PRELIMINARY FINAL
FINDING OF NO SIGNIFICANT IMPACT
FOR THE
FOR CONSTRUCTION AND REPAIR
OF
FUEL STORAGE AND OFFLOADING FACILITIES
AT KIRTLAND AIR FORCE BASE,
ALBUQUERQUE, NEW MEXICO

The Department of the Air Force has completed an Environmental Assessment (EA) of the potential environmental consequences of the construction and repair of various facilities associated with fuel storage and offloading at Kirtland Air Force Base (AFB). The EA is incorporated by reference and this Finding of No Significant Impact summarizes the results of the evaluation of the Proposed Actions.

DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVE

Proposed Actions. The 377th Air Base Wing (377 ABW) has proposed thirteen individual but related projects in three locations on base to upgrade and enhance facilities associated with fuel storage and offloading at Kirtland AFB. The existing facilities were constructed in the 1950s and do not meet environmental regulations. In many cases, the fuel facilities and systems are so old that replacement parts are no longer manufactured. These projects may occur at different times based on availability of funding. In total, the projects would result in the following improvements:

- A liquid fuel offloading facility to replace the existing temporary offloading facility;
- A new roof seal in Jet Fuel (JP-8) storage tank #2422 to prevent rain from entering the tank until replacement;
- Closed tanks to replace open tanks for water removed from JP-8 fuel tanks;
- A new 50,000 barrel (bbl) JP-8 fuel storage tank to replace a deteriorating 100,000 bbl tank;
- Impervious secondary containment for fuel storage tanks (with connections to new oil-water separators if not already present) and secondary containment for JP-8 fill stands;
- Repair of the liquid fuels pump station and new JP-8 pipelines;
- A new liquid fuel system maintenance facility;
- Repair or rehabilitation of 1,850 square yards of paving around facilities;
- Repair and rehabilitation of Building 1032, Petroleum Operations Building;
- Rehabilitation of Building 255, Operations Administration Facility; and
- An ethanol-gasoline dispenser at the military service station.

No-Action Alternative. Under this alternative, the 377 ABW would continue to use the current fuel facilities at additional annual maintenance and repair costs. Fueling operations would continue at facilities that are outdated, unsafe, and in need of extensive repair. No change to current environmental conditions would occur from the No-Action Alternative.

This discussion focuses on those environmental resources that could be affected by the Proposed Actions. No significant impacts would occur to cultural resources, vegetation, wildlife, sensitive habitats or threatened or endangered species. The proposed projects would

have temporary insignificant effects on transportation and noise levels. It would not disproportionately affect children, minorities, or low-income populations. Potential impacts to other resources are summarized below.

Health and Safety. Repair and installation of new fuel tanks would improve health and safety because toxic emissions would be reduced and contamination and spills would be controlled with proper containment measures that would prevent leakage into the soils. Impacts to construction workers during ground-disturbing activities in potentially contaminated soils would be avoided by implementation of appropriate health and safety measures. Implementation of the proposed projects would result in minor long-term beneficial effects to health and safety.

Air Quality. The Proposed Actions would not increase air emissions in the Albuquerque-Bernalillo County area. A potential exists for short-term impacts to local air quality from fugitive dust created during construction and carbon monoxide (CO) from construction equipment. Dust would be controlled by the application of water. The maximum potential CO emissions from construction would be well below the *de minimis* level established for the Albuquerque area. Beneficial, but minor, long-term effects to air quality are expected to occur to local air quality from the replacement of old fuel storage tanks.

Utilities. Implementation of the Proposed Actions would have no effect on water, electricity, gas, sanitary sewer, or communications services. The Proposed Actions would repair and replace antiquated fuel facilities and improve fuel handling efficiency, a long-term beneficial effect.

Geological Resources. The Proposed Actions would result in long-term beneficial effects to geological resources from impervious secondary containment of spills as well as from the replacement of fuel storage facilities and pipelines. Construction activities could result in short-term erosional effects, but these would be minimized by the use of Best Management Practices.

Water Resources. A minor beneficial effect is expected from updating the fuel facilities since many of the proposed projects reduce the potential for future soil, groundwater, and possible drinking water contamination.

Hazardous Materials and Wastes. Proposed construction would be coordinated with Installation Restoration Program activities to avoid interference with remediation. There would be a beneficial effect on hazardous materials and wastes as a result of the Proposed Actions. The replacement and repair of existing fuel facilities would decrease potential exposure of the environment and public to hazardous waste. Oil-water separators or other compliance measures from new facility construction would allow for proper disposal of wastes.

Socioeconomics. Socioeconomic effects from the Proposed Actions would be beneficial, but minor, in a metropolitan area the size of Albuquerque. Salaries paid to construction workers, local purchases of construction or repair materials, and local rental of construction equipment would have minor, short-term, beneficial effects on the local economy.

Cumulative Effects. Kirtland AFB is a large, active, military installation with more than 400 organizations in facilities that were built from the 1940s to the present. As a result, demolition of old facilities, new construction, facility improvements, and infrastructure upgrades occur regularly. An analysis of the effects of the Proposed Actions and alternatives, in conjunction with other present and proposed activities, concluded that no significant cumulative environmental impacts would occur.

CONCLUSION

Based on my review of the facts and analysis as summarized above and detailed in the attached EA, I find that the Proposed Actions would not have a significant impact on the human environment, either by itself or in consideration with the cumulative impacts of other actions. The requirements of the National Environmental Policy Act, the President's Council on Environmental Quality regulations, and the Air Force Environmental Impact Analysis Process have been fulfilled and the issuance of a Finding of No Significant Impact is warranted. An Environmental Impact Statement is not required and will not be prepared.

Accepted By: _____ Date: _____

TERRENCE A. FEEHAN, Colonel, USAF
Commander
Kirtland Air Force Base

PRELIMINARY FINAL

ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION AND REPAIR OF FUEL STORAGE AND OFFLOADING FACILITIES AT KIRTLAND AIR FORCE BASE

June 2005

Prepared for
377th Air Base Wing Air Force Materiel Command

ACRONYMS AND ABBREVIATIONS

ABW	Air Base Wing
AEHD	Albuquerque Environmental Health Department
AFB	Air Force Base
AFI	Air Force Instruction
bbl	barrel
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
°F	degrees Fahrenheit
fbgs	feet below ground surface
FY	Fiscal Year
HVAC	heating ventilation and air conditioning
IRP	Installation Restoration Program
NO_X	oxides of nitrogen
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMAAQS	New Mexico Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O_3	ozone
PSD	Prevention of Significant Deterioration
Q-D	quantity-distance
RCRA	Resource Conservation and Recovery Act
ROI	region of influence
SIP	State Implementation Plan
tpy	tons per year
USAF	US Air Force
WRCC	Western Regional Climate Center

PRELIMINARY FINAL
ENVIRNOMENTAL ASSESSMENT
FOR CONSTRUCTION AND REPAIR
OF
FUEL STORAGE AND OFFLOADING FACILITIES
AT
KIRTLAND AIR FORCE BASE

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SECTION 1
PURPOSE AND NEED FOR THE PROPOSED ACTIONS

This Environmental Assessment (EA) describes the proposed construction and repair of fuel storage and offloading facilities at Kirtland Air Force Base (AFB) in Albuquerque, New Mexico. This EA also evaluates any reasonable alternatives to the Proposed Actions, including the No-Action Alternative. This document complies with the Environmental Impact Analysis Process set forth in 32 Code of Federal Regulations (CFR) 989, which incorporates Air Force Instruction (AFI) 32-7061 and implements the National Environmental Policy Act (NEPA), and the regulations implementing NEPA promulgated by the President's Council on Environmental Quality as Title 40 CFR, Parts 1500-1508. In addition, Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, directs federal agencies to consult with and solicit comments from state and local government officials whose jurisdictions would be affected by federal actions (Appendix A). NEPA procedures and United States Air Force policies are intended to ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. This EA describing the potential impacts of these Proposed Actions will be made available to the public for 30 days prior to the decision on whether to proceed with the actions.

1.1 BACKGROUND

Kirtland AFB is located just southeast of Albuquerque, New Mexico in Bernalillo County at the foot of the Manzanita Mountains (Figure 1-1). Kirtland AFB encompasses over 52,000 acres of East Mesa with elevations ranging from 5,200 feet to almost 8,000 feet above mean sea level (US Geological Survey 1990 a, b, c; 1991 a, b, c). The base was originally established in the late 1930s as a training base for the Army Air Corps, and grew rapidly with US involvement in World War II. After the war, Kirtland AFB shifted from a training facility to a test and evaluation facility for weapons delivery. Kirtland AFB and its adjoining neighbor to the east, Sandia Army Base, were combined in 1971. The two divisions of the base are still referred to as Kirtland West and Kirtland East, respectively.

Kirtland AFB is now operated by the 377th Air Base Wing (377 ABW) of Air Force Materiel Command, the proponent of the actions analyzed in this document. The 377 ABW's prime mission, as the host unit at Kirtland AFB, is munitions storage, readiness, and base operating support for approximately 76 federal government and 384 private sector tenants and associate units (Kirtland AFB 2004).

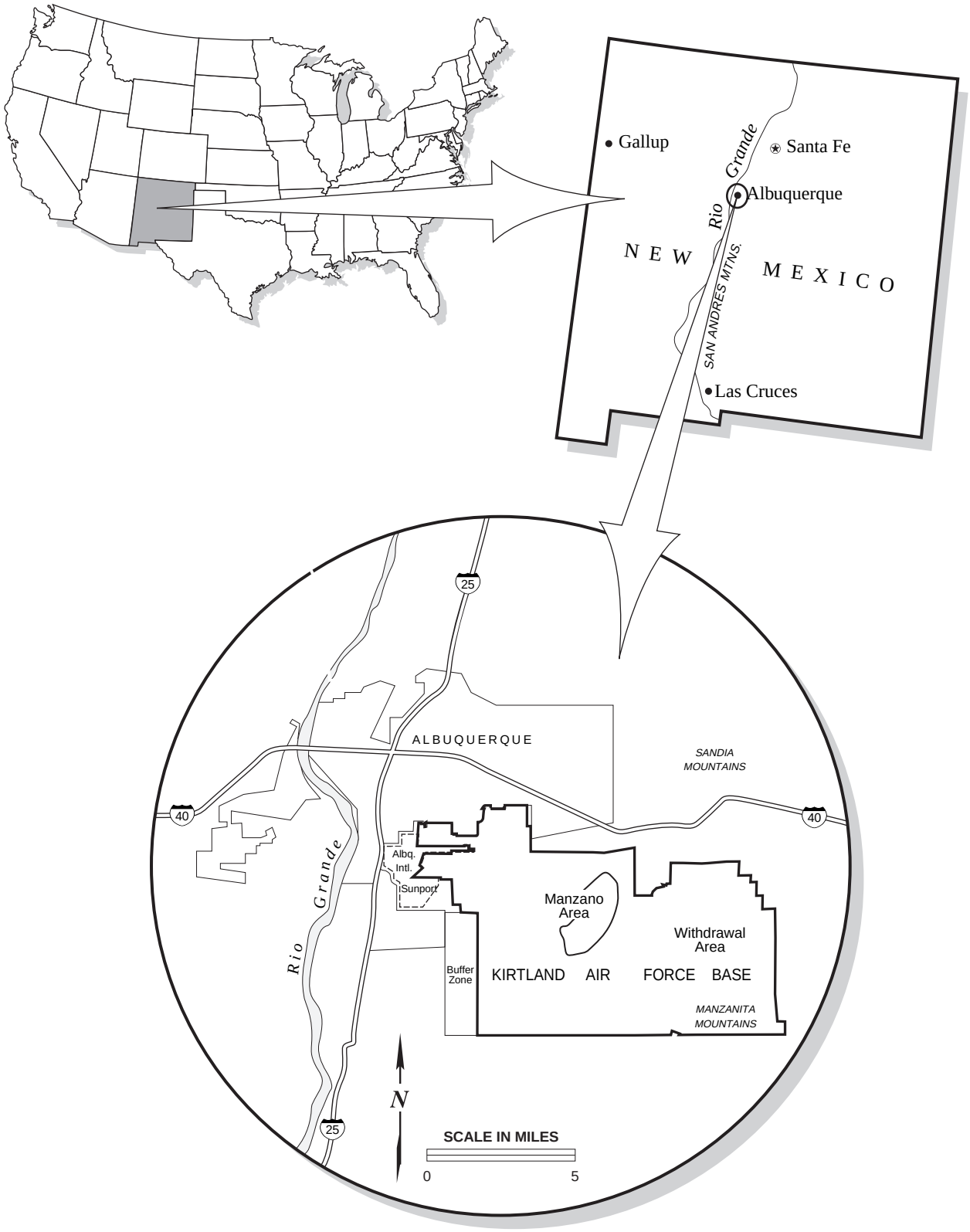

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FIGURE

EA

Kirtland Air Force Base Location

1-1

The main bulk storage facility located at Kirtland AFB Fuels is a government-owned, contractor-operated facility. Trendwestern Technical Corporation operates the facilities and vehicles providing refueling support to the 377 ABW mission. The bulk storage facility consists of seven aboveground storage tanks. Kirtland AFB receives JP-8, MUR, and DL-2 via commercial tank trucks. JP-8 is received at a temporary offloading rack within the bulk storage facility. There is one Mogas fill stand and two Diesel fill stands. Bulk storage supplies fuel to four refueling unit fill stands (JP-8), and one each fill stand for MUR and DL-2 delivery vehicles. Trendwestern utilizes R-11 and C-300 refueling units to meet the wing's refueling requirements. The base utilizes shop-fabricated aboveground storage tanks to support facility needs for power production or as organizational issue tanks.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTIONS

The Proposed Actions consists of twelve projects to repair or replace antiquated fueling facilities and one project to add an ethanol dispenser to an existing gas station on base. These projects are required for the following reasons.

