS MATERIALS AND WASTE

This section addresses potential impacts that could result from the storage and use of hazardous materials and the generation and disposal of hazardous waste associated with construction and operation of the proposed IDT; DSCS; software and hardware upgrades to the existing COBRA DANE radar, installation of FOC, refurbishment of the existing power plant, and mancamp, including the potential impacts on the ongoing remediation activities at existing contaminated sites.

Proposed construction and operation would require the use of new facilities. Interior building modifications to the COBRA DANE radar facility would be required as part of the Proposed Action. Upgrades to the existing power plant involve only the refurbishment or replacement of mechanical equipment with no building modifications anticipated.

Construction

Hazardous Materials and Waste Management

Hazardous wastes generated during construction would consist of materials such as waste oils, hydraulic fluids, cleaning fluids, cutting fluids, and waste antifreeze. These materials would be containerized and properly disposed of by the individual contractors. Any spill of a hazardous material or hazardous waste that may occur during construction would be quickly remediated in accordance with the contractor's SWPPP and Project Spill Prevention, Control, and Countermeasure Plan that would be developed for each site. All hazardous materials used and hazardous waste generated during construction would be handled in accordance with applicable Federal, state, and local regulations.

Construction activities would be centralized to the greatest extent possible and would occur at the proposed sites on specified construction laydown areas and access roads. Temporary storage tanks and other facilities for the storage of hazardous materials would be located in protected and controlled areas designed to comply with site-specific spill prevention and countermeasure plans.

Asbestos

Unencapsulated asbestos was determined to be present in an unused area of Building 600. Asbestos is likely to be present in other buildings that could be used as part of the Proposed Action. It is reported to be encapsulated and in good condition. Since only maintenance and/or repairs, rather than modification, are scheduled for these buildings that may contain asbestos, there would not be any impact from asbestos.

Lead-based Paint

Based upon the number of buildings constructed prior to 1978, the presence of lead-based paint is likely in buildings that are associated with the Proposed Action. Since only maintenance and/or repairs, rather than modifications, are scheduled for these buildings that may contain lead-based paint, there would not be any impact from lead-based paint.

PCBs

Eareckson AS is considered PCB free, and no impact would be expected.

Operations

Hazardous Materials Management

The maintenance and operation activities of the Proposed Action would be minimal. The expected hazardous materials include lubricants and oils, electrical generator fuels, and backup power batteries. These materials would be controlled and managed through an existing hazardous materials program. These materials would be used in the periodic inspection and preventative maintenance associated with the backup generator system. Besides the fuel for the electrical generator, no hazardous materials would be stored onsite. Any location where hazardous materials are used will have appropriate Material Safety Data Sheets posted. The appropriate spill response and hazardous materials management plan would be developed for the Proposed Action in accordance with Federal, state, and local regulations. Eareckson AS also has an existing SWPPP and an Oil and Hazardous Substance Discharge Prevention and Contingency Plan that would be updated to reflect these materials.

Hazardous Waste Management

As discussed above, there would be minimal use of hazardous materials during operation of the Proposed Action. This would not affect Eareckson AS's status as a small quantity generator as defined by the EPA. Most hazardous waste generated would be used oil from the occasional maintenance of the electrical generators at the site. The used oils would be recycled in accordance with appropriate regulations by the host installation. Any hazardous waste generated at the site would be removed after maintenance and transferred to the host installation's main hazardous waste storage facility. Used batteries would be recycled through the Defense Reutilization and Marketing Office. Any hazardous waste generated would be handled in accordance with appropriate Federal, state, and local regulations. The appropriate hazardous waste management plan would be developed for the site.

Pollution Prevention

A stated objective of the GMD element is to seek opportunities to eliminate or minimize use of hazardous materials throughout the life cycle of the program. A Pollution Prevention Plan would outline strategies to minimize the use of hazardous materials. This plan would be applied throughout the design of all related facilities, incorporating trade studies and emphasizing reduction of hazardous materials to be used on government installations. It is currently being developed as part of the GMD element. The majority of the waste stream from GBI VOC test site operations would be recycled or utilized for energy recovery.

Installation Restoration Program

Operation would be designed to avoid interference with potential ongoing remedial activities and would be coordinated with appropriate Federal and state regulatory officials. A portion of the proposed concrete batch plants (north and south) and the concrete tip site

for the DSCS lie within the previously existing Installation Restoration Program Site ST10. The source of the contamination was from a release from three USTs located at the Vehicle Fueling Shop. Contaminated debris and soil were removed in 1992 and 1993 and biannual groundwater monitoring is being conducted.

Radon

In areas where existing radon surveys have been found to exceed U.S. EPA recommendations, appropriate design techniques would be utilized for occupied facilities to ensure exposure levels would not exceed recommended levels.

Pesticides

During the IDT, DSCS, and mancamp operational maintenance, pesticides may be needed within the site. The use of pesticides would be in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act. Local installation personnel would be contacted for appropriate materials that should be used for Eareckson AS.

Cumulative Impacts

Potential cumulative hazardous materials and hazardous waste impacts could occur with the combination of the Proposed Action activities and ongoing and future hazardous materials and hazardous waste management activities. Overall, it is not expected that there would be any cumulative hazardous materials or hazardous waste management issues given the small amounts of these materials used and generated.

4.2.7 HEALTH AND SAFETY

This section addresses the potential impacts to health and safety due to construction and operation of the proposed IDT, DSCS, mancamp, staging area, and support facilities of the GBI VOC test site on Eareckson AS.

IDT health and safety impacts are evaluated by determining the processes that have the greatest potential for damage or injury. The primary health and safety issue associated with the IDT operation is EMR health impacts to the workers. Possible EMR impacts could include worker exposure that exceeds standards, ignition of explosive devices, and effects to critical communication systems.

The potential for EMR exposure and general construction-related health and safety issues is common to any BMC3 location. Therefore, these potential health and safety issues are addressed below. Potential impacts related to construction worker exposure to asbestos, lead-based paint, and ground/water site contamination are addressed under Hazardous Materials and Hazardous Waste Management.

Construction

The construction of the Proposed Action components would be conducted in accordance with the U.S. Army Corps of Engineers *Safety and Health Requirements Manual* and OSHA

regulations. The construction of new facilities is routinely accomplished for both military and civilian operations and presents only occupational-related effects on the safety and health of workers involved in the performance of construction activity.

Operations

EMR

During normal operating scenarios, the IDT and DSCS would not transmit except during periodic testing of the equipment. It is expected that a power/calibration test of the transmitter would occur at least once a year. During this test EMR would be generated by the IDT, but EMR levels would not exceed established personnel exposure limits. No impacts to health and safety are anticipated from operation of the IDT or DSCS sub-components. The remainder of the year, the IDT and DSCS would not generate any EMR. No health and safety impacts associated with other proposed activities (COBRA DANE radar) operation of the existing power plant, and mancamp/administrative support facilities are expected.

Cumulative Impacts

There are no health and safety risks associated with operation of the Proposed Action; therefore, no cumulative impacts should occur.

4.2.8 INFRASTRUCTURE

This section addresses the potential for impacts to infrastructure due to the proposed construction and operation of the Proposed Action.

The Proposed Action would increase employment by a minimum of 35 personnel up to a maximum of 200 personnel. The base infrastructure was designed to accommodate 1,500 personnel. Currently, approximately 80-100 personnel reside on base at any one time.

Construction

Water

During construction, it is expected that water demand would increase as a result of construction workers taking up temporary residence. The existing potable water system at Eareckson AS is anticipated to have sufficient available capacity for construction personnel and activities. Other on-base water usage from construction would be related to site watering and any required batch plants. The available capacity of 1.28 million liters (0.33 million gallons) per day would be sufficient to handle this demand.

Wastewater

An increase in wastewater usage would occur during construction of the proposed facilities. During construction, it is expected that wastewater would increase on base as a result of construction workers taking up temporary residence. The increase in wastewater

usage would be well within the available capacity of 0.69 million liters (0.18 million gallons) per day.

Solid Waste

Solid wastes associated with the preferred alternative are expected to be shipped offsite. Current estimates anticipate the landfill to reach capacity in less than 15 years. However, there is space available to expand the landfill if necessary.

Electricity

Eareckson AS obtains its power from an on-base Power Plant, which is able to provide sufficient power to the installation. It is anticipated that a 9.5-million-liter (2.5-million-gallon) fuel tank would be installed and connection made into the existing piping system. No increase in electricity producing capacity of the power plant is anticipated.

Mancamp

Lighting would be installed for security and parking at the mancamp location. All utility services would be provided by the Power Plant, and would be brought to the site with minimum connectivity and there would be no impact to the existing system. Eareckson AS would provide electricity, with backup power provided by temporary generators as needed. Minor heating, electrical, and plumbing system repairs would be performed as necessary in the additional support buildings provided for warehouse and equipment maintenance space.

Although the requirement for the mancamp has not been validated, the preferred location is close to supplies of electricity, water and sewer service.

Operation

Water

Water usage would be expected to increase, based on the increase in operational personnel, which is within the available base capacity.

Wastewater

Wastewater generation would be expected to increase, based on the increase in personnel for operation. It is anticipated that the available base capacity is sufficient to accommodate the potential increase in wastewater.

Solid Waste

It is anticipated that available landfill capacity is sufficient to accommodate the potential increased generation of solid waste.

Electricity

Currently, the U.S. Air Force is overhauling five of the six existing diesel generators. However, no increase in electricity producing capacity is anticipated as a result of the Proposed Action.

Mancamp

All utility services would be provided by the Government, and would be brought to the site with minimum connectivity and there would be no impact to the existing electrical system. Eareckson AS would provide electricity, with backup power provided by generators as needed.

Cumulative Impacts

The construction programs, which consist mostly of new construction and minor upgrades to existing infrastructure, could result in a temporary increase in utility demands, which would be accommodated through existing or temporary construction-related utility systems. It is not expected that GMD VOC activities would exceed any of the operational capabilities of the existing infrastructure system.

4.2.9 LAND USE

This section addresses potential environmental impacts caused by changes to the land use environment due to the construction and operation of the Proposed Action. These impacts include potential effects from ongoing projects and activities at these sites.

Construction

Currently the station has no zoning or land use conflicts. Eareckson AS is under the primary jurisdiction of the U.S. Air Force and is surrounded by the Alaska Maritime National Wildlife Refuge. The Proposed Action would coincide with the existing mission of the station, which is to monitor and track space and missile activity.

Construction activities would be consistent to the maximum extent practicable with coastal management policies.

Operation

Operation of the proposed GBI VOC test site components would not interfere with current Eareckson AS activities.

Cumulative Impacts

No cumulative impacts to land use are anticipated.

4.2.10 NOISE

This section addresses the potential impacts to the noise environment due to the construction and operation of the Proposed Action.

Construction

Construction activity would not cause a significant noise impact since it would be short-term, and would not constitute a health risk. No sensitive land uses such as residences, schools, or hospitals are located on Shemya.