A JP-8 offloading facility is required in order to transfer fuel from tank trucks to bulk storage and other base fuel distribution systems. AFI 23-201, *Fuels Management*, Technical Order 37-1-1, *General Operation and Inspection of Installed Fuel Storage and Dispensing Systems*, AFI 32-7044, *Storage Tank Compliance*, and various federal regulations (40 CFR 280, *Protection of Environment*, series and 29 CFR 1910.106, *Flammable and Combustible Liquids*) require secondary containment, drainage and concrete berms to prevent any accidental discharges from endangering adjoining property or reaching waterways. An oil/water separator is required in order to meet the environmental compliance requirements (40 CFR 112.7, *General requirements for Spill Prevention control, and Countermeasure Plans*). The primary JP-8 offloading system has been abandoned since late 1999 and a make-shift offloading system is in use; the bulk storage tank low-point drain lines have been retrofitted as the offloading point – this is a temporary and manual operation.

Facilities that store and distribute fuel must have the necessary piping and pumping capability to support the operation. A liquid fuels pump station is required in order to provide a distribution link between the offloading headers, bulk fuel storage tanks, and fill stands. The JP-8 pipelines are required in order to transfer fuel into, out of, and between the bulk storage tanks. The liquid fuel pump station is barely functional. The deep-well-type turbine pumps are over 40 years old and require continual maintenance. Only three of ten pumps are working – repairs are nearly impossible as parts are no longer available and must be custom made with a delivery time of 6 weeks or greater. The electrical system cannot support the current operation – the wiring is old, the controllers are obsolete, relays and rotary switches cannot be safely repaired and parts are not available today.

The piping system also is in disrepair. The annual and five-year hydrostatic pipeline pressure testing have been waived for the past several years. The valves cannot hold

pressure to isolate the system for pressure testing. Inspections are limited to visible areas. The lubricated plug valves are over 40 years old and leak grease into the fuel causing contamination. The current piping is oversized. As a result, the piping causes air to be trapped in the system which causes the pumps to cavitate and adds to the pump failure problems.

Presently, the primary jet fuel offloading headers are located on permeable dirt surfaces/driveways. These offloading headers are considered as temporary and should be replaced immediately. No drainage systems or oil/water separator exist for any of the Defense Logistics Agency facilities. Further, numerous Environmental Compliance Assessment and Management Program citations have been received on these facilities.

The two existing tanks, 2422 (100,000 barrel [bbl]) and 2420 (50,000 bbl), have had continuous problems with the existing floating roofs and worn roof seals. The dome roof is required to prevent moisture and blowing sand from entering the tank and contaminating the fuel. The floating roof requires a new roof penetration bulkhead and seal. The existing floating roof and worn roof seals allow debris and excessive moisture to enter the tank and mix with the aviation fuel. This breaks down the fuel system's inhibitor and antistatic additives. This creates a product that does not meet specifications and causes a lot of unnecessary work to remove the water.

When the water is drained from each of the JP-8 storage tanks, it is deposited into a cattle tank type of system that is open at the top. These 4,000 gallon cattle tanks contain about 2,500 gallons of water with fuel floating on the top, resulting in a source of air pollution. The cattle tanks are currently under investigation to determine whether they are leaking. The tanks need to be removed and the area must be cleaned up.

If action is not taken to correct these conditions, fuel operations would continue to operate in violation of federal regulations. The temporary JP-8 offloading area has no safety controls, no spill containment, and causes numerous operational problems and fuel quality problems. The lack of secondary containment that is impermeable to petroleum products at these unloading and receiving facilities would continue to exist. The potential for discharge of petroleum products or hazardous chemicals that have leached out of the petroleum product into the waters of the state would still exist.

If the fuel is not protected, quality assurance standards would not be met due to the contaminated fuel, which seriously degrades the flying mission. The tank walls would continue to deteriorate and create a safety and health hazard to the environment and base personnel. Without the dome roof, infiltration would continue to contaminate the fuel and increase maintenance costs. Without the sloped floor, contaminants and free water would collect in the low spots and would not drain out adequately. The facilities would remain in noncompliance with 40 CFR 112. The potential for discharge of petroleum products or hazardous chemicals that have leached out of the petroleum product into the ground water would remain high. There is also a potential for discharge into the soil or nearby waters of petroleum product or hazardous chemicals during fuel operations.

Deterioration of the pumping and piping system is approaching a critical state. The pumps and electrical system are nearing complete failure. Failure would cause the operation to shut down. The piping and valve problems would continue to cause air entrapment and system malfunctions, and the leaking valves would continue to prevent the piping system from being properly pressure tested to certify the underground piping integrity. The potential for a spill is high. A system shutdown would suspend military aircraft and helicopter operations at Kirtland AFB.

The existing liquid fuel pump facility (1033) is inadequate, outdated, undersized and does not comply with Air force Occupational and Environmental Safety, Fire Protection and Health standards, thus creating an unsafe working environment. The situation is so severe that current operations are severely limited and cannot be resumed to the full extent until a safe and adequate facility can be provided. Presently, the maintenance personnel are operating in Facility 1076 which is a metal shed with no insulation, heat, cooling or bathroom facilities. It is not big enough to perform any maintenance and is not set up for the environmental conditions required to work on valves that have been in contact with fuel of any kind. It is not collocated with the storage or distribution service. Spare parts are now kept in file cabinets, trucks and other facilities, not protected from elements and security considerations. With a new facility, valves and motors could be maintained with kits rather than having to buy complete valves for replacement since they can not be worked on in safety. Bowsers will have a place to be rinsed and cleaned frequently without having to have it brought across the base to another wash rack that has an oil/water separator. The facility is not adequate for its intended use and does not provide the environment and infrastructure needed for this type of facility.

One other fuels project, the addition of a new ethanol dispenser at the east side military service station (Building 20359), is required for the following reasons.

Alternative fuels for motor vehicles are available in the nation to help reduce the air pollution and to help with the dependency of fuels from foreign nations. The base already has compressed natural gas at this location and vehicles that can use it. The new E-85 fuel, fuel that is 85 percent pure ethanol, is now available and about to be purchased by Defense Energy Support Center for local use. There is an initiative in the State of New Mexico to become a national center for production and use of alternative fuels for all types of energy uses. There is a potential for state grants for the use and dispensers of E-85 since the production of this material is available or will be available in the state. Base transportation indicates that there are already 20 vehicles on base that can use this type of fuel and it just needs to be available. The Air Force has developed an initiative to meet EO 12844, *Federal Use of Alternative Fueled Vehicles*, to use more alternative fuels for motor transport. The construction of this project will help to meet that goal. At the present time, there is only one station in the state that can dispense this fuel, and it is not near the base. In addition, Sandia National Laboratories are a tenant on base and could use this dispenser with the proper inventory control for reimbursements.

SECTION 2
DESCRIPTION OF THE PROPOSED ACTIONS AND ALTERNATIVES

The 377th Air Base Wing (377 ABW) of Air Force Materiel Command proposes to construct or repair fuel storage and offloading facilities at Kirtland Air Force Base (AFB) in Albuquerque, New Mexico. The following section describes the Proposed Actions and alternatives to these actions.

2.1 DESCRIPTION OF THE PROPOSED ACTIONS

The Proposed Actions consist of a total of thirteen projects, twelve of which are related to repair or replacement of the current fuel facilities. Eleven of those projects would occur within the fenced area of the bulk fuels area and one would occur south of Lowry Ave. One other fuels project, the addition of a new ethanol dispenser, is proposed to be located northeast of the intersection of 1st Ave. and K St. These projects may occur at different times depending on the availability of funding. The separate projects are described below and identified by number on Figures 2-1, 2-2, or 2-3.

1. Project MHMV 990601 would construct a liquid fuel offloading facility including: offloading headers, filters, electrical distribution and controls, providing concrete spill containment and storm water drainage piping. This project would also include an oil/water separator and associated drainage piping (Figure 2-1).

2. Project MHMV 023010 would include construction of a new 50,000 barrel (bbl) aboveground JP-8 fuel storage tank. Secondary containment would be required with connections to an oil/water separator connected to the sanitary sewer with a waste fuel storage tank in the system. The project would include the demolition of the old 100,000 bbl tank and waste water storage facility as well as the removal of contaminated soils (Figure 2-1).

3. Project MHMV 010003B would provide secondary containment and spill prevention for one aboveground JP-8 Jet Fuel Storage Tank #2422. Construction would consist of installing impervious liners improving earthen dikes, piping, and concrete sumps. Related project MHMV 880051A would provide for inspection and repair of the spill containment on JP-8 Fuel Tank #2422. Work would include reworking the existing earthen dikes to provide impervious liners, piping, concrete sumps, and installing an oil/water separator equipped with hydrocarbon sensing equipment (Figure 2-1).

4. Project MHMV 041004 would provide for the removal of an open water tank at each of the two aboveground JP-8 fuel tanks (#s 2420 and 2422) and installation of two new 3,000 gallon closed tanks (UL-listed) to catch the water removed from the bottom of the fuel tanks. The water fuel mixture from the bottom of the tank would be collected into a new system so the old system can be removed (Figure 2-1).

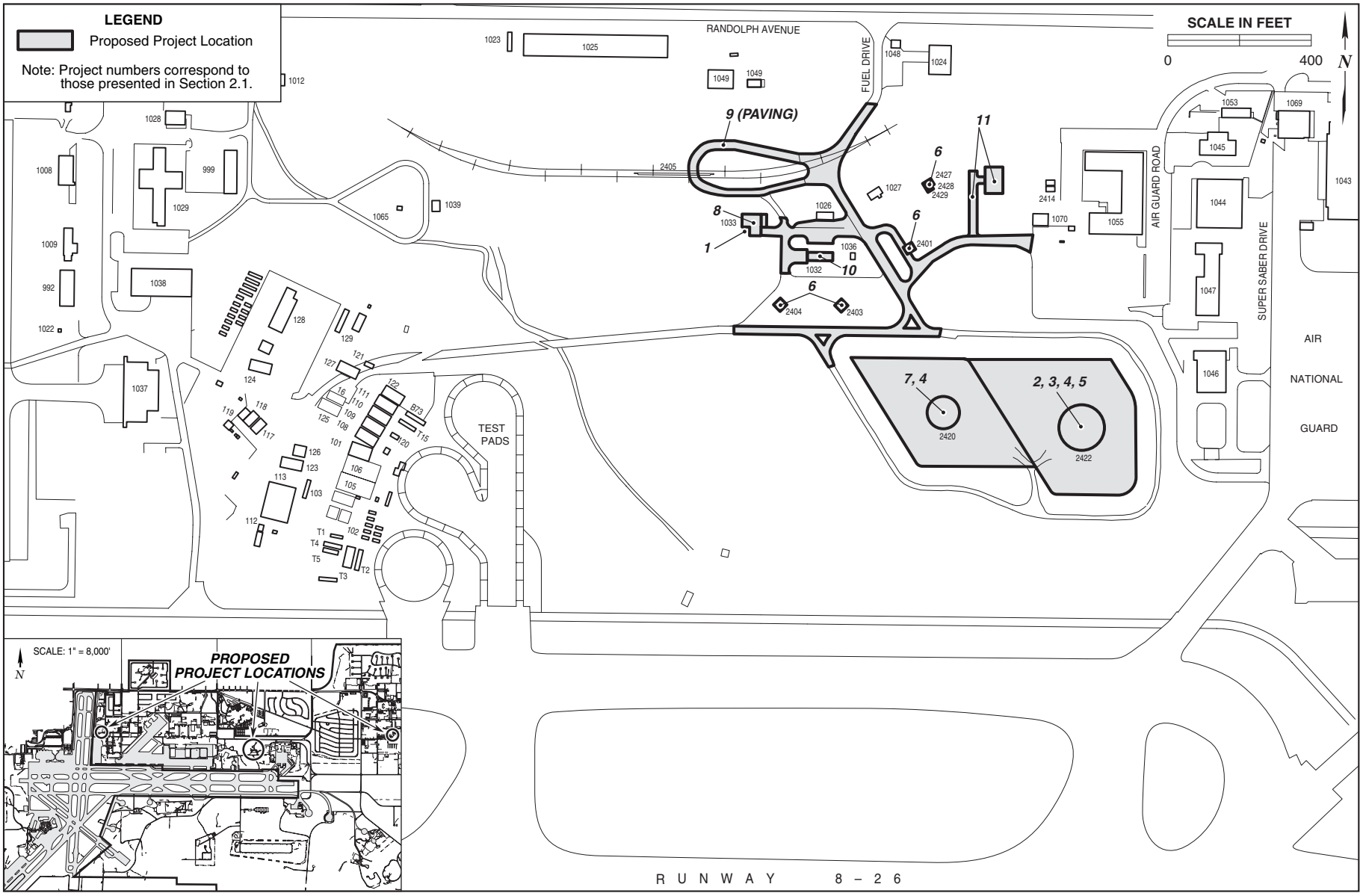

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FIGURE

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Proposed Actions – Bulk Fuels Area

2-1

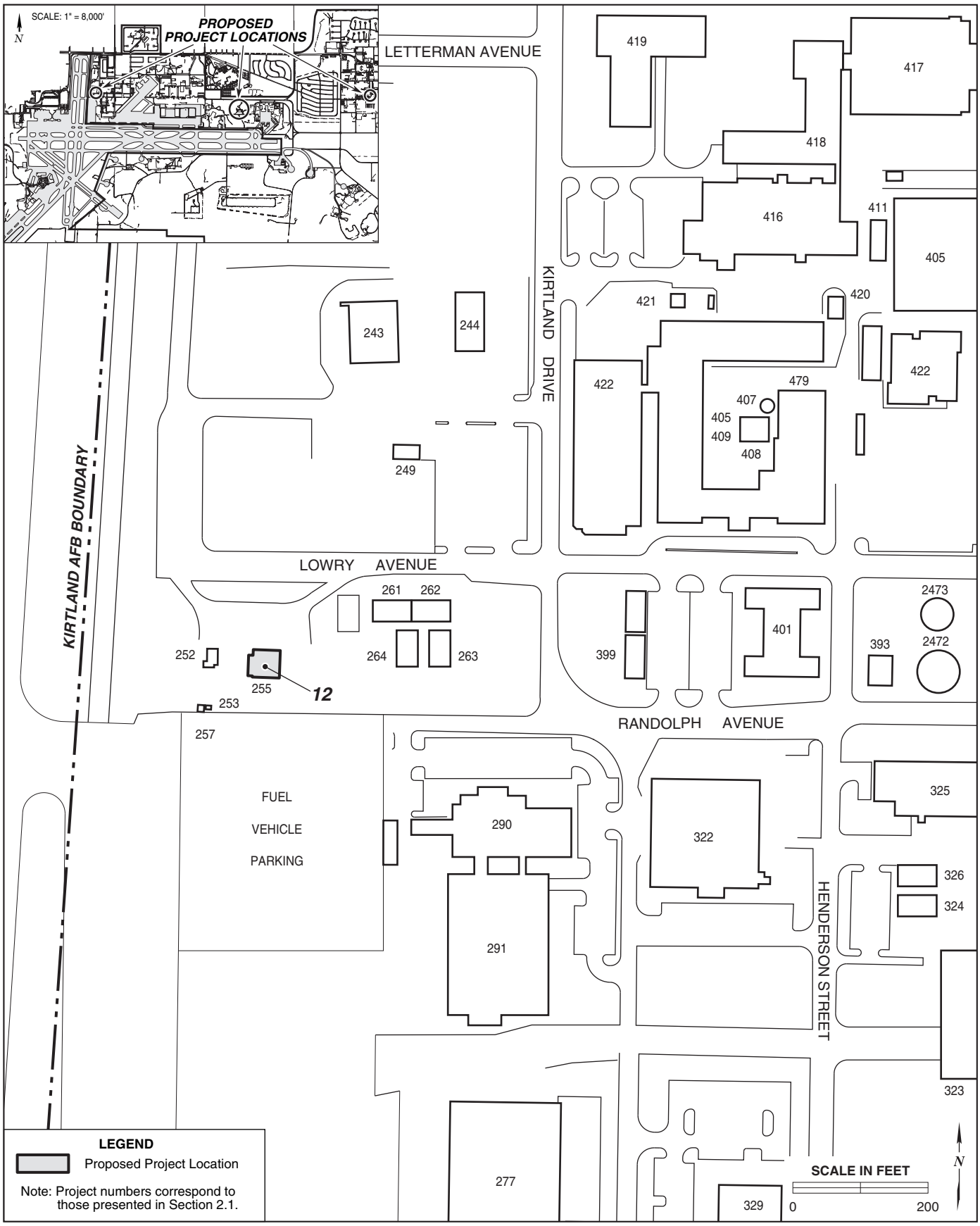

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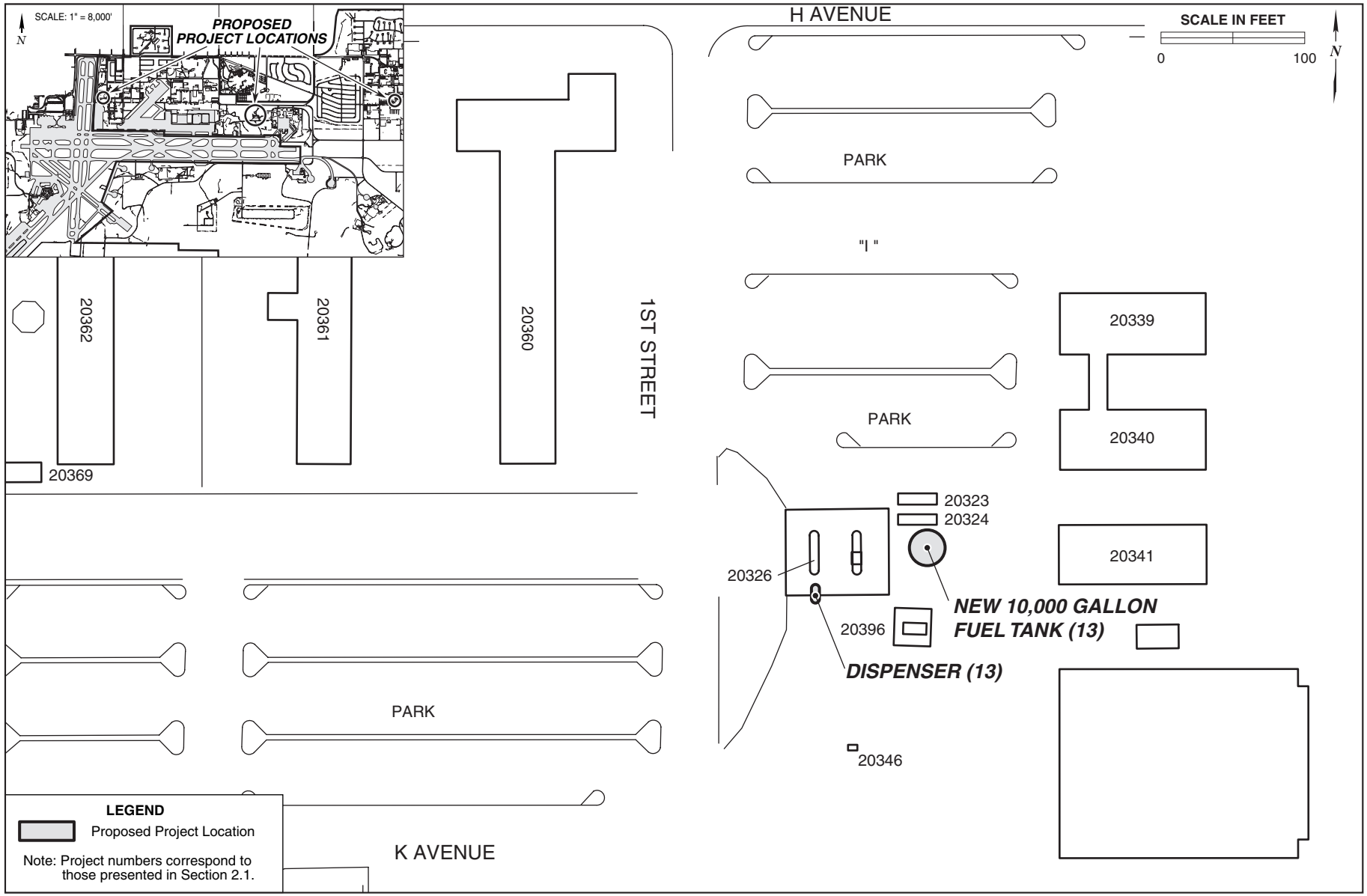
FIGURE

EA

Proposed Action – Project 12

2-2



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EA

Proposed Action – Project 13 – Ethanol Storage and Dispenser

FIGURE

2-3

5. Project MHMV 041006 would consist of the removal and replacement of the roof seal in Tank #2422, a 40 foot high, 127 foot diameter aboveground steel JP -8 fuel storage tank. This replacement is necessary to keep water from entering the fuel tank when it rains (Figure 2-1).

6. Project MHMV 010003A would provide secondary containment for three aboveground fuel tanks (#s 2427, 2428 and 2429) and three JP-8 fill stands (#s 2401, 2403 and 2404.) Construction would consist of installing impervious liners, concrete dikes, piping, concrete sumps, pumps, and concrete pavement (Figure 2-1).

7. Projects MHMV 010003C and MHMV 900041 would provide secondary containment, spill prevention and inspection and repair for aboveground JP-8 Jet Fuel Storage Tank #2420 (Figure 2-1). Construction would consist of:

- installing impervious liners;
- improving earthen dikes, piping, concrete sumps;
- installing an oil/water separator equipped with hydrocarbon sensing equipment;
- installing a geodesic dome roof and concrete pipe supports;
- extending the fill pipe;
- installing thermometer wells;
- replacing roof supports, drains, valves, product recovery pipes, interior and exterior stairs, railings, and platforms;
- providing fire protection;
- sandblasting and painting the exterior tank walls;
- disposing of chromium based paint residue;
- repairing the tank floor by installing a 5 percent sloped floor to the center drain;
- repairing berms;
- reworking the existing earthen dikes to provide impervious liners; and
- installing piping, concrete sumps, and an oil/water separator equipped with hydrocarbon sensing equipment.

8. Project MHMV 890045 would consist of repairing the liquid fuels pump station (# 1033) and replacing the JP-8 pipelines (# 2402). Equipment to be replaced would include valves, pumps, piping, and electrical systems. The piping would be black steel, schedule 40 with epoxy coating in exposed grate covered below ground trenches (Figure 2-1).

9. Project MHMV 020620 would consist of repair and rehabilitation of 1,850 square yards of paving in the vicinity of Buildings 1032, 1026, 1033, 1036, 1041 and 1070. Work would include replacement of damaged sub-base where required, and the application of new bituminous pavement and surface coat, treated to prevent damage from fuel (Figure 2-1).

10. Project MHMV 891014 would consist of rehabilitation of Building 1032. The facility is 1,536 square feet and the work would include replacement of built-up floor, floor tile, wall coverings, ceiling tile; addition of new electrical, communications and control cables and wiring; and upgrades to heating, ventilation and air conditioning (HVAC), security fencing and gates and interior lighting (Figure 2-1).

11. Project MHMV 860120 would consist of construction of a new liquid fuel system maintenance facility northwest of existing Building 1070 and west of the parking lot associated with Building 1055. Current activities that occur in various locations around the fuels area would be consolidated at the new facility. The new facility would have concrete floor slab and foundation, steel column and beam frame, metal pitched roof, fire protection system, adequate environmental controls and ventilation, emergency shower/eye wash facilities, and necessary utilities and communications support. The facility will also require connection to a nearby oil/water separator (Figure 2-1).

12. Project MHMV 021013 would consist of the rehabilitation of Facility 255, the Operations Administrative Facility located north of the fuel vehicle parking area (Figure 2-2). The facility is approximately 1,600 square feet and the rehabilitation would consist of floor tiling and carpet, shower, walls, ceiling tile, electrical communications and control cables and wiring, HVAC upgrades, security fencing and gates, and interior and exterior lighting upgrades.