Operations

Operational noise from the IDT and DSCS terminal would result from intermittent operation of a backup generator during testing which would occur for 2 hours each week and during commercial power outages.

Cumulative Impacts

Short-term cumulative impacts could result if construction activities occurred concurrently with other construction activities nearby. In addition, long-term noise impacts could occur if the operational noise from the site combined with other existing noise sources to increase levels above recommended exposure levels for certain land uses. However, given the intermittent nature of operational noise, cumulative impacts are not likely.

4.2.11 WATER RESOURCES

This section addresses the potential impacts to water resources due to construction and operation of the IDT and DSCS, mancamp, beach landing area, and support facilities of the GBI VOC test site.

Construction

Construction activities would require grubbing and grading for site preparation. The proposed sites are located on relatively level topography, where drainage patterns would only be altered slightly and surface water runoff and erosion would be minimal during the short duration of construction until surface vegetation is re-established. A minor increase of sediment in surface waters is possible, but not likely. The proposed site would be located to avoid poorly drained areas.

The Proposed Action would be subject to Federal NPDES permitting requirements. The water requirements for construction work and water for the construction workforce would be less than the 9,400 liters (2,483 gallons) per day analyzed in the NMD Deployment EIS. The withdrawal of this amount of water would not be expected to impact most water supply aquifers and surface water sources.

Shemya Island is a high seismic setting. Provisions would be made to design new fuel storage structures, piping, and AST's to minimize the potential effects of severe ground shaking and tsunami wave run-up. Fuel transfer and distribution procedures and spill mitigation would be addressed in the spill prevention, control, countermeasures, and emergency response procedures.

Cumulative Impacts

Future programs and previous activities at the site would not be expected to combine to create any cumulative water resources impacts.

4.2.12 ENVIRONMENTAL JUSTICE

This section addresses the potential environmental justice impacts due to construction and operation of the proposed action.

Construction and Operation

Eareckson AS is on Shemya Island, and only military personnel and contractors live at this site. There are no disproportionately high minority or low-income populations around Eareckson AS. The nearest population center to Eareckson AS is Adak Station on Adak Island, which is approximately 587 kilometers (365 miles) to the east of Eareckson AS. As of 1999, 80 percent of the population within the Aleutians West Census Area reside in the City of Unalaska, which is located on Unalaska Island approximately 1,231 kilometers (765 miles) to the east of Eareckson AS.

Cumulative Impacts

No other projects or activities in the region have been identified that would contribute to potential cumulative environmental justice impacts.

4.3 EIELSON AFB, ALASKA

As discussed in chapter 2, Eielson AFB would be the location of a Missile Transfer Facility. Proposed activities at Eielson AFB include construction and operation of the Missile Transfer Facility including the installation of lighting fixtures and a security fence, minor modification of existing onbase access roads, and multiple pulloffs along public highways between Eielson AFB and the selected GBI VOC test site. The Missile Transfer Facility would support cold weather loading/off loading and storage requirements of the interceptor and support equipment.

Resources that have a potential for impacts were considered in the analysis to provide the decision makers with sufficient analysis for evaluation of potential effects of the action.

4.3.1 AIR QUALITY

This section addresses the potential impacts to air quality due to construction and operation of a Missile Transfer Facility on Eielson AFB.

Construction

Location of the Missile Transfer Facility would require widening and paving access roads to the site, establishment of new utility corridors, installation of a backup generator, and fuel storage facilities. The proposed construction would cause temporary localized increases in air emissions.

Construction would be conducted in accordance with applicable regulations and permits and would occur on a leveled and graveled site. Although the construction would cause an increase in air pollutants, the impact would be both temporary and localized. Once construction ceased, air quality would return to its former levels. It is anticipated that the proposed construction would not cause exceedances of the NAAQS or state standards beyond the immediate construction zone and would not have a long-term impact to air quality in the area.

Operation

Existing on base resources would provide power for the Missile Transfer Facility. A backup generator would be maintained in the event of a power outage and would require appropriate operating permits.

Eielson AFB is a major source of air pollutants and a major source of Hazardous Air Pollutants and maintains a Title V Air Permit limiting the emission of pollutants. Under normal operations, the Missile Transfer Facility would generate minimal emissions, the majority of which would come from the operation of the backup generator, which would be appropriately permitted.

No air quality impacts would be anticipated due to the normal operational emissions of the proposed Missile Transfer Facility. Eielson AFB is not within 10 kilometers (6 miles) of a Class I area, and no PSD review would be required based on proximity to a Class I area. The proposed operation would not be expected to impact any Class I area.

Operation of the Missile Transfer Facility at Eielson AFB would not be anticipated to cause or contribute to exceedances of the NAAQS or state standards and as such would not be expected to cause any change in the area's attainment status.

Cumulative Impacts

It is anticipated that construction and operation of the Missile Transfer Facility on Eielson AFB when combined with existing and reasonably foreseeable operations on the base would not result in cumulative air quality impacts.

4.3.2 BIOLOGICAL RESOURCES

This section addresses the potential impacts to biological resources due to the construction and operation of a Missile Transfer Facility on Eielson AFB.

Construction

Vegetation

The proposed Missile Transfer Facility would be located on a previously disturbed graveled area in proximity to the airfield. Modifications to access roads are expected to be within existing rights-of-way. No sensitive vegetation has been identified within the site, and no impacts to vegetation are anticipated.

Wildlife

No anadromous fish streams are near the proposed site. Typical noise levels at 15 meters (50 feet) from construction equipment range from 70 to 98 dBA. The combination of increased noise levels and human activity would likely displace some small mammals and birds that forage, feed, nest, or have dens within this 15-meter (50-foot) radius. However, additional similar habitat is adjacent to the area proposed for the Missile Transfer Facility. Some wildlife may leave the area permanently, while others may likely become accustomed to the increased noise and human presence. The presence of personnel may cause wildlife to temporarily avoid the area.

Threatened and Endangered Species

No Federal or state listed threatened or endangered species have been observed at Eielson AFB. However, the recently delisted peregrine falcon may travel through the area, and therefore could potentially be disturbed by construction-related noise. This unlikely disturbance would be short-term and is not expected to disrupt nesting or alter migration patterns.

Environmentally Sensitive Habitat

Construction activities would occur on a previously disturbed graveled site adjacent to wetlands areas. BMPs such as stabilizing fill slopes to minimize erosion and the use of hay bales to filter sediment from storm water runoff would be implemented. Any discharge or runoff would comply with applicable provisions of the Clean Water Act, including water quality standards. Maintenance of wetland quality and value would be coordinated with applicable agencies. No impacts to the adjacent wetlands are anticipated.

Operation

Vegetation

No impacts to vegetation are anticipated during operation of the Missile Transfer Facility.

Wildlife

The infrequency of flights required to transport GBI components if Eielson AFB is used as a Missile Transfer Facility location is not expected to change policies and procedures regarding wildlife management including planning to avoid bird strikes by aircraft. Personnel would only be present at the Missile Transfer Facility when a GBI arrives on base and is being prepared for transportation to the GBI field or temporary storage. Security lighting could potentially attract wildlife to the project areas; however, any impacts, such as startling when personnel are in the area, would be minimal. Otherwise the facility would be unmanned except for occasional maintenance activities such as landscaping. Only minor, short-term impacts to wildlife, such as startling, are anticipated as a result of these activities.

Threatened and Endangered Species

No impacts to threatened or endangered species are anticipated during operation of the Missile Transfer Facility.

Environmentally Sensitive Habitat

No impacts to sensitive habitat are anticipated during operation of the Missile Transfer Facility.

Cumulative Impacts

No cumulative impacts to biological resources are anticipated.

4.3.3 GEOLOGY AND SOILS

This section addresses the potential impacts to geology and soils due to the construction and operation of the Missile Transfer Facility.

Construction

The Missile Transfer Facility would be constructed on a relatively flat parcel previously used for a storage pad/gravel parking area. The potential for soil erosion is minimal, however, BMPs would be employed during construction to further mitigate the deleterious effects of grading and excavations. These measures could include limiting the amount of area exposed, creating sediment basins to control flow, and adding protective covering to the slopes.

Eielson AFB is within a region of discontinuous permafrost. Geotechnical studies would be performed to evaluate permafrost conditions at the site to enhance foundation design.

Construction on Eielson AFB would not impact any mineral resources on the base. There is the potential for use of local sand and gravel resources in the area as part of the construction process; however, this should not deplete the available resources in the area. Purchase of state-owned gravel would be under a materials sale contract.

Operations

Once construction is complete and vegetation is replaced, there should be little soil erosion from operation of the site. The Missile Transfer Facility would be designed to minimize the possible effects of high seismic ground accelerations.

Cumulative Impacts

No cumulative impacts are anticipated resulting from new construction planned for the cantonment area at Eielson AFB. No long-term cumulative impacts to soils would be expected from erosion at the site. Overall, no cumulative impacts are expected from construction and operation at this location.

4.3.4 HEALTH AND SAFETY

This section addresses the potential impacts to health and safety due to the construction and operation of the Missile Transfer Facility on Eielson AFB.

Construction

Construction of the Missile Transfer Facility would not conflict with any existing safety risks on Eielson AFB.

Operation

The Missile Transfer Facility would require the establishment of a ESQD. The establishment of the ESQD would go through DoD review to ensure there are no incompatible health and safety issues. The proposed ESQD associated with the Missile Transfer Facility would fall within the base boundary; therefore, an explosion of the GBI within the facilities should not pose a public health and safety risk.

During operation, the Missile Transfer Facility would be dormant except for the occasional transfer activities. Eielson AFB would provide some logistical support such as fire response and use of the airfield. The Eielson Fire Department is adequate to handle the installation and operation of the Missile Transfer Facility and provide fire-fighting support. None of the U.S. Army or U.S. Air Force training exercises would conflict with the operation of the Missile Transfer Facility or present an incompatible health and safety issue. The potential for an aircraft mishap to occur over the Missile Transfer Facility is considered remote. The main U.S. Air Force impact areas and training areas are east of the proposed site and would not be affected.

Any GBI mishap that would result in a solid propellant fire could generate hazardous air pollutants. At no time would it be expected that peak hydrogen chloride (the toxic constituent of main concern of burning solid propellants) emission levels would exceed public exposure guidelines.

The potential for a liquid propellant leak is remote; however, if a liquid propellant leak were to occur, there is the potential for health hazard from the gases. The hazardous extent of the cloud could exceed the OSHA Permissible Exposure Level up to 760 meters (2,493 feet) from the leak for nitrogen tetroxide. The hazardous emission from the Missile Transfer Facility site would not affect any areas outside of the base boundary and would not include the administrative areas on Eielson AFB; therefore, there would be minimal public health and safety risk.

To reduce the potential for forest fires affecting the proposed Missile Transfer Facility site, the fire protection status would need to be changed from Full Protection to Critical Protection. The Critical Protection status would give the site the highest level of fire fighting protection provided by the Bureau of Land Management Alaska Fire Service. The U.S. Army would need to coordinate this revision with the Alaska Fire Service. Cooperative agreements with ten local fire departments and the Bureau of Land Management would need to be updated to inform them of the additional hazards and safety considerations of GBI temporary storage and transportation.

For the Missile Transfer Facility site operation, a health and safety plan would be prepared that would include procedures to handle emergencies involving the GBI. This plan would describe how to handle each type of emergency, the appropriate base and off-base contacts, and an evacuation plan, if necessary.

The main health and safety risks at Eielson AFB would be associated with GBI transportation from the base to the GBI VOC test site. As addressed previously in section 4.1.6, the potential for a mishap during transportation of the GBI is considered remote; therefore, there would be minimal increase in health and safety risk at Eielson AFB.

Cumulative Impacts

Potential cumulative health and safety impacts are not expected to occur at Eielson AFB with the combination of Missile Transfer Facility activities and ongoing health and safety risk from current military activities. No new or future programs are planned that could add to potential cumulative impacts. The main cumulative impacts could come from an increase in the potential for fires or a combination of hazardous activities increasing the health and safety risk.

Missile Transfer Facility activities would occur within the facility or areas cleared of nearby vegetation. Any fire resulting from an accident in Missile Transfer Facility operation should not result in a forest fire; therefore, there would be no increased health and safety risk from fires.

4.3.5 INFRASTRUCTURE

This section addresses the potential impacts to Eielson AFB infrastructure due to construction and operation of the Missile Transfer Facility.

Construction

Solid Waste

The Fairbanks North Star Borough Landfill serves as the regional landfill and accepts waste from Eielson AFB. It is expected that construction and operation waste from the Missile Transfer Facility would go to this landfill. The landfill, which has been in operation for 30 years, is currently having a new cell constructed. It is expected that this landfill would have sufficient capacity to meet the increased solid waste demand from construction of the Missile Transfer Facility.

Electricity

Eielson AFB, with its own power generation capabilities has a 25-MW available electrical capacity. In addition, Eielson AFB can access an additional 10 MW from the Golden Valley Electrical Association if required. These available electrical capacities would be sufficient to meet the demands of the Missile Transfer Facility. Individual backup generators would be provided for the Missile Transfer Facility.

Operations

Solid Waste

It is expected that the North Star Landfill would have sufficient capacity to meet the increased solid waste demand from operation of the Missile Transfer Facility.

Electricity

Available electrical capacities would be sufficient to meet the operational demands of the Missile Transfer Facility. Individual backup generators would be provided.

Cumulative Impacts

Some additional new military construction is expected to occur on Eielson AFB. The construction of new facilities could result in a temporary increase in utility demands, which would be accommodated through existing or temporary construction-related utility systems. Operational requirements would be provided by existing or augmented service capacities. No other future programs that could contribute to cumulative utility system impacts have been identified within the region.

Overall, no cumulative utility system impacts are expected under the Proposed Action for the Missile Transfer Facility.

4.3.6 LAND USE

This section addresses the potential impacts to land use due to the construction and operation of the Missile Transfer Facility on Eielson AFB.

Construction

Under the Proposed Action, a Missile Transfer Facility would be constructed at Eielson AFB. The Missile Transfer Facility would be constructed on a gravel parking/storage pad located off Mullin's Pit Road approximately 1.6 kilometers (1 mile) from the runway. There are no inhabited structures within close proximity to the proposed construction site. The siting of the Missile Transfer Facility would be in accordance with DoD standards, taking into account the required ESQD.

Operation

There would be an ESQD around the Missile Transfer Facility. The ESQD falls within the base boundary and would be a compatible land use with everything except the biathlon course and the road. The Missile Transfer Facility would only be operated intermittently. No other land uses or facilities would be affected.

Cumulative Impacts

Construction and operation of the Missile Transfer Facility at Eielson AFB would affect a tract of land currently designated for military use, but one that is small in comparison to the remainder of Eielson AFB. Because the GMD program would not change the military use of the area, no cumulative land use changes would occur. In addition, this project in conjunction with other planned projects would not combine to create any cumulative land use impacts. No other projects have been identified for Eielson AFB that could contribute to cumulative land use or aesthetic impacts.

4.3.7 NOISE

This section addresses the potential impacts to noise due to the construction and operation of the Missile Transfer Facility on Eielson AFB.

Construction

As no noise sensitive receptors are known to exist within 2 kilometers (1 mile) of the proposed Missile Transfer Facility construction site at Eielson AFB, no impacts to the noise environment would be expected from construction equipment noise.

Although a slight increase in vehicles per day would be expected to be added to the Richardson Highway during construction of the Missile Transfer Facility, the location of the 67 dBA $L_{eq}(1 \text{ hour})$ contour is estimated to occur well within the approximate 91-meter (300-foot) right-of-way. Consequently, no impacts from traffic noise during Missile Transfer Facility construction would be expected.

Operation

The location of the 67 dBA $L_{eq}(1 \text{ hour})$ contour is estimated to occur well within the approximate 91-meter (300-foot) right-of-way. Consequently, no impacts from traffic noise during Missile Transfer Facility operation would be expected.

Cumulative Impacts

As no noise sensitive receptors have been identified in the vicinity of the construction site, it would not be expected that Missile Transfer Facility construction noise would cause an impact to the noise environment when combined with the noise from other ongoing and future programs. No cumulative impacts from traffic noise during Missile Transfer Facility operation would be expected.

4.3.8 WATER RESOURCES

This section addresses the potential impacts to water resources due to construction and operation of the Missile Transfer Facility and connecting roads and infrastructure on Eielson AFB.

Construction

The proposed Missile Transfer Facility site is not within the 100-year floodplain. The Missile Transfer Facility would be constructed on a gravel parking/storage pad located off Mullin's Pit Road approximately 1.6 kilometers (1 mile) from the runway. Drainage patterns would only be altered slightly, if at all, and surface water runoff and erosion would be minimal. A minor increase in sediment in adjacent surface waters is possible, but not likely. A Short Term Variance from Water would be required if potential effects on surface water are identified during preparation of the SWPPP.

Potential impacts to water resources resulting from accidental spills of hazardous materials during construction would be minimized because all activities would follow spill prevention, control, cleanup, and emergency response procedures described in section 4.1.5, Hazardous Materials and Hazardous Waste Management. The proposed action activities are not likely to aggravate current drinking water level exceedences.

Operation

Potential impacts to water resources resulting from accidental spills of hazardous materials during operation would be minimized because all activities would follow all applicable spill prevention, control, cleanup, and emergency response procedures.

Impacts from storm water runoff are not expected. Following construction, the current SWPPP would be amended to define the methods and procedures for controlling the discharge of pollutants in the storm water runoff from the Missile Transfer Facility, and would include the BMPs that would be implemented. Storm water control measures could include detention areas such as constructed wetlands or ponds to contain runoff.

Cumulative Impacts

Construction and operation of a Missile Transfer Facility at Eielson AFB would only affect a very small portion of the base. No other future programs have been identified that when combined with the Proposed Action would contribute to cumulative water resources impacts. All construction and operations would be completed in accordance with state and Federal water resources regulations.

4.3.9 ENVIRONMENTAL JUSTICE

This section addresses the potential environmental justice impacts due to construction and operation of a Missile Transfer Facility on Eielson AFB.

Construction and Operation

There would not be disproportionately high and adverse environmental or human health effect on minority and low-income populations around Eielson AFB. Moose Creek census area, the closest community near Eielson AFB, has a 20.29 percent minority population and 9.42 percent low-income population. This population percentage is above the Fairbanks North Star Borough Census Area ROI for this location of 19.36 percent minority and 7.58 percent low-income population. However, the small difference in both low-income and minority populations from the larger population are not a meaningful difference for environmental justice analysis.

Cumulative Impacts

No other projects or activities in the region have been identified that would contribute to potential cumulative environmental justice impacts.

4.4 BEALE AFB, CALIFORNIA

The proposed activities at Beale AFB include interior modifications to the first floor of the existing EWR building in order to construct a new Computer Maintenance Operations Center. There would be no change to the existing water, wastewater, solid waste, and electricity use as a result of the Preferred Alternative. There would no change to the exterior of the radar building. The proposed activities would also replace electronic hardware and computer software to enhance detection and discrimination capabilities, as analyzed in Appendix H of the NMD Deployment EIS. The analysis of Appendix H of the NMD Deployment EIS is incorporated by reference and can be briefly summarized as there would be no change to the radiated peak or average power levels emitted by the Beale radar, nor would there be any change to the operating bandwidth. Thus the Proposed Action would not increase the total energy emitted by the radar in any way. Staffing levels and daily operations would remain essentially unchanged, as the radar would perform GBI VOC test site related testing for only brief amounts of time. Based upon these considerations, this document examines only cultural resources since the EWR has been identified as Cold War era property, environmental justice, and health and safety.

4.4.1 CULTURAL RESOURCES

Preparation of HABS/HAER documentation or other mitigations suggested by the California SHPO as part of the programmatic agreement with Beale AFB would be implemented. No additional potential impacts to cultural resources are anticipated.

4.4.2 HEALTH AND SAFETY

Modifications of facilities are routinely accomplished for both military and civilian operations and presents only occupational-related effects on the health and safety for workers involved in the performance of construction activity. All construction would be conducted in accordance with applicable regulations and permits and no impacts to health and safety are expected.

As analyzed in the NMD Deployment EIS, the main health and safety concern from operation of the UEWR at Beale AFB in a GBI VOC test site environment would be associated with RF radiation. However, the UEWR's radiated peak, average power, and operating bandwidths would remain unchanged from current operations of the EWR. Therefore, the proposed upgrade would be in compliance with the applicable standards.

4.4.3 ENVIRONMENTAL JUSTICE

There would be no disproportionately high and adverse environmental or human health effects on minority or low-income populations around Beale AFB.

4.5 DELTA JUNCTION, ALASKA

If Fort Greely is selected as the GBI VOC site, there would likely be multiple contractors performing construction work. It is likely that the construction contractors would need to arrange for the temporary housing of their workers at a site located outside of Fort Greely. MDA's oversight role for the contractor housing action is limited to determining whether the construction contractor selected housing method is properly charged to the contract. As the construction contracts have not yet been awarded, and thus the contractor housing plans have not yet been submitted, this section will analyze possible housing methods that the construction contractors may use. Construction contractor personnel could be accommodated through the use of existing housing or other buildings in or near Delta Junction. Alternatively, a mancamp could be established on newly developed land in the same area. The land or existing facilities used could either be leased or purchased from private, City, or state-owned lands. Construction and operation of a mancamp is not likely to result in air quality impacts. A backup generator could be utilized as an emergency source of power for the mancamp. The number of construction workers in the mancamp is likely to be lower during the winter, which is when air quality conditions in Alaska are poorest due to climatic conditions.

4.5.1 INFRASTRUCTURE

Water

According to analysis in the NMD Deployment EIS, based on 360 personnel, construction worker-related water usage would be approximately 0.12 million liters (0.03 million gallons) per day.