13. Project MHMV 051003 would consist of the construction of an ethanol dispenser with two hoses to make it accessible from either side of the service island located at the existing military service station northeast of the intersection of 1st Ave. and K St. A new 10,000 gallon above ground double walled storage tank would be constructed and fenced off for security. Electrical wiring and piping connection from the tank to the new dispenser would also be required (Figure 2-3).

2.2 INFORMATION COMMON TO ALL PROJECTS

2.2.1 Construction Activities

The construction activities that would be required for the thirteen proposed projects described above have many characteristics in common. Bulldozers, backhoes, and front-end loaders would be on site throughout periods of excavation and/or site preparation. Dump trucks would be on site intermittently, as would concrete-mixers and asphalt vehicles and associated machinery. Sufficient amounts of fuels, hydraulic fluids, and oils and lubricants required to support contractor vehicles and machinery would be stored on site during the project. No other hazardous fuels or solvents would be stored on site.

All material needs (e.g. steel, concrete, asphalt) would be supplied by off-site vendors. Each of the projects would require small amounts of electricity for the construction activities. No natural gas or steam would be required.

Hazardous materials (e.g. chromium or lead in paint, asbestos, etc.) would be managed and disposed of in accordance with the Kirtland AFB Hazardous Waste Management Plan and Asbestos Management Plan as well as all applicable state and federal regulations.

Non-hazardous construction debris would be transported to the Kirtland AFB landfill for disposal. Kirtland AFB, in an effort to meet Department of Air Force waste diversion standards, requests monthly reports by item description and weight of any materials removed for recycling or reuse by the contractor. An on-site dumpster would be provided by the contractor for other non-hazardous municipal solid waste (e.g. plastics, paper, and food waste) that could be generated by worker activity at the project sites. When the dumpster is full, the debris would be transported to a permitted Subtitle D landfill. Any cardboard waste would be separated and delivered to the base landfill or the Sandia National Laboratories, Solid Waste Transfer Station where a roll-off unit is available for cardboard recycling.

Salvageable metal debris resulting from construction activities would be removed and transported to the Defense Reutilization and Marketing Office at Kirtland AFB for recycling or to any certified recycling facility in accordance with Department of Defense Instruction 4715.4, *Pollution Prevention*, paragraph F.2.c.(3)(f). If a dust nuisance or hazard occurs during construction, water, supplied by Kirtland AFB, would be used for dust control.

Adequate parking would be available for worker vehicles on locations at and adjacent to the project sites. Potable water would be available to the workers in coolers furnished by either the general contractor or individual crews. Restroom facilities would consist of portable chemical toilets. No additional potable water or disposition of wastewater would be required.

2.2.2 Permits and Consultations

Permits that may be required consist of general and construction permits for both air quality and the National Pollutant Discharge Elimination System (NPDES). In addition, the fuels area is a controlled area, so contractors entering the area need an Entry Authorization Letter from base security.

A Fugitive Dust Control Permit and Fugitive Dust Control Plan Application submittal to the City of Albuquerque Environmental Health Department Air Quality Control Division would be required for operations that would disturb three-quarters of an acre or more. Permit applications are required to be submitted at least 10 working days prior to start date of construction.

Individual construction sites (or common sites of development) that would result in the disturbance of 1 or more acres of total land area (large construction) are required to be permitted under the NPDES General Permit for Storm Water Discharges from Construction Activities (Federal Register 2003). These construction activities require the

preparation of a Storm Water Pollution Prevention Plan and a Notice of Intent to discharge in accordance with the General Construction Permit. The permitting of these construction activities would be coordinated through the Kirtland AFB Environmental Management Branch, Compliance Section.

2.3 ALTERNATIVES TO THE PROPOSED ACTIONS

2.3.1 No-Action Alternative

Under the No-Action Alternative, no facilities would be repaired or upgraded and no new facilities would be built. Fueling operations would continue at these facilities that are outdated and in need of repair.

2.3.2 Alternatives Considered But Not Carried Forward

Alternatives to the Proposed Actions were required to allow the base to comply with all appropriate regulations regarding fuel facilities. Repair and/or replacement of the existing facilities were deemed to be the only suitable way to address the many problems that exist within the fuel facilities complex.

Alternatives to the Proposed Actions that were considered included construction of a rail based fuel delivery system, construction of a cross-country pipeline, and the complete replacement of the fuel farm at a site immediately west of the existing fuel farm. These alternatives were considered, but not carried forward because the costs were not supportable (Richardson 2004).

No other alternatives to the Proposed Actions were developed that would solve the existing problems with the fuel facilities while still allowing fueling activities to continue.

SECTION 3
AFFECTED ENVIRONMENT

Only resource areas that would experience either positive or negative impacts if the Proposed Actions were implemented are discussed in detail below.

The following resources would not be impacted by the Proposed Actions: noise, land use, visual resources, transportation and circulation, biological resources, cultural resources, and environmental justice. The rationale for dismissing each of these resources from detailed consideration is given at the beginning of Section 4.

3.1 HEALTH AND SAFETY

3.1.1 Definition of Resource

For purposes of this Environmental Assessment (EA), safety issues discussed include safety preparedness, occupational hazards, airfield safety, chemical and liquid fuel safety, and explosives safety.

Because children may suffer disproportionately from environmental health risks and safety risks, Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was introduced in 1997. This EO prioritized the identification and assessment of environmental health risks and safety risks that may affect children and ensures those federal agencies' policies, programs, activities, and standards address environmental and safety risks to children.

3.1.2 Existing Conditions

3.1.2.1 Safety Preparedness

Safety is an integral part of mission performance at Kirtland Air Force Base (AFB), and supervisors and managers are strongly encouraged to prevent mishaps. In addition, the Kirtland AFB Disaster Preparedness Operation Plan (Kirtland AFB 1993) establishes procedures to respond to and recover from disasters or accidents, created or natural, affecting assigned and associate organizations at Kirtland AFB, as well as the surrounding area. Kirtland's Hazardous Waste Management Plan (April, 2004) includes procedures for responding to hazardous material and fuel spills.

3.1.2.2 Human Health

Under current conditions, the various fuel facility areas present risks to human health including exposure to liquid fuels from leaks and toxic vapors, threat of fires and explosions, or other industrial accidents. A health hazard exists from petroleum products that have contaminated soils and created soil vapors that have contaminated groundwater.

Fuel Operations Facilities 255 and 1032 currently have electrical distribution systems that are not compliant with code and inadequate lighting. The current liquid fuel system maintenance facility is undersized and is not outfitted to work on maintenance associated with fuels: there is no fire protection; no emergency shower or eye wash; inadequate ventilation; and no oil/water separator. The facility also has no insulation, heat or cooling systems, and no restrooms.

The temporary Fuel Offloading Facility has no secondary containment and inadequate bollard protection.

3.1.2.3 Occupational Hazards

Kirtland AFB operates in accordance with Air Force regulations, instructions and the Air Force Occupational Safety and Health Standard 91-38, *Hydrocarbon Fuels General,* (September 1997) and Air Force Occupational Safety and Health Standard 91-68, *Chemical Safety* (October 1997).

The main bulk fuel facility (adjacent to runway 26) currently has no acceptable escape route for tank trucks in the event of a fire because of the current fence location and the small turning radius. The improper storage of fuels and deterioration of fuel tank walls at the current fuel facilities represent a safety and health hazard due to a lack of safety controls (emergency stop switches) and secondary spill containment.

3.1.2.4 Airfield Clearance Requirements

Airport obstruction-free areas and "imaginary surfaces" relative to runways and taxiways defined by Federal Aviation Regulation Part 77.28, *Military Airport Imaginary Surfaces*, impose constraints on facilities adjacent to the runways. Although the proposed project site is located adjacent to the runways, the Proposed Actions would not result in tall new structures or above ground utility transmission lines that would interfere with aircraft on approach or departure. The main fuel facility area is within the transitional surface of runway 26, but no objects penetrate it as of the 2005 Waiver Report.

The locations of the proposed facilities are not within any accident potential zones, clear zones, or runway protection zones.

3.1.2.5 Explosive Safety Zones

Air Force Manual 91-201, *Explosives Safety Standards*, represents the Air Force guidelines for complying with explosives safety. Defined distances called quantity-distance (Q-D) arcs must be maintained between explosive storage areas. Development is restricted within these arcs for personnel and property safety. The bulk fuel facility area (adjacent to runway 26) is adjacent to, but not within the New Mexico Air National Guard 400 foot Q-D arc explosives area. None of the other proposed facilities are within or adjacent to any Q-D arcs.

3.2 AIR QUALITY

3.2.1 Definition of Resource

Outdoor air quality in a given location is described by the concentration of various pollutants in the atmosphere. Air quality at a given location is a function of several factors, including the quantity and dispersion rates of pollutants in the region, temperature, the presence or absence of inversions, and topographic and geographic features of the region. For the purposes of this EA, Bernalillo County forms the region of concern for air quality. The State of New Mexico has adopted additional standards for air quality, the New Mexico Ambient Air Quality Standards (NMAAQS), which apply a more stringent standard for carbon monoxide (CO), sulfur dioxide, and for the 24-hour standard for nitrogen oxides. Both the National Ambient Air Quality Standards (NAAQS) and NMAAQS are depicted in Table B-1. Albuquerque/Bernalillo County has adopted the NMAAQS. Appendix B provides additional detail on air quality and lists the NAAQS and the NMAAQS.

3.2.2 Existing Conditions

3.2.2.1 Climate and Regional Air Quality

The climate in the Albuquerque area is mild, sunny, and dry. The State of New Mexico, as well as the City of Albuquerque can be classified as a mild, arid or semiarid continental climate with light precipitation, abundant sunshine, and low relative humidity (Western Regional Climate Center [WRCC] 2005). High temperatures at Kirtland AFB average 90 degrees Fahrenheit (ºF) and low temperatures average 62ºF during the summer months. Winters have an average daily low temperature of 32ºF and an average daily high temperature of 58ºF (October to April) (WRCC 2005). Annual average precipitation in Bernalillo County ranges from 8 inches in the county's arid valley and mesa areas to 30 inches in the mountains east of Kirtland AFB.

Average annual wind speed at the Albuquerque International Sunport is 8.0 miles-per-hour and the prevailing wind direction is north (WRCC 2005).

The Albuquerque Environmental Health Department (AEHD) performs air quality functions in Albuquerque, and the Albuquerque-Bernalillo County Air Quality Control Board governs them.

The City of Albuquerque has been designated as being in maintenance status for CO as of 15 June 1996 and is currently in attainment for all other federally regulated pollutants (Environmental Protection Agency 1996). CO levels are currently at their lowest since the 1970s (CO levels were consistently violated during the 1970s and 1980s [AEHD 2000]).

3.2.2.2 Air Quality In and Around the Project Areas

In addition to emissions from vehicles, aircraft emissions, and fugitive dust, air emission sources in the fuel facility areas come from volatile organic compounds from fuel storage and distribution. Other mission-related stationary sources include aircraft engine testing, explosive ordnance disposal, and corrosion control activity. Table 3-1 shows emissions from the storage tanks in the bulk fuels project areas. For comparison, Table 3-2 shows air emissions for criteria pollutants and hazardous air pollutants for the entire base.

Table 3-1. Current Project Area Bulk Fuel Facility Emissions

Facility	Pollutant	Emissions (tpy)
Bulk Fuels Tank 20, Bldg. 1036	HAP	0.14567104
	VOC	2.11117453
Bulk Fuels Tank 23, Bldg. 2420	HAP	0.00701459
	VOC	0.00075153
Bulk Fuels Tank 22, Bldg. 2422	HAP	0.00915956
	VOC	0.12224701
Bulk Fuels Tank 19, Bldg. 2427	HAP	0.000030301
	VOC	0.00246346
East Govt Gas Station, Bldg. 2428	HAP	0.20109379
	VOC	2.91440274
Bulk Fuels Tank 21, Bldg. 2429	HAP	0.0000092438
	VOC	0.00075153

Source: Kirtland Air Force Base 2005
Notes: tpy = tons per year
HAP = Hazardous Air Pollutants
VOC = Volatile Organic Compounds

Table 3-2. Summary of Calendar Year 2003 Air Emissions from Non-exempt Sources at Kirtland Air Force Base

Pollutant	Emissions	
	Actual[b] (tpy)	Allowable[b] (tpy)
Criteria Pollutants and Precursors		
Carbon Monoxide	16.7	123.6
Nitrogen Oxides	19.4	187.3
Particulate Matter	13.4	42
Particulate Matter equal to or less than 10 micrometers in diameter	13.1	40
Sulfur Oxides	2.7	20.4
Volatile Organic Compounds	62.0	166.3
Hazardous Air Pollutants	4.0	12.9

Source: United States Air Force 2004a.
Notes: [a] Sources considered non-exempt under 20.11.42 NMAC – Operating Permits.
[b] These cumulative totals include emissions from 20.11.40 NMAC – Source Registration, 20.11.41 – Authority-to-Construct, and Title V sources.
tpy=tons per year NMAC=New Mexico Administrative Code

3.3 UTILITIES

3.3.1 Definition of Resource

Utilities currently provided at all the fuel facility site locations include water, electricity, gas, sanitary sewer, telephone, solid waste disposal, and liquid fuel systems. The following describes only the liquid fuel system since that is the only utility that would be affected by the Proposed Actions.