If existing housing is used to accommodate construction contractors, existing wells serving those houses should be adequate. However, the underlying aquifer has the capacity to accommodate new wells if required. New wells and any proposed community water system would be constructed in accordance with local and state regulations and would be certified as required.

Wastewater

If existing housing is used to accommodate construction workers, existing septic systems serving those houses should be adequate. A new septic wastewater facility to support a construction contractor mancamp would be constructed and operated in accordance with local and state regulations, and would be certified as required.

Solid Waste

Solid waste could be disposed of at the Delta Junction Landfill or transported to the North Star Landfill in Fairbanks. As the Delta Junction Landfill is currently one-third full, the waste generated from housing the construction workers during the estimated 2-year period of construction is not likely to have a substantial impact on the ability to dispose of solid waste within the ROI.

Electricity

As mentioned in section 3.5.1, electricity is provided by the Golden Valley Electric Association, which has a generating capability of 224 MW of power, with an additional 70 MW available from other commercial sources. Golden Valley Electric Association would have the capacity to furnish required electricity to construction mancamps in the Delta Junction region, or to existing facilities used more intensively to temporarily house construction workers. Existing lines might need to be minimally extended to connect to newly created construction mancamps. Construction contractors may also elect to provide generators as an emergency backup. This is not considered to be highly likely, however, as the Golden Valley Electric Association is a reliable source of power, and the mancamps do not have a higher need for reliable power than does any other residential facility. Providing electricity to mancamps consistently by generator, rather than by use of the commercial source of power, would likely be more expensive and environmentally harmful.

4.5.2 SOCIOECONOMICS

Construction of the GBI VOC test site at Fort Greely could result in a mancamp being established in Delta Junction to house up to 400 construction contractor personnel.

The GBI VOC test site construction program would generate additional income in the local economy in two ways. The first is in the form of wages earned by the construction workers. A proportion of these wages would be spent locally on lodging, food, and transportation. Second, the construction program would include a proportion of locally purchased materials. These purchases, at local stores and from local suppliers, would generate additional income and jobs within the local economy. If construction contractors elect to house their workers in part by leasing or purchasing existing housing stock, the rental or purchase rate for housing may temporarily increase, which would be a beneficial impact to the local economy. Based on the experience of other construction projects at the base, the ratio of dependents to workers would be very low.

Only a small additional enrollment in the local school districts is expected as a result of the construction phase of the action. The additional enrollment would not have a significant effect on the resources of the local school district.

4.5.3 ENVIRONMENTAL JUSTICE

This section addresses the potential environmental justice impacts due to construction and operation of a contractor mancamp in the vicinity of Delta Junction.

Construction and Operation

There would be no disproportionately high and adverse environmental or human health effects on minority or low-income populations around Delta Junction.

Cumulative Impacts

No other projects or activities in the region have been identified that would contribute to potential cumulative environmental justice impacts.

4.6 CLEAR AFS, ALASKA

As discussed in Chapter 2, Clear AFS is an alternative location to establish the GBI VOC test site. Proposed activities would include construction and operation of six GBI silos and corresponding support facilities such as a mancamp, one IDT, and one DSCS. These activities would generally be expected to have the same effects as those described in section 4.1 for Fort Greely. Those activities that may result in different impacts are described below.

4.6.1 AIR QUALITY

This section addresses potential environmental impacts caused by changes to the air quality due to the proposed construction and operation of the GBI VOC test site.

Construction

GBI and BMC3

If Clear AFS were to be chosen as the location for the GBI VOC test site, construction would disturb up to 162 hectares (400 acres). This estimate includes ESQD areas that would not result in disturbed ground, therefore the estimate presented and analyzed in the NMD Deployment EIS for disturbance of up to 243 hectares (600 acres) would still be applicable.

The proposed construction would cause temporary localized increases in air emissions. Emissions associated with construction activities include fugitive dust from ground disturbance, combustion byproducts from construction equipment, and emissions from solvents and architectural coatings. Ground disturbance would generate dust (PM-10) in the immediate vicinity of the construction. The levels of dust generated would change through time depending on the level of activity, the weather, and the condition of the ground itself. It is expected that the majority of grading would be accomplished during the first 12 months of construction and that the majority of overall ground disturbance would occur during the first 2 years. Potential emissions from mobile and stationary construction equipment, as well as asphalt and architectural coating activities, are also considered in the air quality analysis.

Current base-wide PM-10 emissions total 57 metric tons (63 tons). According to calculations performed for the NMD Deployment EIS based on clearing 243 hectares (600 acres), approximately 983 metric tons (1,084 tons) of PM-10 (fugitive dust and combustion emissions) would be generated during 2 years of construction. Clearing anticipated for the Proposed Action would fall within this parameter.

Increases in mobile emissions could also cause increases in ambient levels of some pollutants, such as hydrocarbons, carbon monoxide, nitrogen oxides, and particle emissions. The primary pollutant of concern from mobile sources in Alaska is carbon monoxide. As such, this is the only pollutant from mobile sources analyzed in the NMD Deployment EIS and this study. Up to 80 percent of carbon monoxide emissions contributing to exceedances of the NAAQS in Fairbanks have been attributed to mobile sources. Cold starts during moderately cold weather, prolonged idling periods, and low-level temperature inversions all contribute to pronounced air quality impacts from motor vehicle emissions in cold climates.

Using data supplied by the ADEC, it was determined that under these conditions each person would cause the emission of up to 430 kilograms (948 pounds) of carbon monoxide per year. Construction and use of the proposed mancamp on Clear AFS would require less driving time and result in substantially lower carbon monoxide emissions. Current base emission inventory operations emissions do not include traffic emissions. However, there

are allowances for anticipated traffic increases in the area's transportation budget. As such, project-related traffic is not expected to impact air quality.

The implementation of standard dust suppression techniques and a vehicle maintenance program would minimize fugitive dust and vehicle exhaust emissions, and would help to maintain the area's current high air quality.

Construction would be conducted in accordance with applicable regulations and permits. While the construction would cause an increase in air pollutants, the impact would be both temporary and localized. Once construction ceases, air quality would return to its former levels. It is anticipated that the proposed construction would not cause exceedances of the NAAQS or state standards beyond the immediate construction zone and would not have a long-term impact to air quality in the area.

Mancamp

At present, the requirements for a mancamp for GBI VOC test site activities at Clear AFS have not been confirmed. Administrative, operations, and construction personnel may be housed in existing facilities. If required, a mancamp for construction contractors would be temporary and established approximately in the center of the installation, in a previously disturbed area as indicated in figure 2-14. The selected site would be cleared, leveled, and graveled. It would be designed similar to the Fort Greely administrative mancamp described in section 2.3.4 and shown in figure 2-12, and would house the 330 construction contractor personnel estimated to be required to accomplish the GBI VOC test site construction. Impacts from construction of the mancamp would be similar to those discussed for the GBI and BMC3 sub-components, but on a smaller scale.

Operation

GBI and BMC3

The use of new or upgraded heaters and boilers, along with emergency power supplies, vehicular emissions, and normal maintenance-related activities would all cause potential operational air quality impacts. Power would be provided by offsite commercial power sources to most of the proposed locations. Emergency generators would be maintained and operated onsite for backup power under the appropriate permits and restrictions.

The current proposal would require connection to offsite commercial power sources with emergency generators maintained onsite ranging in output from 75 to 900 kW at the GBI site. In addition to the generators themselves, a dedicated AST would be installed adjacent to each generator, ranging in capacity from approximately 15,140 to 75,710 liters (4,000 to 20,000 gallons). Assuming the generators would be in operation up to 250 hours per year, they would be incorporated into the current Clear AFS Title V Air Permit and would be subjected to the permitted restrictions. Where necessary, the installation of new boilers, heaters, or power generators (or upgrades to existing units) could cause air quality impacts through increased emissions of pollutants. Depending on the modifications required and air quality in the affected area, installation or upgrades of these sorts could require New Source Reviews, PSD analyses, and/or modification or establishment of Title V Air Permits. All areas under consideration are in attainment areas

and as such no General Conformity Applicability Analysis requirements are anticipated under the Proposed Action.

Normal maintenance activities would result in the emission of relatively minor levels of pollutants, consisting primarily of particulate and volatile organic compound emissions. None of the potential sites have high ambient levels of either of these pollutants. As such, the small amounts of solvents, cleaners, paints, and grit involved in normal maintenance activities would not cause a significant impact to air quality. However, potential emissions from these activities would be accounted for in applicable operating permits, such as the Title V Air Permit. Maintenance-related emissions are not addressed further in the air quality analysis.

The IDT would be powered by an offsite commercial source with a backup 250- to 300-kW emergency generator. For backup power, the generator would be operated for maintenance cycling and emergency power conditions in accordance with applicable permits. The generator would be fueled through an AST with a capacity of approximately 3,785 liters (1,000 gallons), also used under applicable permits. The backup generator would be tested up to approximately 250 hours per year.

Clear AFS is also within proximity to the Denali National Park, which is a Class I PSD area. However, it is not within 10 kilometers (6 miles) and the program would not be required to perform a PSD review based on proximity to a Class I PSD area. Operation of the emergency generators would not be anticipated to cause decreased visibility or increased pollution concentrations within the park's area, and would not be anticipated to have an impact on Denali National Park.

Construction and operation of the GBI and BMC3 facilities at Clear AFS would not be anticipated to cause exceedances of the NAAQS or state standards, and as such would not be expected to cause any change in the area's attainment status.

Mancamp

Normal maintenance activities would result in the emission of relatively minor levels of pollutants, consisting primarily of particulate and volatile organic compound emissions. None of the potential sites have high ambient levels of either of these pollutants. As such, the small amounts of solvents, cleaners, paints, and grit involved in normal maintenance activities would not cause a significant impact to air quality. However, potential emissions from these activities would be accounted for in applicable operating permits, such as the Title V Air Permit. Maintenance-related emissions are not addressed further in the air quality analysis.

Cumulative Impacts

Construction and operation of the GBI VOC test site activities, in combination with ongoing activities at Clear AFS and in the region, would not result in long-term cumulative air quality impacts.

4.6.2 BIOLOGICAL RESOURCES

Clear AFS has been selected as a potential location for the GBI VOC test site. This could require grading of up to 162 hectares (400 acres), less than 5 percent of the total acreage on the station, for construction of a GBI field, BMC3 sub-components, a new access road, and utility corridors.

Construction

GBI and BMC3

Vegetation. Aspen–birch forest, aspen-black spruce forest, and possibly gravel barrens habitat would be removed during construction of the GBI VOC test site at Site A (figure 3-10). This represents a small portion of the total vegetation available on base. Although gravel barrens can possess unique plants, there is no evidence that they provide critical habitat for wildlife. Construction would remove less than 5 percent of the total gravel barrens located on the station.

Aspen–black spruce forest, black spruce forest and woodland, and aspen-birch forest could be removed during construction at Site B (figure 3-10). This also represents a small portion of the total vegetation available on base.