3.3.2 Existing Conditions

Liquid Fuel System

The fuel facilities on Kirtland AFB consist of a variety of systems to store and deliver fuels to maintain aircraft operations and other equipment across the base. Fuels used in the fueling systems include JP-8, diesel, and gasoline.

Table 3-3 shows current fuel facility tanks, their capacity and throughput.

Table 3-3. Existing Fuel Storage Tank Capacity and Throughput

Facility	Tank Capacity (Gal)	Average Annual Throughput[1]	Fuel
2420	2,100,000	6,000,000	JP-8
2422	4,200,000	5,100,000	JP-8
2427	10,000	134,800	Diesel
2428	10,000	44,800	Gasoline
2429	5,000	18,600	Diesel

Source: Kirtland Air Force Base 2003 and United States Air Force 2004a.
Note: [1]average over two-year period

3.4 GEOLOGICAL RESOURCES

3.4.1 Definition of Resource

The geological resources of an area consist of all soil and rock materials. Soils refer to unconsolidated earthen material overlying bedrock or other parent material. For this report, only soil properties pertaining to erosion are described. The geology of an area includes mineral deposits, notable landforms, tectonic features, and fossil remains.

3.4.2 Existing Conditions

3.4.2.1 Geology

Kirtland AFB is situated in the eastern portion of the Albuquerque Basin, which is one of the largest of a series of north-trending basins and measures 90 miles long and 30 miles wide (Fenneman 1931). The basin extends from the gently sloping area near the Rio Grande River to the steep foothills and slopes of the Manzanita and Manzano Mountains. The Proposed Actions are located on relatively flat terrain (i.e. less than a 5 percent slope). Much of the Albuquerque Basin consists of poorly consolidated sediments that eroded from the surrounding mountains following previous faulting and geologic activity.

3.4.2.2 Soils

The primary soil types found at the Proposed Actions are Wink fine sandy loam, Latene sandy loam, and Embudo gravelly fine sandy loam. Soil permeability for these types is moderate and the water and wind erosion hazard is slight to moderate.

Soil contamination from the current bulk fuels facility has occurred at locations throughout the site (see Section 3.7.2.2). The extent of contamination is not fully known. However, the site is under current evaluation to determine the extent of contamination.

3.5 WATER RESOURCES

3.5.1 Definition of Resource

Water resources include all surface waters and groundwater and their availability for human use. For this analysis, those water resources located within the proposed project areas, were investigated. Surface water resources comprise lakes, rivers, and streams and are important for economic, ecological, recreational, and human health reasons. Groundwater comprises the subsurface hydrologic resources of the physical environment and is an essential potable resource in many areas; groundwater is commonly used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater properties are often described in terms of depth to aquifer, aquifer or well capacity, water quality, and surrounding geologic composition.

3.5.2 Existing Conditions

3.5.2.1 Surface Water

The Rio Grande River is the major surface hydrologic feature in central New Mexico, flowing north to south through Albuquerque, approximately 5 miles west of Kirtland AFB. Minor surface water bodies exist on the East Mesa, on which Kirtland AFB is located. These occur as small wetlands, such as Coyote Springs and Sol se Mete Spring or as small reservoirs such as the ponds located at the Tijeras Arroyo Golf Course.

East Mesa surface water occurs in the form of storm water sheet flows that drain into small gullies when it rains. The primary surface channels that drain runoff from Kirtland AFB to the Rio Grande River are the Tijeras Arroyo and Arroyo del Coyote. These arroyos are water-carved channels that are dry for most of the year. Precipitation reaches these arroyos through a series of storm drains, flood canals, and unnamed smaller arroyos. Surface water from the base enters Tijeras Arroyo from where it crosses the Kirtland AFB boundary just north of the current base landfill, to south of Albuquerque International Sunport, and drains eventually into the Rio Grande River (United States Air Force [USAF] 1991). Arroyo del Coyote collects water from Madera, Lurance and Sol se Mete Canyons in the Manzanita Mountains and drains into Tijeras Arroyo approximately one mile west of the Tijeras Arroyo Golf Course.

Both Arroyo del Coyote and Tijeras Arroyo flow intermittently during heavy thunderstorms and spring snowmelt (United States Army Corps of Engineers 1979). However, nearly 95 percent of the precipitation that flows through the Tijeras Arroyo evaporates before it reaches the Rio Grande River. The remaining 5 percent is equally divided between runoff and groundwater recharge (USAF 1991). The Proposed Actions would be more than a mile from any surface drainage channels or floodplains.

3.5.2.2 Groundwater

Kirtland AFB is located within the limits of the Rio Grande Underground Water Basin, which has been defined by the State of New Mexico as a natural resource area and has been designated as a "declared underground water basin". The state regulates it as a sole source of potable water. The Rio Grande Basins source of groundwater is the Santa Fe Aquifer. The averaged depth to this aquifer under Kirtland AFB is 450 to 550 feet below ground surface (fbgs). Albuquerque relies on groundwater as its sole potable water source. Additionally, a perched aquifer is located in the middle and eastern portions of the base and is found at depths ranging from 200-400 fbgs. This perched aquifer is not classified as a drinking water source. Although soil contamination from past practices and leaks at the bulk fuels facility has occurred, liquid fuel contamination has not reached the drinking water. However, it is believed that vapors from the fuel-laden soils reach the groundwater periodically as benzene, toluene, ethylbenzene, and xzylene has been detected in groundwater samples from an adjacent monitoring well (Holmes 2005).

3.5.2.3 Water Supply at Kirtland Air Force Base

Water on base is supplied by two separate but interconnected distribution systems which are owned and operated by Kirtland AFB and Sandia National Laboratories. Eight installation water wells occur on base with five of these being regularly utilized. Monitoring wells have not detected any drinking water contamination from the bulk fuels facility.

3.6 SOCIOECONOMICS

3.6.1 Definition of Resource

Socioeconomics are defined as the basic attributes and resources associated with the human environment. A Region of Influence (ROI) is defined as the geographic area or region wherein the project-induced changes to the socioeconomic environment would occur (Canter 1996). The ROI for these Proposed Actions is Bernalillo County.

Site specific environmental changes as a result of these Proposed Actions are discussed below.

3.6.2 Existing Conditions

3.6.2.1 Population

The ROI had an estimated 2004 population of 593,765 (United States Census Bureau 2005). This was a 2 percent increase from 2003.

3.6.2.2 Economy within the Region of Influence

In Bernalillo County, per capita income in 2003 was estimated at $21,557 (United States Census Bureau 2003). The annual average unemployment rate at the beginning of 2005 within the ROI was 5.2 percent (New Mexico Department of Labor 2005).

3.6.2.3 Kirtland Air Force Base

Kirtland AFB had approximately 25,600 employees in fiscal year (FY) 2004 (USAF 2005). The goods and services purchased by base employees in the local area create secondary jobs and wages, further adding to its total economic importance to the local area. Kirtland AFB expenditures in FY 2004, including payroll, totaled over $2.4 billion. The economic contribution (dollar impact) of Kirtland AFB to the local economy in FY 2004 was estimated at just over $3.3 billion (USAF 2005).

3.7 HAZARDOUS MATERIALS AND WASTES

3.7.1 Definition of Activity

Hazardous materials are defined as substances with strong physical properties of ignitability, corrosivity, reactivity, or toxicity which may cause an increase in mortality, a serious irreversible illness, or incapacitating reversible illness, or pose a substantial threat to human health or the environment. Hazardous wastes are defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

To protect people and habitats from inadvertent and potentially harmful releases of hazardous substances, Department of Defense has dictated that all facilities develop and implement Hazardous Waste Management Plans. Hazardous and solid wastes are both regulated by the Resource Conservation and Recovery Act (RCRA). Each state operates its own waste management programs in addition to following federal standards. Waste management also involves recycling, source reduction, and pollution prevention programs.

3.7.2 Existing Conditions

3.7.2.1 Hazardous Wastes

A number of potentially hazardous materials are used and stored at Kirtland AFB. An annually updated management plan is followed for the collection, storage, and disposal of hazardous waste in accordance with applicable federal, state, and local standards. Special guidance documents are followed for the disposal of asbestos, hydrazine, and radioactive materials, and for the prevention of spills (USAF 1996).

Kirtland AFB operates as a large-quantity generator of hazardous waste and as a treatment, storage, and disposal facility. A RCRA Part B Permit issued by the State of

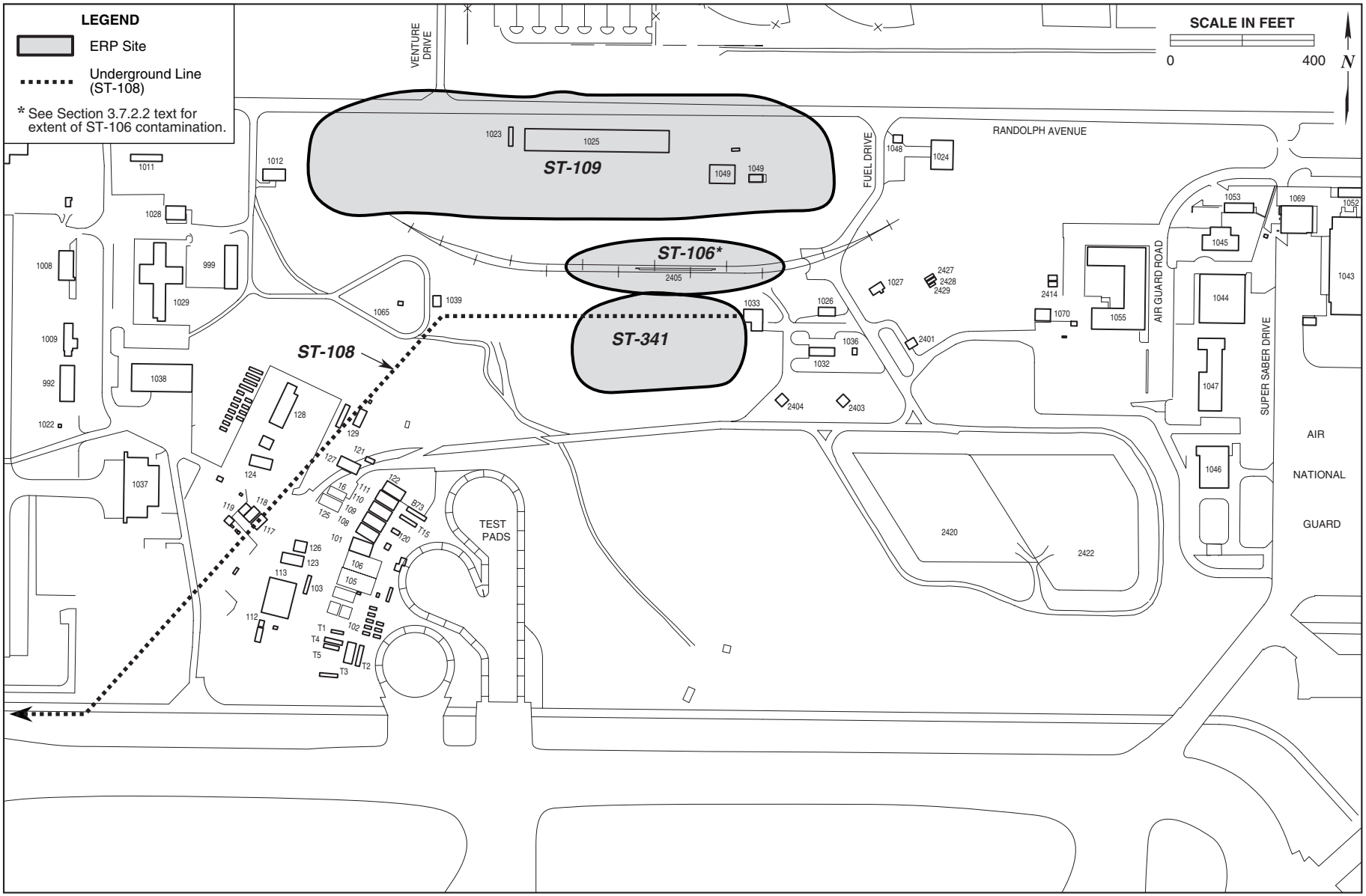
New Mexico to Kirtland AFB regulates the collection and storage of hazardous waste. Hazardous waste collection and storage sites are operated by the Environmental Compliance Section (377 MSG/CEVC) and disposed of through the Defense Reutilization and Marketing Office, which arranges off-site disposal of the waste. Some wastes such as lead-based paint, are disposed of through outside contractors. Photographic laboratory wastes are discharged to sanitary sewers following silver recovery and neutralization. Asbestos and asbestos-containing materials found in numerous buildings at the base are handled in accordance with the Kirtland AFB Asbestos Management Plan (USAF 2004b).

Facilities/Administrative buildings in the fuel facility areas that have a potential for hazardous waste include the Fuel Ops Facility 255. This facility has asbestos in the 9 foot by 9 foot tiles in the dayroom and may have lead-based paint. Other contamination and fuels stored are discussed below.

3.7.2.2 Installation Restoration Program

There are several solid waste management units sites that are being investigated as Installation Restoration Program (IRP) sites within the main bulk fuels project area (adjacent to runway 26) including: ST-106 (fuel spill); ST-108, and ST-109 (Figure 3-1). There is extensive soil vapor contamination from ST-106 in the subsurface soils under the fuels facility area. Investigation of the area is scheduled for 2005. Potential remedial action and activities will not be known until the investigation is completed. Fuel vapors were detected in the subsurface soils of ST-106, and a remedial system was installed in 2004. Past fuel release has contaminated soils and groundwater. Construction, maintenance, repair, and demolition would occur within these sites in the bulk fuel facilities area. Hazardous waste contamination within ST-109 consists of acetone in the subsurface soil vapor. Investigation is scheduled for summer 2005 and further remedial action and installation of equipment may be required. ST-341 has been remediated and approved for No Further Action.

There is one IRP site, ST-201, located near Project 12, the rehabilitation of Building 255 and four IRP sites (ST-250, 251, 252 and 253) in the vicinity of Project 13, the ethanol dispenser at the military service station. All five of these IRP sites are inactive and proposed for No-Further Action.



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EA

Installation Restoration Sites within the Bulk Fuels Facilities Area

FIGURE

3-1

3.7.2.3 Fuel Storage Tanks

Fuel storage tanks in the bulk fuels storage area consist of aboveground storage tanks containing JP-8, unleaded gasoline, low-sulfur diesel fuel, and biodiesel. The Kirtland AFB Spill Plan sets policies and prevention measures regarding spills.

3.7.2.4 Solid Waste

Solid municipal waste generated by commercial activities and housing on base is sent to Waste Management of New Mexico sites off base. These sites include the Rio Rancho and Torrance County facilities. Waste generated by construction and demolition activities are taken to the Kirtland AFB Landfill. All solid wastes are disposed of in accordance with USAF, Kirtland AFB, and applicable federal, state, and local regulations.

SECTION 4
ENVIRONMENTAL CONSEQUENCES

4.1 SUMMARY OF ENVIRONMENTAL RESOURCES NOT AFFECTED BY THIS ACTION

The following resources would not be impacted by the Proposed Actions: noise, land use, visual resources, transportation and circulation, biological resources, cultural resources, and environmental justice. The reasons for excluding them from detailed analysis are below.

4.1.1 Noise

Noise was not analyzed because construction and installation of new fuel facilities would be temporary and short-term. Aircraft operations dominate the noise environment in the area and no noise-sensitive receptors are nearby.

4.1.2 Land Use and Visual Resources

Land use and visual resources were not analyzed because current industrial land use would not change. Visual resources would remain the same with the exception of new fuel tanks. The visual environment as a whole would not change.

4.1.3 Transportation and Circulation

Transportation and circulation were not analyzed because the Proposed Actions would not change demand for transportation systems, personnel would not be added to increase traffic in the long-term and there would be no operational changes that would permanently alter traffic patterns and circulation. A slight increase of construction worker vehicle and equipment traffic would be short-term and temporary and would not impact circulation in the area.

4.1.4 Biological Resources

Biological resources include native and naturalized wildlife and vegetation and sensitive species. Sensitive species are those listed as threatened, endangered, proposed, or candidate for listing by the United States Fish and Wildlife Service; New Mexico Energy, Minerals, and Natural Resources Department; and/or the New Mexico Department of Game and Fish. The locations for the bulk fuels facilities consist primarily of concrete and bare ground. There are no federally listed threatened or endangered species known to occur on Kirtland Air Force Base (AFB) and the gray vireo, a state-listed species, occurs more than 5 miles from the sites of the Proposed Actions. In addition, the proposed location and alternatives have virtually no vegetation or habitat for wildlife. For these reasons, biological resources are not addressed in this Environmental Assessment (EA).

4.1.5 Cultural Resources

Kirtland AFB has identified over 80 historic buildings that have been determined to be eligible for the National Register of Historic Places (NRHP). Over 600 archaeological sites have been located within Kirtland AFB boundaries, but only some sites are known to be eligible for the NRHP. The fuel facility and buildings included in these Proposed Actions are not eligible for the NRHP and have no known potentially significant archaeological findings.

The sites for the Proposed Actions have been graded and substantially disturbed since the 1950s. As a result, no intact cultural resources exist in these areas and potential impacts to cultural resources are not considered in this EA.

4.1.6 Environmental Justice

Executive Order (EO) 12898, *Federal Actions to address Environmental Justice in Minority Populations and Low-Income Populations,* (February 1994) requires federal agencies to consider disproportionately high and adverse environmental effects on minority and low-income populations.

Overall, beneficial environmental impacts would result from the Proposed Actions. The project would result in approximately 5 acres of ground disturbance and temporary construction-related emissions. The proposed projects would be located entirely within the boundaries of Kirtland AFB. There are no surface water bodies, wetlands, threatened or endangered species, or cultural resources present in the project areas. Project sites where new construction, repairs, and renovation would be located are ½ mile from the nearest residential areas. Standard construction practices would be implemented to minimize dust and impacts to soils. Because there would be no long-term adverse environmental impacts, an environmental justice analysis is not required.

4.2 HEALTH AND SAFETY

4.2.1 Methodology

An impact to safety would be considered significant if implementation of a proposed action would substantially increase risks associated with mishap potential or safety relevant to the public or the environment.

Potential safety impacts are measured relative to the degree that the action would increase or decrease safety risks to the public, personnel, or property.

An impact to children from environmental health risks or safety risks would be considered significant if a proposed action would result in a disproportionate adverse impact to the health or safety of children.

Potential impacts to human health and safety were determined by comparing present conditions with conditions that would occur from construction and operation of the new fuel facilities. Criteria used to identify potential impacts from the Proposed Actions were based on handling of or emissions to the environment from materials such that their physical, chemical, radiological or biological nature may be harmful to human health.

Analysis of potential impacts to children included: 1) identifying and describing hazards that could potentially affect children; 2) examining the Proposed Actions and the potential effects these actions may have on children; and 3) assessing the significance of potential impacts. If potential adverse impacts are identified, mitigation measures are proposed to minimize or alleviate the impacts.

4.2.2 Impacts

4.2.2.1 Proposed Actions

Maintenance and installation of new fuel tanks would reduce health and safety issues associated with current conditions. Toxic emissions would be reduced and contamination and spills would be controlled with proper containment measures that would prevent leakage into the soils. Potential health impacts to construction workers during ground disturbing activities in contaminated soils would be avoided by implementation of appropriate health and safety measures. Height of construction equipment should be considered in the area during construction, depending on the location. No equipment should exceed 90 feet. Implementation of the Proposed Actions would have a beneficial impact on the current health and safety environment at Kirtland AFB.

There would be no adverse impacts, therefore there would be no disproportionate increase in environmental health and safety risks to children from the Proposed Actions. Children would not be present in the project areas, nor would they be present during facility operations. Therefore, possible disproportionate negative impacts to children identified in EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, would not occur.

4.2.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in continued use of the existing fuel facilities. There would continue to be health and safety hazards to personnel and property from fuel tanks that are not properly maintained and violate federal regulations. There would be no change to current conditions of safety or risks to children on base.

4.3 AIR QUALITY

4.3.1 Methodology

The 1990 amendments to the Clean Air Act (CAA) require federal agencies to conform to the affected State Implementation Plan (SIP) with respect to achieving and maintaining

attainment of National Ambient Air Quality Standards (NAAQS) and addressing air quality impacts. An air quality impact resulting from a proposed action would be significant if it would: (1) increase concentrations of ambient criteria pollutants or ozone precursors to levels exceeding NAAQS, (2) increase concentrations of pollutants already at nonattainment levels, (3) lead to establishment of a new nonattainment area by the governor of the state or the Environmental Protection Agency (EPA), or (4) delay achievement of attainment in accordance with the SIP.

The CAA General Conformity Rule states that nonattainment and maintenance areas must conform to the applicable SIP. Kirtland AFB is covered by a carbon monoxide (CO) maintenance plan, and the applicable de minimis level for CO is 100 tons per year (tpy). Furthermore, total CO emissions in the Albuquerque-Bernalillo County air basin for 1999 were estimated to be 190,540 tpy, the latest year for which these data are available. Therefore, CO emissions from mobile, area, and stationary, as well as construction phase emissions associated with a project at Kirtland AFB would not be considered regionally significant unless they were in excess of 19,054 tpy (10 percent of 190,540). The CAA conformity rule states that only net emissions must be considered.

4.3.2 Impacts

4.3.2.1 Proposed Actions

Estimated CO emissions from construction and privately owned vehicles and equipment are outlined in Table 4-1.

Construction emissions were calculated for the proposed fuel facility projects using the United States Air Force (USAF) Conformity Applicability Model. Calculations were based on construction, grading, and square footage of support facilities. Total square footage for the facilities was estimated at 200,000, and a minimum of 5 acres was used for the area. Dust controls used in the calculation of emissions included soil piles and exposed (graded) surfaces watered twice daily, loads with a secure cover, and no controls for the truck hauling road. The majority of construction emissions would come from CO from stationary equipment and fugitive dust from ground disturbance. Results of calculations for construction equipment and worker trips are shown in Table 4-1.

Construction emissions would be below the allowable pollutant thresholds under Kirtland's December 2002 Title V Operating Permit application. However, there would be a requirement to modify the current Title V Permit application for new tanks being installed. An Authority-to-Construct Permit would not be needed since it is estimated that construction or operation of stationary sources would not exceed ten pounds per hour or 25 tpy of one or more regulated air contaminants. A Source Registration may be required from the Albuquerque/Bernalillo County Air Quality Control Board for the proposed JP-8 or Ethanol tank.

Table 4-1. Construction Emissions from Proposed Actions (tons per year)

Area Source	CO	NO_X	SO_2	VOC	PM_{10}
Grading Equipment (Phase I)	0.08	0.31	0.03	0.03	0.03
Grading Operations	0	0	0	0	5.41
Acres Paved (Phase II)	0	0	0	0	0
Mobile Equipment	3.51	8.37	1.04	0.77	0.68
Non-Residential Architecture	0	0	0	0.36	0
Stationary Equip	23.81	0.62	0.03	0.89	0.02
Worker Trips	1.51	0.09	0	0.09	0.01
Total	28.91	9.38	1.10	2.15	6.14

Source: United States Air Force 2004c.
Notes: CO = carbon monoxide NO_X = nitrogen oxides SO_2 – sulfur dioxides
VOC = volatile organic compounds PM_{10} = particulate matter equal to or less than ten micrometers in diameter

The TANKS software program was used to calculate existing and potential emissions estimates for the JP-8 storage tanks and a new ethanol dispensing tank. TANKS estimates emissions of volatile organic compounds and hazardous air pollutants from storage tanks in accordance with EPA AP-42 – *Compilation of Air Pollutant Emission Factors*, Volume I: Stationary Point and Area Sources (AP-42), Section 7.1, *Organic Liquid Storage Tanks*. JP-8 and diesel fuel have low vapor pressures that create low emissions (USAF 2004a). Emissions from JP-8 fuel from current tank conditions are estimated at about 375 pounds per year compared to the new JP-8 tanks to be installed that would have emissions of approximately 51 pounds per year (EPA 2004a). Emissions from the new 10,000 gallon ethanol dispensing tank were calculated based on 85 percent ethanol and 15 percent gasoline Reid Vapor Pressure. There are currently approximately 20 vehicles on base that are equipped to use ethanol. An estimation of 20 miles to the gallon was assumed, along with an average of 15,000 miles traveled per year. With 20 vehicles on base using an estimated 750 gallons per vehicle per year, a 15,000 gallon throughput was used for calculation of emission losses. Total emission losses from the ethanol/gasoline tank per year would be 0.15 tons (EPA 2004a).