Wildlife. Construction activities could potentially remove vegetation used by migratory or other nesting birds. However, less than 5 percent of the total vegetation available on-base would be removed, and adjacent areas would provide similar habitat.

Wildlife in the immediate area (moose, bears, lynx, and migrating and resident birds such as the olive-sided flycatcher, northern goshawk, and harlequin duck) could be startled by construction noise and could possibly avoid or leave the area during construction. Available similar habitat exists adjacent to the ROI. No major wildlife corridors would be disturbed. The Nenana River, a designated anadromous fish stream west of the proposed sites, would not be impacted by construction or operation activities.

Threatened and Endangered Species. No Federal or state listed threatened or endangered plant or wildlife species or critical habitat has been identified at Clear AFS. Protected bird species, including the recently delisted peregrine falcon, may migrate through the area, and therefore could potentially be disturbed by construction-related noise. However, this unlikely disturbance would be short-term and is not expected to alter migration patterns.

Environmentally Sensitive Habitat. Construction activities could cause impacts to wetlands if Site A or Site B at Clear AFS is selected. Site B is located in an area where wetlands are more prevalent. These wetlands do provide habitat for several state species of concern, such as the olive-sided flycatcher, gray-cheeked thrush, Townsend’s warbler, and blackpoll warbler. Actual siting of the GBI field could reduce impacts by avoiding wetlands where practicable. Selection of IDT site 2 would have a slightly higher potential to result in impacts to wetlands. Selection of DSCS sites 1 and 3 would have a slightly higher potential to result in impacts to wetlands. The wetlands could potentially be affected by the project through filling, draining, trenching, and other general construction activities.

Because wetlands generally provide wildlife habitat, any significant changes to the wetlands would likely result in subsequent impacts on wildlife in the area. Wetlands associated with the Nenana River are located west of the site and would not be affected by program activities.

As mentioned above, wetlands would be avoided to the maximum extent practicable. BMPs (such as stabilizing fill slopes from erosion and the use of hay bales to filter sediment from storm water runoff) would be implemented. Section 404 permits and state 401 water quality certification would be obtained after actual siting of the GBI field and before any discharge of fill material. The Alaska water quality certification would declare that any discharge to navigable waters would comply with applicable provisions of the Clean Water Act, including water quality standards. Compliance with the required wetlands permits would also work to minimize impacts. Maintenance of wetland quality and value would be coordinated with applicable agencies. The permitting process would entail review of proposed activities and possible mitigations through the public and agency review process.

Mancamp

Vegetation. No sensitive vegetation species have been identified within the proposed mancamp area. The removal of vegetation from the proposed mancamp site would occur during construction.

Wildlife. Construction ground disturbance and equipment noise-related impacts could include the loss of habitat, displacement of wildlife, increased stress, and disruption of daily/seasonal behavior. The impacts to wildlife would be the same as those discussed above. The disturbance is not expected to alter migration patterns or wildlife corridors.

Threatened and Endangered Species. No Federal or state listed threatened or endangered species have been identified at Clear AFS.

Environmentally Sensitive Habitat. A small area of wetlands could be impacted by construction of the mancamp facilities. The wetlands could potentially be affected through filling, draining, trenching, and other general construction activities. Actual siting of the mancamp would avoid wetlands to the maximum extent practicable. Because wetlands generally provide wildlife habitat, any significant changes to the wetlands would likely result in subsequent impacts on wildlife in the area. Any disturbance to these wetlands would be minimized as discussed above.

Operation

GBI and BMC3

Vegetation. No impacts to vegetation are anticipated during operation of the GBI field and BMC3 sub-components.

Wildlife. During operation, the GBI field would be dormant except for occasional building maintenance activities. Only minor, short-term impacts to wildlife are anticipated as a

result of these activities. Security lighting could potentially attract wildlife to the project areas; however, any impacts, such as startling when personnel are in the area, would be minimal.

During normal operations the IDT and DSCS would not transmit except for a few minutes during annual testing of the equipment. Given the short duration of transmission, no adverse impacts to biological resources are anticipated from operations.

Most operational impacts to wildlife from the IDT and DSCS terminal would come from security lighting and noise from the electrical generators required for the site. The lighting and noise could encourage species less tolerant of these disturbances to avoid the area. Generator noise levels expected at the site could range from 80 to 85 dBA at up to 105 meters (344 feet). These noise levels would only occur a couple of hours a week during maintenance activities for backup generators and are not anticipated to substantially affect wildlife.

Threatened and Endangered Species. No Federal or state listed threatened or endangered plant or wildlife species or critical habitat has been identified at Clear AFS. Protected bird species, including the recently delisted peregrine falcon, may migrate through the area, and therefore could potentially be disturbed by operational noise and the presence of personnel. However, this unlikely disturbance would be short-term and is not expected to alter migration patterns.

Environmentally Sensitive Habitat. No impacts to sensitive habitat are anticipated during operation of the GBI field and BMC3 sub-components.

Mancamp

Vegetation. No impacts to vegetation are expected during operation of the mancamp.

Wildlife. Only minor, short-term impacts to wildlife are expected due to the presence of personnel at the mancamp. Security lights could attract wildlife to the area; however, any impacts would be minimal.

Threatened and Endangered Species. No threatened or endangered species have been identified at Clear AFS.

Environmentally Sensitive Habitat. No impacts are anticipated to sensitive habitat during the operation of the mancamp.

Cumulative Impacts

Cumulative impacts would result from increased activity during construction and loss of habitat at the proposed site. Additional similar habitat in the region would minimize these impacts. Filling in wetlands at Site A or B could reduce the amount of wetlands on Clear

AFS. However, construction on either site would contribute only slightly to the cumulative reduction of wetlands in the region and state.

No other future programs that could contribute to cumulative biological resource impacts have been identified at Clear AFS or within the region.

4.6.3 CULTURAL RESOURCES

This section addresses the potential impacts to cultural resources due to construction and operation of the GBI VOC test site at Clear AFS.

Construction

GBI and BMC3

Prehistoric and Historic Archaeological Resources. 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. Archaeological surveys and predictive modeling for Clear AFS indicate that there are no recorded prehistoric or historic archaeological sites within the ROI and a low probability for these types of sites to occur. Based on the previous investigations, the SHPO has concurred that no further studies have been recommended for the area encompassed by the ROI. As a result, proposed construction of the GBI VOC test site and associated support facilities would have no effect on prehistoric and historic resources. However, if during the course of the GBI VOC test site program activities, cultural items are inadvertently discovered, activities would cease in the immediate area and the SHPO and potentially affiliated Native Alaskan entities would be notified through the host installation. Subsequent actions would follow guidance provided.

Historic Buildings and Structures. The only historic buildings and structures at Clear AFS are those associated with the Ballistic Missile Early Warning System and the White Alice Communications System. None of these properties are within the direct ROI for the GBI VOC test site facilities; therefore, no effects are expected.

Native Populations/Traditional Resources. There have been no traditional cultural properties identified within the ROI or Alaska Native issues identified for the Clear AFS. No issues or concerns were raised during the NMD Deployment EIS analysis.

Paleontological Resources. Although paleontological resources are known to occur within the region, none have been identified within the boundary of Clear AFS; therefore, no effects are expected. However, if fossils are unexpectedly discovered, subsequent actions may be required.

Mancamp

No impacts to cultural resources are anticipated. However, if during the course of mancamp construction cultural items are inadvertently discovered, activities would cease in the immediate area and the SHPO and potentially affiliated Native Alaskan entities would

be notified through the host installation. Subsequent actions would follow guidance provided.

Operation

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. No impacts to cultural resources are anticipated during operation of the GBI VOC test site and support facilities at Clear AFS.

Cumulative Impacts

No other future programs that could contribute to cumulative cultural resources impacts have been identified at Clear AFS or within the region.

4.6.4 GEOLOGY AND SOILS

This section addresses the potential impacts to geology and soils at Clear AFS due to the construction and operation of the GBI VOC test site.

Construction

GBI and BMC3

It is estimated that the proposed GBI, IDT, and DSCS facilities would disturb up to 162 hectares (400 acres), which is less than that analyzed for the NMD Deployment EIS. The NMD Deployment EIS determined that there was no significant impact to geology and soils at Clear AFS resulting from similar proposed activities.

The potential for soil erosion is minimal however. BMPs would be employed during construction to further mitigate deleterious effects to soils resulting from grading and excavations. These measures could include limiting the amount of area exposed, creating sediment basins to control flow, and adding protective covering to the slopes.

Because of the well-drained nature of the area soils, the presence of unstable permafrost is not anticipated to be a problem. However, before design and construction, a comprehensive geotechnical investigation would be conducted to determine the exact nature of the soils at each facility location in the area. In the unlikely event that permafrost was encountered during these investigations, the site layout would be adjusted to minimize any impacts to these areas. These investigations would also determine the depth to groundwater. Depending on the depth, missile silos may be slightly elevated to avoid de-watering during construction and operations.

Construction on Clear AFS would not impact any mineral resources on the base. There is the potential for use of local sand and gravel resources in the area as part of the construction process, but this use should not deplete the available resources in the area. Purchase of state-owned gravel would be under a materials sale contract.

Clear AFS lies in seismic zone 3, where major earthquake damage and peak ground accelerations ranging from 0.2 to 0.3g have a 10 percent probability of occurring at least once in 50 years. Construction of new facilities would incorporate earthquake-resistant designs to reduce the potential of substantial impacts from high seismic ground motions.

Mancamp

There would be a small amount of disturbance associated with the construction of the mancamp. The selected site would be cleared, leveled, and graveled. Construction impacts would be similar to those discussed for the GBI and BMC3 components, on a smaller scale.

Operation

Once construction is complete and vegetation is replaced, there should be little soil erosion from operation of the GBI VOC test site, and no impacts to geology and soils are anticipated.

Cumulative Impacts

No cumulative impacts are anticipated as a result of current ongoing mission activities. Once vegetation is in place, no long-term cumulative impacts to soils would be expected from erosion at the site. Overall, no cumulative impacts are expected from construction and operation activities at Clear AFS.

4.6.5 HAZARDOUS MATERIALS AND WASTE

This section addresses potential impacts that could result from the storage and use of hazardous materials and the generation and disposal of hazardous waste associated with construction and operation of a GBI VOC test site on Clear AFS.

Construction

Hazardous Materials and Waste Management

Construction activities would be centralized as much as possible and would take place at the selected project site. Hazardous wastes generated during construction would consist of materials such as motor fuels, waste oils, hydraulic fluids, cleaning fluids, cutting fluids, and waste antifreeze. These hazardous materials would be containerized and properly disposed of by the individual contractors. The expected hazardous materials and wastes would be similar to those discussed in section 4.1.5 and listed in table 4-1. Storage for these hazardous materials and wastes would be located in protected and controlled areas designed to comply with site-specific spill prevention, control, and countermeasures. Appropriate plans and measures would be implemented during the construction program to minimize hazardous materials and hazardous waste impacts that may result from construction activities.

Pollution Prevention

GBI VOC test site activities at Clear AFS would utilize the existing hazardous materials management program at the station. This program controls and reduces the use of hazardous materials on the installation. In addition, the current base Pollution Prevention Management Plan includes a hazardous materials pharmacy program. Hazardous materials associated with the Proposed Action would be administered through this pharmacy program. Program personnel would continue to update the system-wide Pollution Prevention Plan that outlines strategies to minimize the use of hazardous materials.

Installation Restoration Program

IRP investigations at Clear AFS since 1991 have identified 23 sites of potential contamination. Of these sites, 22 are considered closed sites, pending state written approval. Eleven of these sites are located on or near proposed support facilities locations. It is not anticipated that the current schedule of investigations and any remediation required at any site on Clear AFS would be affected.

Overall, before beginning construction at Clear AFS, activities would be coordinated with the appropriate base personnel to avoid accidental impacts to remediation efforts. In addition, construction contractors would be notified of potential ground contamination before construction so appropriate health and safety measures could be taken to avoid human contact with any contaminated areas.

Asbestos

Some of the facilities proposed for modification and demolition as part of the GBI VOC test site at Clear AFS may contain asbestos. Prior to any existing building modifications or demolition for construction or operation, it would be determined if asbestos is present in the modification area. If asbestos is present, it would be removed and disposed of before modification or demolition in accordance with appropriate Federal, state, and local regulations by certified personnel.

Polychlorinated Biphenyls

Remaining PCB-containing equipment on Clear AFS, including filters, ballasts, and small capacitors, have been identified and are scheduled for removal and disposal in accordance with Federal and state regulations. No PCB-based materials would be used at the GBI VOC test site.

Lead-based Paint

Some of the facilities proposed for modification and demolition as part of the GBI VOC test site at Clear AFS may contain lead-based paint. Prior to any existing building modifications or demolition for construction or operation, it would be determined if lead-based paint exists in the modification area. If lead-based paint exists, it would be removed and disposed of before modification or demolition in accordance with appropriate Federal, state, and local regulations.

Operation

Hazardous Materials Management

Regular maintenance and operations activities for the GBI and BMC3 sites would include a low but continuous level of activity requiring the use of hazardous materials. The anticipated amounts of hazardous materials to be used are not known; however they could include protective coatings, lubricants and oils, motor and generator fuels, isopropyl alcohol, backup power batteries, adhesives, and sealants.

All hazardous materials management activities would be in accordance with existing regulations for the use and storage of hazardous materials at Clear AFS and would comply with the appropriate Federal, state, and local regulations.

Additional hazardous materials at the proposed GBI field would be the nitrogen tetroxide and hydrazine inside the EKV of each GBI (less than 19 liters [5 gallons]). Impacts of these liquid fuels would be similar to those described in section 4.1.5.

Transportation of the liquid propellants would be in accordance with U.S. Department of Transportation regulations. In addition, emergency response personnel and equipment would accompany the fueled EKV during transport to handle and contain hazardous materials in the unlikely event of an accident and spill during transportation. The hazardous materials generated during an accidental leak during transportation would be disposed of in accordance with Federal, state, and local regulations.

One piece of equipment used on the EKV consists of a klystron tube, which contains small amounts of beryllium. Beryllium is listed on the Toxic Substance Control Act Inventory. If maintenance is required, a new tube would be brought onsite and the replaced tube sent back to the manufacture for repair.

Hazardous Waste Management

Any hazardous waste generated from the use of hazardous material would be managed in accordance with appropriate Federal, state, and local regulations. An appropriate hazardous waste management plan would be developed for the site.

Clear AFS has the mechanisms in place to store, manage, and dispose of hazardous waste, including any additional propellant waste that could be generated if a leak within the EKV should occur. If a leak were to occur, all hazardous waste would be handled in accordance with appropriate regulations. In addition, there would be an appropriate spill containment team with training in the handling of the liquid propellants with the necessary equipment to manage any leak of the liquid propellants at the GBI VOC test site. All hazardous waste generated at the GBI VOC test site would be handled through the base's treatment, storage, and disposal facility.

Pollution Prevention

The GBI VOC test site system-wide Pollution Prevention Plan would be implemented for proposed activities at Clear AFS.

Installation Restoration Program

GBI VOC test site operational activities are not expected to impact the ongoing cleanup activities at Clear AFS.

Asbestos

No impacts from asbestos are anticipated during operation of the GBI VOC test site.

Polychlorinated Biphenyls

No PCB-based materials would be used for operation of the GBI VOC test site.

Lead-based Paint

No lead-based paint would be used in the new or modified proposed GBI VOC test site facilities.

Radon

The radon assessment and mitigation program at Clear AFS is under the direction of the bioenvironmental engineer at Eielson AFB. A Radon Assessment and Mitigation Program Assessment Survey found no samples exceeded the 4 picocuries per liter limit. Radon is not a concern at Clear AFS.

Pesticides

Pesticides would be applied in accordance with Clear AFS procedures using personnel certified as pesticide applicators. The small amount of pesticides required would be similar to the quantities already applied in developed areas of the installation. Overall, there would be little change in pesticide usage amounts at Clear AFS.

Cumulative Impacts

Potential cumulative hazardous materials and hazardous waste impacts could occur at Clear AFS with the combination of GBI VOC test site activities and ongoing and future hazardous materials and hazardous waste management activities. Current and future activities at Clear AFS would not result in a change in ongoing hazardous materials and hazardous waste management programs. The construction and operation of one or more GBI VOC test site activities at Clear AFS in combination with ongoing installation activities and future base programs would result in an increase in the amounts of hazardous materials used and hazardous waste generated on Clear AFS. However, Clear AFS has the mechanisms and management systems in place to store and manage the increased quantity of hazardous materials and hazardous waste. Overall, no cumulative hazardous materials or hazardous waste management issues are anticipated at Clear AFS.

4.6.6 HEALTH AND SAFETY

This section addresses the potential impacts to health and safety associated with construction and operation of the proposed GBI VOC test site at Clear AFS.

Construction

Construction of the proposed alternative sites would not occur within any EMR hazard areas on the installation. Either of the proposed GBI VOC test site locations would be designed to be outside of the EMR hazard area for the phased-array radar, and would therefore not represent any EMR safety issues to construction workers. The proposed GBI sites would be outside of the Clear Airport runway approach zones.

Operation

The GBI silos, EKV Assembly and Checkout Building, the Interceptor Receiving and Process Building, and the Interceptor Storage Facilities would all require the establishment of ESQDs at Clear AFS. The establishment of the ESQDs would go through DoD review to ensure that there are no incompatible health and safety issues. The proposed ESQDs associated with GBI VOC test site for either proposed alternative site would fall within the base boundary in an area with no inhabited structures; therefore, an explosion of the GBI within the site should not pose a public health and safety risk.

During operation, the GBI field would be dormant, except for occasional maintenance activities. According to the NMD Deployment EIS, a fire station would be built to meet the GBI facility requirements. In addition, to avoid potential forest fires, appropriate fire breaks would be established around the facility. For the GBI site operation, a health and safety plan would be prepared that would include procedures to handle emergencies involving the GBI. This plan would describe how to handle each type of emergency, the appropriate base and off-base contacts, and an evacuation plan, if necessary.

Either potential GBI VOC test site alternative would be outside the EMR safety zones of the new phased-array radar on Clear AFS. In addition, an EA prepared for the phased-array radar concluded that the radar is not expected to be a threat to fuel handling operations or ground-based electroexplosive devices.

During normal operations, the IDT would not transmit except during annual testing of the equipment. During this test, EMR would be generated. Based on American National Standards Institute (ANSI) C95.1, the personnel exposure limit for the IDT operating frequency is 10 milliwatts per square centimeter for a 1.65-minute exposure. Based on the 1,500-watt IDT, EMR levels would not exceed personnel exposure limits established by ANSI during the annual test. The remainder of the year, the IDT would not generate any EMR.

Any GBI mishap that would result in a solid propellant fire could generate hazardous air pollutants. As discussed in section 4.1.6, at no time is it expected that peak hydrogen

chloride (the toxic constituent of main concern) emission levels would exceed public exposure guidelines.

Transportation, EKV assembly, and GBI integration would involve the same activities and environmental effects as described for these activities at Fort Greely in section 4.1.6.

As discussed above, the potential for a liquid propellant leak is considered remote. However, if a liquid propellant leak were to occur within the GBI, there is the potential for health hazard from the gases. As discussed above, the hazardous extent of the cloud could exceed the OSHA Permissible Exposure Level up to 760 meters (2,493 feet) from the leak for nitrogen tetroxide. However, the anticipated level of exposure to nitrogen tetroxide in this area would only be expected to be mildly irritating to the eyes and nose and could include coughing. No irreversible damage would be expected from exposure at these levels. The most likely areas for a spill to occur would be within the EKV Assembly and Checkout Building, MAB, the Interceptor Storage Facility, and at the GBI missile field. A hazardous emission at Clear AFS at the GBI Alternative A site would not affect any areas outside of the base boundary and would not include the administrative areas on the base; therefore, there would be minimal public health and safety risk.

A release at the Alternative B site could exceed the base boundary by 122 hectares (302 acres) and would include the administrative and housing area on the base. However, there are no occupied structures in the off-base area that could be potentially exposed. If a spill did occur, emergency response personnel would evacuate this area.

No health and safety impacts associated with other proposed activities, including mancamps, are anticipated.

Cumulative Impacts

Potential cumulative health and safety impacts are not expected to occur at Clear AFS with the combination of GBI VOC test site activities and ongoing health and safety risk from current military activities. The only mission on Clear AFS that represents a health and safety risk is associated with the EMR generated from operation of the EWR. However, no cumulative EMR effects are anticipated.

Although there is the potential for aircraft mishaps to occur in the airspace over the alternative GBI VOC test sites because of the proximity to Clear Airport, the likelihood of an aircraft mishap to occur is considered remote due to the low use of this runway. In addition, the GBI VOC test sites on Clear AFS are outside of the approach and departure clear zones.

Overall, it is not expected that GBI VOC test site construction and operation at Clear AFS would cause a significant increase in the health and safety risk when combined with other ongoing and future programs.

4.6.7 INFRASTRUCTURE

This section addresses the potential for impacts to infrastructure due to the proposed construction and operation of the GBI VOC test site.

Construction

GBI and BMC3

Water. It is expected that most of the water usage increase would occur on-base as a result of construction workers taking up temporary residence in the mancamp. Construction worker-related water usage could be approximately 0.11 million liters per day (0.03 million gallons per day). The existing private wells in the surrounding ROI and the available capacity in Nenana of 0.4 million liters per day (0.1 million gallons per day) have sufficient capacity to handle this potential increase. On-base water usage from construction would also be related to site watering and any required batch plants. The available capacity of approximately 20 million liters per day (5 million gallons per day) would be sufficient to handle this increased demand.