Under the General Conformity Rule, a conformity determination would not be needed for the Proposed Actions because emissions would not be increased by ten percent or more for individual non-attainment pollutants or exceed de minimis threshold levels established in 40 Code of Federal Regulations [CFR] 93.153(B) for individual non-attainment pollutants where an area has been redesignated as a maintenance area (see Table 3-2).

Construction emissions from the Proposed Actions may temporarily affect sensitive receptors on base. However, emissions from construction vehicles and equipment would be temporary and minor. Construction emissions would be well below threshold levels and county and EPA standards.

Overall, there would be a beneficial impact to air quality from new fuel facilities and the associated decrease in air emissions at the fuel facility areas.

4.3.2.2 No-Action Alternative

Under the No-Action Alternative, proposed fuel facilities would not be built and therefore current conditions of air emissions and potential hazardous air emissions from antiquated fuel facilities would remain the same (refer to Table 3-1).

4.4 UTILITIES

4.4.1 Methodology

Impacts to utility services were assessed by determining if the actions would result in a change in utility services including water, electricity, natural gas, sewer, telephone, solid waste disposal services or other utility services. An impact to utilities would be significant if the action would require construction to expand utility lines or add additional utility services to support utility needs.

Potential impacts to utilities from the Proposed Actions were analyzed by comparing utility service needs to current needs.

4.4.2 Impacts

4.4.2.1 Proposed Actions

The Proposed Actions would repair and replace antiquated fuel facilities and would improve fuel handling capability and efficiency. These improvements would result in a beneficial impact to the liquid fueling capabilities of the base. With the exception of the documented problems with the liquid fuels facilities (see Section 1.2), adequate utilities already exist in the area and the Proposed Actions would not create a need for an expansion of utility services.

4.4.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current utilities at Kirtland AFB in the fuel facility project areas.

4.5 GEOLOGICAL RESOURCES

4.5.1 Methodology

An impact to geological resources would be considered significant if implementation of a proposed action would violate a federal, state, or local law or regulation protecting geological resources (e.g. impacted unique landforms or rock formations), or result in

uncontrolled erosion over a larger area than that allowed by regulations protecting soil resources.

Protection of unique geologic features and minimization of soil erosion were considered when evaluating impacts from the Proposed Actions on geological resources. Generally, such impacts are not considered significant if proper construction techniques and erosion control measures can be implemented to minimize short- and long-term disturbance to soils and overcome limitations imposed by earth resources.

4.5.2 Impacts

4.5.2.1 Proposed Actions

Implementation of the Proposed Actions would result in no significant impacts to regional geological resources. The region's infrequent seismic activity would create no significant threat to workers given the use of standard construction procedures for facilities of this size and type. The Proposed Actions are located in areas that have been subject to serious soil disturbance from past construction activities. Therefore, any geological or soil integrity has been compromised by past use and construction at the sites. Furthermore, soils at the bulk fuel facility have been contaminated with fuels and acetone. Construction of the new bulk fuels facility would incorporate up-to-date technology which would reduce the risk of fuels release to the environment, thus having a minor beneficial impact on this resource. Section 2.2.2 of this EA discusses required permits necessary for the Proposed Actions. A Fugitive Dust Control Permit and Fugitive Dust Control Plan would be required.

4.5.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current geological resources at Kirtland AFB. Potential for future contamination to the surrounding soils would continue.

4.6 WATER RESOURCES

4.6.1 Methodology

Criteria for determining the significance of impacts to water resources is based on water availability, quality, and use and applicable regulations. An impact to water resources would be considered significant if it would: (1) reduce or interfere with water availability to existing users, (2) create or contribute to overdraft of groundwater basins, (3) exceed safe annual yield of water supply sources, (4) adversely affect water quality or otherwise endanger public health, (5) threaten or damage unique hydrologic characteristics, or (6) violate established laws or regulations that have been adopted to protect or manage water resources.

Potential impacts to water resources resulting from the Proposed Actions and alternatives were analyzed by: (1) identifying and describing the effects these actions may have on the resource, (2) assessing the significance of potential impacts, and (3) providing measures to mitigate potentially significant impacts.

4.6.2 Impacts

4.6.2.1 Proposed Actions

No significant impacts to water resources would occur from implementation of the Proposed Actions. Water quality would not be affected as construction activities would be shallow and not approach the groundwater table and construction runoff to surface waters would be contained, using standard construction practices. Water use from the operation of the Proposed Actions would remain the same. A minor beneficial impact would occur from updating the fueling facilities since the facilities would reduce the potential for drinking water contamination.

4.6.2.2 No-Action Alternative

Under the No-Action Alternative, there would be no changes to current water resources at Kirtland AFB. If the bulk fuels facilities are not upgraded, the surrounding environment would continue to be at risk of contamination from fueling operations. While the local groundwater has not been contaminated from this facility, it would continue to be threatened by current operations.

4.7 SOCIOECONOMICS

4.7.1 Methodology

Impacts on population and expenditures are assessed by determining an action's direct effect on the local economy and related effects on other socioeconomic resources. The magnitude of potential impacts can vary greatly depending on the location of a proposed action; for example, the termination of an operation that employs 25 people in a major metropolitan area may be virtually unnoticed while the same action could have significant adverse impacts in a small community.

Potential impacts to socioeconomic resources were analyzed by: (1) identifying and describing socioeconomic resources (for purposes of this EA, only economic resources would be impacted) that could affect or be affected by the project; and (2) examining the effects the Proposed Actions may have on this resource.

4.7.2 Impacts

4.7.2.1 Proposed Actions

Socioeconomic impacts from implementation of the Proposed Actions would be beneficial, but minor. The local economy would see a minor, temporary beneficial impact from expenditures from the purchase of construction materials and salaries paid to construction workers. Contracts for construction equipment and repairs of current fuel facilities would also have a temporary, beneficial impact. Potential job creation from the Proposed Actions would be minor especially in a metropolitan area the size of Albuquerque.

4.7.2.2 No-Action Alternative

Selection of the No-Action Alternative would not result in any changes to socioeconomics in the region of influence.

4.8 HAZARDOUS MATERIALS AND WASTES

4.8.1 Methodology

The significance of potential impacts associated with hazardous substances is based on ignitability, corrosivity, reactivity, and toxicity. Generally, impacts associated with hazardous materials and wastes would be considered significant if implementation of a proposed action would involve the storage, use, transportation, or disposal of hazardous substances that would substantially increase human health risks or environmental exposure. For example, if implementation of a proposed action would exacerbate conditions at an existing area of contamination associated with the Installation Restoration Plan, impacts would be considered significant.

A reduction in the quantity of hazardous substances used and/or generated would be a beneficial impact; a substantial increase in the quantity and/or toxicity of hazardous substances used or generated could be potentially significant. Significant impacts would result if a substantial increase in human health risks and/or environmental exposure were generated and such impacts could not be mitigated to acceptable local, state, and federal levels.

Regulatory standards were the criteria used to evaluate impacts including: 1) generation of additional hazardous waste, 2) spill or release of a hazardous substance (40 CFR 302, *Designation, Reportable Quantities, and Notifications*), and 3) exposure of the environment or public to hazardous material waste or waste release through disposal practices.

4.8.2 Impacts

4.8.2.1 Proposed Actions

Construction and upgrading of the fuel facilities would result in a short-term increase in the generation of non-hazardous and hazardous waste. Non-hazardous construction wastes (e.g. concrete and lumber) would be disposed of at the Kirtland AFB landfill, which has adequate capacity to accommodate construction-related waste. Additional non-hazardous waste (e.g. plastics and paper) generated by increased worker activity at the sites of the proposed projects would be collected in on-site dumpsters and transported to the City of Albuquerque's Cerro Colorado Landfill. Recyclable wastes would be separated for pickup in accordance with the Kirtland AFB Qualified Recycling Program. Fuel, oils, and lubricants used by construction equipment and construction of new facilities as well as waste from facility/tank repairs and demolition would be handled and disposed of in accordance with all applicable regulations.

Chromium-based paint would be disposed of in barrels in accordance with the Kirtland AFB Hazardous Waste Management Plan (Kirtland AFB 2003). Disposal and handling of other hazardous materials including lead-based paint and asbestos would be in accordance with the Kirtland AFB Hazardous Waste Management Plan and the Kirtland AFB Asbestos Management Plan.

Overall, there would be a beneficial impact on hazardous materials and wastes as a result of the Proposed Actions. The replacement and repair of existing fuel facilities would result in a decreased exposure to the environment and public from hazardous materials and waste. An oil/water separator and other compliance measures included in the proposed new facility construction would allow for proper disposal of wastes from fueling activities. Coordination between the repair, replacement and new construction addressed in Section 2 of this document would occur with proposed IRP activities in the bulk fuels storage area.

4.8.2.2 No-Action Alternative

Selection of the No-Action Alternative would result in no change to current conditions relating to hazardous materials and wastes and there would continue to be environmental exposure and health risks from hazardous material described in Section 3 and 4 of this document.

SECTION 5
CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE EFFECTS

Council on Environmental Quality (CEQ) regulations stipulate that the cumulative effects analysis in an Environmental Assessment (EA) should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 Code of Federal Regulations 1508.7). Recent CEQ guidance (CEQ 1997) in considering cumulative effects affirms this requirement, stating that the first steps in assessing cumulative effects involves defining the scope of the other actions and their interrelationship with the proposed action. The scope must consider other projects that coincide with the location and timetable of the proposed action and other actions. Cumulative effects analysis must also evaluate the nature of interactions among these actions.

In this EA, an effort has been made to identify all actions that are being considered and are in the planning phase at this time at Kirtland Air Force Base (AFB). To the extent that details regarding such actions exist and the actions have a potential to interact with the Proposed Actions in this EA, these actions are included in this cumulative analysis. This approach enables decision-makers to have the most complete information available so that they can evaluate the environmental consequences of a proposed action in relation to other projects that may affect the same region of influence.

5.1.1 Past Actions Relevant to the Proposed Actions and Alternative

Kirtland AFB is a large, active military installation that undergoes changes in mission and in training requirements. This process of change is consistent with the United States Defense policy that military installations must be ready to respond to constantly changing threats to American interests throughout the world. To assess these continuing changes, the 377th Air Base Wing at Kirtland AFB has prepared EAs of military construction actions every year for the past several years. Those EAs document the potential impacts of multiple proposed construction actions across the 52,000 acre base (listed in Appendix C). These actions, by their nature and timing, involve activities that could have similar impacts to those addressed in this EA.

5.1.2 Present Actions Relevant to the Proposed Actions and Alternative

Because of its size, number of associate and tenant organizations (over 400) and amount of activity, Kirtland AFB requires occasional demolition of old facilities, new construction, facility improvements, and infrastructure upgrades. Currently, aging base housing is being demolished and replaced with new housing. This will continue over the next decade until all of the old housing has been removed. This action, by its nature and timing, involves activities that could have similar impacts to those addressed in this EA.

5.1.3 Reasonably Foreseeable Actions that Could Interact with the Proposed Actions and Alternative

This category of actions includes United States Air Force actions that have a potential to partially coincide, either in time or geographic extent, with the Proposed Actions. Information on these actions is included to determine whether these actions would, if implemented, incrementally affect environmental resources. These recently proposed or currently planned actions include:

- the ongoing relocation of Truman Gate;
- the proposed construction of a campus for pararescue/parajumper training by the 58th Special Operations Wing of Air Education and Training Command in 2006. Construction is proposed in an area currently occupied by aging military housing which would be demolished to make room for the campus;
- the proposed construction and operation of a car wash and drive-thru coffee kiosk by the Army and Air Force Exchange Services in late 2005;
- the proposed beddown of a training wing of CV-22 Osprey tilt-rotor aircraft at Kirtland AFB in 2006;
- the proposed construction and operation of an HC-130P Flight Simulator Facility and a Corrosion Control Facility by the 58 Special Operations Wing in late 2005 and 2006;
- the construction and operation of Phase I of the Kirtland Technology Park from 2006 to 2010; and
- the planned remediation activities in the Bulk Fuels Area.

These actions, by their nature and timing, involve activities that could have similar impacts to those addressed in this EA.

5.2 ANALYSIS OF CUMULATIVE EFFECTS

An analysis was done of the potential for cumulative impacts resulting from the actions described above when combined with the Proposed Actions in this EA. All the actions identified in Section 5.1 are federal actions, with the requisite National Environmental Policy Act (NEPA) analyses. The draft or final EA of each of those actions listed above have identified no significant adverse or beneficial impacts from each of the activities individually or cumulatively.