Wastewater. An increase in wastewater usage would occur under construction of the GBI VOC test site in relation to on-base construction workers taking up temporary residence in the mancamp. Construction worker-related wastewater generation would be approximately 0.11 million liters per day (0.03 million gallons per day). It is likely that this increase in demand may shorten the leach fields current 10- to 20-year life span. Portable wastewater facilities would be used for construction workers during the workday on Clear AFS.

Solid Waste. The Clear AFS landfill is expected to reach capacity between 2008 and 2013. However, current plans are to close the landfill in 2002 or 2003 and utilize the new Denali Borough landfill. This landfill should have enough existing capacity for the increase in solid waste from the GBI VOC test site program construction.

Electricity. Clear AFS has a 13.5-MW available electrical capacity from the current plant. In addition, the available capacity of the regional provider is approximately 90 MW. These available electrical capacities would be sufficient to meet the demands of the GBI VOC test site at Clear AFS. Individual backup generators would be provided for the proposed facilities.

Mancamp

Lighting would be installed for security and parking at the mancamp location. All utility services would be provided by the Government, and would be brought to the site with minimum connectivity. Minor heating, electrical, and plumbing system repairs would be performed as necessary in the additional support buildings provided for warehouse and equipment maintenance space.

Operation

GBI and BMC3

Water. Most of the operations-related water usage would occur on base. New housing would be built for operation workers on Clear AFS, which would tie into the existing base water supply. On-base water usage would be expected to increase by 0.05 million liters per day (0.01 million gallons per day), which is within the available base capacity of approximately 20 million liters per day (5 million gallons per day). Off-base water usage from operations is expected to be minimal since GBI VOC test site-related personnel would stay on the installation. Since the proposed facilities could be located away from the existing base water system, new wells may be required. New wells and any proposed water system would be constructed and operated in accordance with local and state regulations and would be certified as required.

Wastewater. Most of the operations-related wastewater generation would occur on-base. New housing would be built for operations workers on Clear AFS, which would tie into the existing base wastewater supply. On-base wastewater generation would be expected to increase by 0.05 million liters per day (0.01 million gallons per day), which could be handled by the existing base leach field. It is likely that this increase in demand may shorten the leach fields current 10- to 20-year life span by 1 to 2 years over a 20-year period. Off-base wastewater generation from operations is expected to be minimal since GBI VOC test site related personnel would stay on the installation. Since the main facilities would be located away from the existing wastewater system, a new septic wastewater facility would have to be constructed. The proposed new system would be constructed in accordance with local and state regulations and would be certified as required.

Solid Waste. The new Denali Borough landfill should have enough capacity for the increase in solid waste from the GBI VOC test site program.

Electricity. Clear AFS has a 13.5-MW available electrical capacity from the current plant. In addition, the available capacity of the regional provider is approximately 90 MW. These available electrical capacities would be sufficient to meet the demands of the GBI VOC test site at Clear AFS. Individual backup generators would be provided for the proposed facilities.

Mancamp

All utility services would be provided by the Government, and would be brought to the site with minimum connectivity.

Cumulative Impacts

No other future programs that could contribute to cumulative utility system impacts have been identified at Clear AFS or within the region. Analysis of the proposed operation of the new phased-array radar concluded that there would be no impacts to utility system integrity at Clear AFS.

4.6.8 LAND USE

This section addresses the potential for impacts to land use due to the proposed construction and operation of the GBI VOC test site on Clear AFS.

Construction

Under the Proposed Action, a GBI VOC test site would be constructed and become operational at one of two alternative sites and existing activities would continue. Proposed ground-based testing on Clear AFS would be compatible with current adjacent land use and zoning. If future flight tests are considered and evaluated, there could be a conflict with the existing radar on Clear AFS. Proposed construction safety zones at either location would be contained well within the boundaries of Clear AFS.

The proposed construction activity would take place at potential Site A, located southeast of the Technical Site close to the landfill, or at Site B, located just north of the Composite Area. Up to approximately 162 hectares (400 acres) of undisturbed land could be altered under either alternative to accommodate the new facilities, which is roughly 5 percent of the total base. The siting of the GBI field and support facilities would be in accordance with DoD standards taking into account ESQD and EMR safety criteria. All of the construction areas fall well within the boundaries of Clear AFS and therefore have no conflicts with adjacent land uses or zoning, and there are no inhabited structures that fall within the construction areas or safety zones. Both proposed GBI sites are currently forested and used for recreation and open space.

The proposed use at either location would be of an industrial nature, but would not significantly alter the amount of open space or recreational areas and would be compatible with the military uses on-base.

In addition to the GBI facilities, construction of housing (mancamp) would be required on Clear AFS. The mancamp would be located adjacent to the existing base dormitories and just south of this area. The new mancamp would be compatible with the existing base land use (residential and open) in this area. There is also the potential for new administrative facilities to be located just north of the existing dormitories or in the Camp Site portion of the base.

Operation

The GBI field would be in a dormant state during the operation phase with the exception of occasional testing and maintenance. Appropriate safety zones would be established, and all fall within forested areas on-base and are a compatible land use. They would not affect any of the existing facilities at Clear AFS or any of the surrounding land uses. There would be a small loss of land used for recreational activities and hunting by U.S. Air Force and civilian base personnel due to construction and operation.

Cumulative Impacts

Construction of the GBI VOC test site and support facilities would occur on-base in an area designated for military use. The GBI VOC test site would affect approximately 5 percent of the base and would increase the amount of developed land to around 8 percent of the 4,670 hectares (11,542 acres) that make up Clear AFS. Because the area proposed for development is already designated for military use, no cumulative land use changes would occur.

4.6.9 NOISE

This section addresses the potential for impacts to the noise environment due to the proposed construction and operation of the GBI VOC test site at Clear AFS.

Construction

As stated above, noise from construction equipment usually falls in the range of 70 dBA to 98 dBA at 15 meters (50 feet) from the source. For the construction sites at Clear AFS, the 65 dBA and 75 dBA DNL contours are estimated to occur within approximately 2 kilometers (1 mile) and approximately 0.9 kilometer (0.5 mile) from the construction site, respectively.

However, since no noise sensitive receptors are known to exist within 2 kilometers (1 mile) of the proposed GBI VOC test site construction site at Clear AFS, no impacts to the noise environment would be expected from construction equipment noise.

Since the 67 dBA $L_{eq}(1 \text{ hour})$ contour is estimated to occur well within the approximate 91-meter (300-foot) right-of-way, no impacts from traffic noise during GBI construction would be expected.

Operation

Up to approximately 60 additional vehicles per day could be expected to be added to the George Parks Highway during operation activities, if Clear AFS is chosen as the GBI VOC test site location. However, under this condition the location of the 67 dBA $L_{eq}(1 \text{ hour})$ contour is estimated to occur well within the approximate 91-meter (300-foot) right-of-way. Consequently, no impacts from traffic noise during operation are expected.

Cumulative Impacts

As no off-base noise sensitive receptors have been identified in the vicinity of either potential GBI VOC test site alternative, it would not be expected that proposed construction and operation noise at Clear AFS would cause an impact to the noise environment when combined with the noise from other ongoing and future programs.

4.6.10 SOCIOECONOMICS

This section addresses the potential impacts to socioeconomics in the region associated with the construction and operation of a GBI VOC test site on Clear AFS.

Construction

Population

Construction of GBI facilities would take approximately 2 years, employing on average 400 construction workers a year. It is expected that the majority of the construction workers would move to the area on a temporary basis from outside the region. Fairbanks, the nearest community of any size, had just over 1,800 construction workers in 1996 but, with this exception, there is no local pool of labor on which to call for this type of project.

If 70 percent of the construction workers for the GBI VOC test site came from outside the area, then 120 workers would come from the local labor pool. Experience of other construction projects at Clear AFS suggests that the local labor pool of construction workers would support this ratio of local workers to newcomers.

The isolation and distance of Clear AFS from main population centers, the lack of available housing and other facilities, and the experience of other construction projects at Clear AFS would suggest that the ratio of dependents to workers would be very low.

Employment Income and Retail Impacts

The GBI VOC test site construction program would generate additional income in the local economy in the form of wages earned by the construction workers and from a proportion of locally purchased materials. A proportion of the wages would be spent locally on lodging, food and transportation. Purchases at local stores and from local suppliers would generate additional income and jobs within the local economy.

At least half of the construction cost would include high value equipment, manufactured and assembled at locations throughout the United States, the purchase of which would have no local economic impact.

Many of the jobs would disappear with the completion of the 2-year construction program, making their economic benefits transitory. The impact of construction program expenditures on retailers would be almost entirely concentrated in Fairbanks, as there are few retail outlets in Denali Borough and Nenana.

Impacts on Housing, Education, and Health

Most construction workers that have been involved in past projects at Clear AFS have been accommodated in local hotels or have commuted from Fairbanks. The Northstar Inn in Healy has 250 beds, while Fairbanks has over 100 bed and breakfast establishments and 30 hotels or motels. Temporary accommodation in the ROI, other than at these two

locations, is strictly limited. A mancamp could be established on Clear AFS to provide living and dining facilities.

The existing health facility at Clear AFS is staffed to support the current personnel complement at Clear AFS. The construction program would more than double the daily workforce at Clear AFS during the peak summer months. As has been experienced at other DoD construction programs, it would be expected that the construction program would lead to an increase in industrial and traffic injuries, therefore placing an increased burden on the existing trained medical personnel in the area. However, the major regional medical facilities in Fairbanks have adequate capacity to handle the increase in demand.

As outlined above, only a very small number of construction worker dependents are likely to live in the ROI. There would, therefore, be only a small additional enrollment in the local school districts as a result of the construction phase of the action. The additional enrollment would not have a significant effect on the resources of the local school district.

Fiscal Impacts

The main fiscal impact arising from the construction phase would be as a result of purchases made by personnel and their families. Sales taxes would be generated at various locations throughout the ROI.

Negative fiscal impacts arising from construction activities would be limited to the potential for increased demands on the public safety services of fire, police, and ambulance.

Operation

Population

The operational phase would directly employ up to 255 personnel, including approximately 115 military and 90 contractor positions and 50 direct jobs associated with GMD base support functions mostly joining the project from outside the region. Because there is a large number of existing base support personnel at Clear AFS, the GBI VOC test site would require less personnel than at the alternative GBI VOC test site location at Fort Greely. Given the specificity of the skills required for the operational phase, almost all those involved would move to Clear AFS from outside of the area.

Clear AFS is classified as a remote base; therefore, dependents would not normally accompany the workforce, all of whom would be encouraged to live at Clear AFS rather than in the surrounding community or in Fairbanks.

Employment Income and Retail Impacts

The 255 personnel required to carry out the operational phase would generate at least \$7.0 million of direct income per year. Although not all of this would be spent locally, it would be expected that the benefit of this income in the local community would have a multiplied effect. In other words, jobs, and the additional income they would generate, would be created indirectly in the community by the operational phase of the action. The

NMD Deployment EIS estimated that approximately 77 jobs would be generated indirectly by the operational phase of the action.

The majority of these jobs would be created in Fairbanks, the region's service center and only significant outlet for retail spending.

Impacts on Housing, Education, and Health

The 255 personnel required to carry out the operational phase of the program would be accommodated in the mancamp and other dormitory space on Clear AFS.

Clear AFS has no family housing. Personnel relocating to Clear AFS with dependents are required to house them in Anchorage or Fairbanks. Both communities would absorb the small number of dependents involved with minimal impact. Potential impacts to schools and medical facilities would be similar to those described under the construction phase.

Fiscal Impacts

The main positive fiscal impacts arising from the operational phase of the action would be reflected in an increase in sales tax collections as a result of the sales of goods and services by the influx of operational personnel.

Negative fiscal impacts, usually associated with increased education costs for the younger dependents of operational personnel, would be minimal because most would live and work at Clear AFS while their dependents lived elsewhere in the United States.

Cumulative Impacts

The operational phase of the action would be relatively self-contained. There are no other known projects to which the action would add socioeconomic impacts.

4.6.11 WATER RESOURCES

This section addresses the potential for impacts to water resources due to the proposed construction and operation of the GBI VOC test site at Clear AFS.

Construction

During the 2-year construction period, approximately 162 hectares (400 acres) of undisturbed land could be altered to accommodate the new facilities, which is roughly 3 percent of the total base. The proposed sites are currently forested and are used for recreation and open space. Due to the relatively level topography and low precipitation, drainage patterns would only be altered slightly, and surface water runoff and erosion would be minimal. A minor increase in sediment in surface waters is possible, but not likely due to the distance between the construction site and surface water bodies. The proposed GBI VOC test site sites are not within the 100-year floodplain.

Detailed geotechnical studies would be conducted to determine the depth to groundwater relative to the total depth requirement for the GBI silos. Based on the defined groundwater depth of 17 to 20 meters (55 to 65 feet) below ground surface, the missile silos may need to be slightly elevated to avoid de-watering during construction and operation. Dewatering of the site during construction or operation would require authorization under a state-wide general permit. All construction and operation activities would be completed in accordance with state and Federal water resources regulation.

Potential impacts to water resources resulting from accidental spills of hazardous materials during construction would be minimized because all activities would follow spill prevention, control, cleanup, and emergency response procedures described in section 4.1.5, Hazardous Materials and Hazardous Waste Management.

GBI construction activities would result in the disturbance of more than 2 hectares (5 acres) of land and would be subject to Federal NPDES permitting requirements. A general construction NPDES permit and associated SWPPP would be required before construction. A copy of the Notice of Intent for Storm Water Discharges Associated with Construction Activity under a NPDES General Permit that would be filed with the EPA would also be provided to the ADEC. A copy of the SWPPP would also be provided to the ADEC. Upon completion of all activities covered under the NPDES construction permit, a Notice of Termination must be filed with the EPA and the ADEC.

The water requirements for the construction workforce in the region would be approximately 0.11 million liters per day (0.03 million gallons per day). As discussed under the utilities section, there is adequate water supply on base and within the region to meet this demand. There are currently no aquifer issues, and with a relatively minor increase in water use, these water requirements would not impact the water supply aquifer.

Operation

Potential impacts to water resources resulting from accidental spills of hazardous materials during operation would be minimized because all activities would follow spill prevention, control, cleanup, and emergency response procedures described in section 4.1.5, Hazardous Materials and Hazardous Waste Management.

Impacts from storm water are not expected. Following construction, the current SWPPP would be amended to define the methods and procedures for controlling the discharge of pollutants in the storm water runoff from the GBI VOC test site facilities and would include the BMP that would be implemented for the proposed facilities. Storm water control measures could include detention areas such as constructed wetlands or ponds to contain runoff from the impervious areas at GMD facilities.

As analyzed in the NMD Deployment EIS, the water requirements for operations would be approximately 0.05 million liters per day (0.01 million gallons per day), which represents less than 1 percent of the current water usage. These water requirements would result in

a total installation water usage of approximately 64 percent of the available water supply capacity.

Cumulative Impacts

No other future programs have been identified that, when combined with the Proposed Action, would contribute to cumulative water resources impacts. Although the use of the proposed facilities would result in increased runoff and potential decrease in water quality, the mitigation measures to be incorporated into the final design at each location would maintain the pre-GBI VOC test site storm water runoff levels and quality so as not to contribute to cumulative impacts.

4.6.12 ENVIRONMENTAL JUSTICE

This section addresses the potential environmental justice impacts due to construction and operation of the GBI VOC test site at Clear AFS.

Construction and Operation

There would be no disproportionately high and adverse environmental or human health effects on minority or low-income populations around Clear AFS.

Cumulative Impacts

No other projects or activities in the region have been identified that would contribute to potential cumulative environmental justice impacts.

4.7 CUMULATIVE IMPACTS

GMD VOC Test Bed activities are proposed for a number of widely separated geographic areas. Consequently, there is little or no potential for cumulative impacts between the various Test Bed sites. Nor are any significant cumulative environmental impacts foreseen at Beale AFB, California or at any of the BMC2 sites in the Continental United States, since activities at these sites involve primarily interior modifications to existing facilities. The following discussion summarizes the potential for cumulative impacts between GMD VOC Test Bed activities at each of the primary sites and other activities in the same general area.

Fort Greely, Alaska

There may be some minor cumulative impacts to air quality from mobile sources and ground disturbing activities involved in the construction of new power lines from Richardson Highway to the Alascom Microwave site when combined with proposed activities at Fort Greely. However, any cumulative effects would be short-term due to the temporary nature of the construction activities. Ground disturbing activities would result in the loss of some vegetation and wildlife habitat. However, given the extent of similar habitat surrounding Fort Greely, there is very little potential for substantial cumulative impacts, when combined with past and potential future activities. Implementation of

measures during construction to reduce soil erosion and restoration of areas following ground disturbing activities would avoid any significant long-term cumulative impacts to soils or water quality from erosion. Hazardous materials use and hazardous waste generation is expected to increase at Fort Greely from the proposed activities and other existing activities and potential future activities but would not result in any cumulative adverse effect on area hazardous waste management. Since Fort Greely has previously sustained greater numbers of personnel than is anticipated from the proposed activities, no cumulative impacts on infrastructure requirements are anticipated. In conjunction with the construction of the new power line from the Richardson Highway to the Alascom Microwave Site, proposed GMD VOC Test Bed activities are expected to have a positive cumulative effect on the local economy.

Eareckson AS, Shemya Island, Alaska

Due to its isolated location, activities at Eareckson AS would not result in cumulative impacts with other activities elsewhere in the Aleutian Islands. The principal new activities proposed at Eareckson AS are related to the GMD VOC Test Bed. Some increase in air emissions from new energy sources is expected, and there will be a net loss of about 1 percent of Shemya Island's wetlands as a result of the proposed activities. The loss of wetlands will result in a small reduction of wildlife habitat on the island. Although there will be some increase in the generation of waste materials, including hazardous waste, during construction activities, operation of the GMD VOC facilities would not result in a significant increase in waste, and no cumulative long-term impacts to waste management are expected. The proposed activities include minor upgrades to existing infrastructure, which will preclude significant cumulative impacts to infrastructure, such as power, water, and wastewater capacity.

Eielson AFB, Alaska

Since the proposed Missile Transfer Facility at Eielson AFB would be built on a level, graveled site, only minimal new ground disturbance for access road improvements and utilities would occur. Temporary increases in air emissions, noise, and waste generation during construction activities would be reduced at the completion of the construction phase. If planned new military construction at Eielson AFB occurs during construction of the Missile Transfer Facility, there could be some cumulative increase in utility demands, which would be accommodated through construction-related utility systems. The potential for a cumulative increase in fire and safety risk during the operation of the Missile Transfer Facility would be minimized by the proposed activities being within an established explosive safety zone, which is cleared of nearby vegetation.

Clear AFS, Alaska

Clear AFS is located in the vicinity of Denali National Park, a Class 1 Prevention of Significant Deterioration area for air quality. However, temporary increases in air emissions during construction would not be expected to affect the PSD status of the Park. Construction of facilities on either site A or B would likely result in a net loss of 1 to 12 percent of wetlands, with more wetlands potentially affected at site B, resulting in a cumulative reduction of wetlands in the area. Construction and operation of GBI VOC facilities at Clear AFS would result in an increase in the use of hazardous materials and the

generation of hazardous waste. However, the increase would be well within the capacity of existing waste management systems and procedures, and no long-term cumulative impacts are expected. No future programs have been identified that would result in significant cumulative impacts to infrastructure or utility systems. Socioeconomic impacts would be mostly positive, with an increase of the workforce during construction, but is not expected to have a long-term cumulative effect on the economy of the area.

Beale AFB, California

Since proposed activities involve only interior modifications to the EWR building and hardware and software upgrades to the radar, the only potential impacts would be to cultural resources and health and safety. Consequently, there would be no cumulative impacts to air, water, or biological resources, and no change to existing infrastructure, such as wastewater, solid waste or utilities. Radiated power from the UEWR would remain unchanged and, consequently, would not involve any cumulative impacts to health and safety as a result of the hardware and software upgrades. Modifications to the interior of the EWR could, in conjunction with any other U.S. Air Force modifications, result in some minor cumulative impacts to the historic architectural integrity of the building, but this would be mitigated by appropriate recordation to preserve a historic record of the radar, in accordance with accepted practice.

4.8 ENVIRONMENTAL CONSEQUENCES OF THE NO-ACTION ALTERNATIVE

If the No-action Alternative is selected, no environmental consequences associated with the GBI VOC test site facilities would occur. Present activities would continue with no change in current operations.

4.9 ADVERSE ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED

Adverse environmental effects that cannot be avoided include the release of small amounts of pollutants into the atmosphere and ocean; minor noise impacts on wildlife; short-term impact to vegetation from construction activities; minor increased generation of hazardous materials; and increased noise levels at program-related sites. However, through implementation of the program actions described within this document, these effects would be minimized. No significant individual or cumulative adverse environmental impacts are anticipated to result from the Proposed Action.

4.10 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 in existing facilities or locations on a DoD installation dedicated to training and testing activities. These activities would not alter the uses of the sites, which were in the past or currently are used to support training and testing activities. However, potential new training and testing areas within the range boundaries could be developed. No conflicts with land use plans, policies, and controls are anticipated.

4.11 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL

Anticipated energy requirements of the GBI VOC test site facilities program would be well within the energy supply capacity of all facilities. Energy requirements would be subject to any established energy conservation practices at each facility.

4.12 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

The Proposed Action would result in no loss of threatened or endangered species, and no loss of 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 precluded.

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 significantly 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.

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

Proposed GBI VOC test site activities would take advantage of existing facilities and infrastructure. The proposed upgrades to these facilities or locations would not alter the uses of the sites. Therefore, the Proposed Action does not eliminate any options for future use of the locations under consideration.

4.14 NATURAL OR DEPLETABLE RESOURCE REQUIREMENTS AND CONSERVATION POTENTIAL

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

4.15 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.