The scope of this cumulative effects analysis was limited to the resources analyzed in Section 4 of this EA. The following resources were not analyzed in this EA; noise, land use and visual resources, cultural resources, transportation and circulation, and biological resources. Since the Proposed Actions would have negligible impacts on these resources, it would not contribute to cumulative impacts in these areas either.

The seven resources that were analyzed in Section 4 for these Proposed Actions, and are therefore examined in this cumulative analysis, are health and safety, air quality, utilities, geological resources, water resources, socioeconomics, and hazardous materials and waste management.

5.2.1 Health and Safety

The Proposed Actions in this EA would lead to an improvement in health and safety at the base by improving working conditions and replacing inadequate and semi-functional facilities with modern facilities that meet current health and safety standards. None of the other ongoing or proposed actions would result in a decrease in health and safety conditions at the base and the proposed remediation of the contaminated soils in the bulk fuels storage area would have a beneficial impact. As a result, any cumulative impacts to health and safety from the Proposed Actions in this EA, when considered with the actions listed in Sections 5.1.1, 5.1.2 and 5.1.3 above, would be beneficial, although not significant.

5.2.2 Air Quality

Construction activities that use large equipment or vehicles produce carbon monoxide (CO), an emission monitored in the Albuquerque-Bernalillo County area. In addition, fugitive dust is created from soil disturbance during construction. Permits are required by the City of Albuquerque-Bernalillo County for construction activities that disturb ¾ acre or more. The fugitive dust at these sites is monitored by the Albuquerque-Bernalillo County Air Quality Control Board and construction activities are restricted if air quality is being degraded. Although Albuquerque-Bernalillo County is under a 20-year State Implementation Plan (SIP) to reduce CO emissions, the air quality in Bernalillo County has improved to the extent that, as a result of the 10-year review, the measures in the SIP are being modified to be less restrictive. Although the beddown of the CV-22 would have a temporary negative impact on air quality due to a temporary increase in air quality due to a temporary increase in aircraft numbers at the base, that impact would be offset in 2010 by the departure of all MH-53 aircraft from the base. The drawdown of the MH-53s would result in an overall decrease in total aircraft at the base and a resultant decrease in air emissions. The combined emissions from the Proposed Actions in this document, when considered with potential emissions from the other actions considered, are not expected to have any significant cumulative impacts on air quality.

5.2.3 Utilities

The Proposed Actions in this EA would result in an improvement in the liquid fueling capabilities at Kirtland AFB and would have no impact on other utilities at the base. The ongoing and proposed actions described in Sections 5.1.1 through 5.1.3 would have no or negligible impacts on utilities if implemented. As a result, any cumulative impacts to utilities from the Proposed Actions in this document, when considered with the potential impacts from the other ongoing and proposed actions in this section, would not be significant.

5.2.4 Geological Resources

Construction of the new bulk fuels facility would incorporate up-to-date technology which would reduce the risk of fuels release to the environment and have a minor beneficial impact on this resource. Soils disturbed by construction would be watered as needed to reduce wind erosion. The ongoing and proposed actions described in Sections 5.1.1 through 5.1.3 would disturb a total of approximately 100 acres, but would only have minor impacts on geological resources. Best Management Practices would be employed to reduce potential erosion. As a result, any cumulative impacts to geological resources from the Proposed Actions in this document, when considered with the potential impacts from the other ongoing and proposed actions in this section, would not be significant.

5.2.5 Water Resources

The Proposed Actions would have a minor beneficial impact on water resources due to the replacement of aging fueling facilities that could contribute to ground water contamination. The proposed remediation of the fuels area would also have a potential beneficial impact on water resources because it would remove current sources of ground water contamination. Water use associated with the fuel facilities would not change with implementation of the Proposed Actions, although some additional water would be required for dust control during construction. With the exception of the proposed car wash and training campus, the other actions described would require similar minor increases in water use during construction, but would not result in any long term increases. The car wash is estimated to use 300-500 gallons per day of freshwater and the training campus would support approximately 70 additional personnel, increasing water use slightly. The proposed Kirtland Technology Park would bring an additional 2,000 personnel to the base, also increasing water use. These proposed actions would result in long-term increases in water use at Kirtland, but, when compared to the 5.5 million gallons per day used by the base, these increases would be minor. As a result, the cumulative effects of the Proposed Actions when considered with all the proposed and foreseeable actions would have an overall minor negative impact on water resources.

5.2.6 Socioeconomics

The total value of Kirtland AFB's economic impact to the local community was over $3.3 billion in fiscal year 2004. Military construction on Kirtland accounted for over $17.5 million and other construction for over $15.3 million during that time (Kirtland AFB 2004). The Proposed Actions, when considered with all other construction occurring at Kirtland AFB, is expected to add slightly to the overall economy of the Albuquerque metropolitan area. Most of the other proposed actions are not extensive and do not have any additional impacts on the community following construction, other than the economic benefit through any repair and maintenance which would be contracted. As a result, the cumulative effects of the Proposed Actions when considered with all the proposed and foreseeable actions would add to the base's current economic contribution to the area but with no significant change expected.

5.2.7 Hazardous Materials and Wastes

Overall, there would be a beneficial impact on hazardous materials and wastes as a result of the Proposed Actions. The replacement and repair of existing fuel facilities would provide for a decreased exposure to the environment and public from hazardous waste. An oil/water separator and other compliance measures included in the proposed new facility construction would allow for proper disposal of wastes from fueling activities. The proposed remediation of the fuels area would also reduce the potential for exposure to hazardous materials and wastes. The remediation activities would be coordinated with the proposed activities addressed in Section 2 of this EA to avoid conflicts. The other proposed projects discussed would not increase the potential for exposure to hazardous materials or wastes. As a result, there would be an overall beneficial cumulative impact to hazardous waste management that would result from the Proposed Actions in this document when considered with those described above.

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible commitment generally means material, non-material, and financial resources consumed that cannot be replaced. An irretrievable commitment of resources refers to the loss of production, harvest, or use of natural resources that occur over the life of the proposed action. For purposes of this EA, impacts are considered irreversible and irretrievable where: uses of nonrenewable resources by implementing the proposed action are of sufficient magnitude that removal or nonuse thereafter is unlikely; and primary and secondary impacts generally commit future generations to similar uses. On this basis, the proposed action would result in the irreversible and irretrievable commitment of resources needed for construction of new facilities, and for maintenance, repair, and operation of existing facilities. These resources would be fuel, electricity, construction materials, and water. Degradation to air quality that would result from construction activities would be reversible upon completion of project construction. Air quality effects from operation of the proposed facilities would be irreversible over the life of the facilities. Although Best Management Practices have been incorporated into the Proposed Actions to reduce soil erosion, the minor loss of soil during construction activities represents an irretrievable and irreversible commitment of resources. Construction and operation of the proposed projects would require an irretrievable commitment of labor resources. Construction materials and fuels used by construction vehicles and equipment would represent an irreversible commitment of these resources. The No-Action Alternative would not create any additional irreversible or irretrievable commitment of resources.

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SECTION 8
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APPENDIX A

DISTRIBUTION LIST

APPENDIX A
DISTRIBUTION LIST

This section will be added once this Environmental Assessment has been delivered for review.

APPENDIX B

AIR QUALITY

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AIR QUALITY

The United States Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants. These pollutants are generated by fossil fuels and generally emit from motor vehicles and industrial operations. Criteria pollutants include: Ozone (O_3), lead, sulfur dioxide, particulate matter equal to or less than ten micrometers in diameter, particulate matter equal to or less than 2.5 micrometers in diameter, carbon monoxide, and oxides of nitrogen (NOx).

Clean Air Act. The Clean Air Act (CAA) Amendments of 1990 place most of the responsibility on the states to achieve compliance with the NAAQS. The primary vehicle for implementation is the State Implementation Plan (SIP), which the EPA requires each state to prepare. A SIP is a compilation of goals, strategies, schedules, and enforcement actions that would lead the state into compliance with all federal air quality standards. Changes to the compliance schedule or plan must be incorporated into the SIP, which outlines measures by which the state can attain the NAAQS for criteria pollutants. Areas not in compliance with a standard can be declared a nonattainment area by the EPA and/or the appropriate state or local agency.

The CAA Amendments of 1990 require federal agencies to conform to the SIP with respect to achieving and maintaining attainment of the NAAQS (see Table B-1) and addressing air quality impacts. An air quality impact resulting from a proposed action would be significant if it would: (1) increase concentrations of ambient criteria pollutants or O_3 precursors to levels exceeding NAAQS, (2) increase concentrations of pollutants already at nonattainment levels, (3) lead to establishment of a new nonattainment area by the governor of the state or the EPA, or (4) delay achievement of attainment in accordance with the SIP.

Hazardous Air Pollutants. Hazardous Air Pollutants are toxic air pollutants and are listed in Section 112(b) of the CAA. These pollutants may present a hazard to human health through inhalation, ingestion, and absorption (Air Force Center for Environmental Excellence 2004).

General Conformity Rule. The 1990 CAA amendments require a conformity analysis for actions potentially affecting air quality in nonattainment and maintenance areas. If total direct and indirect emissions are estimated to exceed emissions thresholds, a conformity determination is required. The calculation of total direct and indirect emissions does not have to make specific reference to conventional emission source categories (i.e., stationary, area, and mobile sources). The total direct and indirect emissions of criteria pollutants attributable to the proposed action (e.g., O_3 precursors) must be considered. O_3 precursors include volatile reactive organic compounds and NO_X. Indirect emissions that must be considered are limited to emissions that could be practicably controlled.

The initial step in determining applicability of the General Conformity Rule is to compare projected pollutant emissions associated with the proposed federal action with threshold limits, or de minimis emission levels to determine if a conformity

determination should be accomplished. If the proposed action's emissions would not exceed the de minimis threshold for the applicable pollutant and the proposed action's emissions would be less than 10 percent of the total emissions for the region, the Conformity Rule is not applicable.

A conformity applicability analysis is required to determine whether a federally proposed action is subject to requirements for a conformity determination under EPA's General Conformity Rule. The initial step in determining applicability of the General Conformity Rule is to compare projected pollutant emissions with baseline emissions (40 Code of Federal Regulations [CFR] § 51.853[b]). Conformity determinations are conducted to ensure that NAAQS would not be exceeded and that the proposed action would comply with all federal and state air quality regulations, goals, and plans. The threshold limits to determine if a conformity determination should be accomplished are identified in 40 CFR § 93.153. If the area is designated nonattainment for a pollutant, but the proposed action's emissions would not exceed the de minimis threshold and would be less than 10 percent of the total emissions budget for the region, a record of non-applicability is prepared.

Prevention of Significant Deterioration and Title V Operating Permits. Under the CAA, new stationary sources that are proposed for areas are subject to the requirements of the Prevention of Significant Deterioration (PSD) regulations. The PSD regulations require new stationary sources with emissions of criteria pollutants above 250 tons per year (tpy), or 100 tpy for specific source categories, to conduct an air quality impact analysis and demonstrate compliance with Best Available Control Technology requirements. Under the CAA Amendments Title V Operating Permits Program, all sources in attainment areas with emissions of criteria pollutants above 100 tpy must obtain a federal operating permit. The PSD/Title V major source threshold of 100 tpy for attainment pollutants was used to evaluate the Proposed Action's significance for air quality impacts, in accordance with the requirements of 40 CFR § 51.853.

Under Section 176(c) of the CAA, a framework is provided to ensure that federal actions conform to appropriate state or federal implementation plans. Before a federal agency or department engages in, supports, finances, licenses, permits, or approves any activity, that agency must ensure that such actions conform to the applicable implementation plan. According to the 1990 CAA amendments, the purpose of an air quality implementation plan is to eliminate or reduce the severity and number of violations of NAAQS and achieving expeditious attainment of these standards. Federal actions must not conflict with the implementation plan by causing or contributing to any new violation, increasing the frequency or severity of any existing violation, or delaying timely attainment of a standard or required interim milestone. If the proposed action does not conform to the SIP, they cannot be approved or allowed to proceed.

Table B-1. National and New Mexico Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS Primary Standards[a]	Secondary Standards[b]	NMAAQS[c]
Ozone (O_3)	8-hour[1]	0.08 ppm (157 µg/m^3)	Same as Primary	0.08 ppm (157 µg/m^3)
	1-hour[2]	0.12 ppm (235 µg/m3)		0.12 ppm (235 µg/m^3)
Carbon Monoxide (CO)	8- hour[3]	9 ppm (10 mg/m^3)	None	8.7 ppm (9,900 µg/m^3)
	1 hour[3]	35 ppm (40 mg/m^3)		13.1 ppm (14,900 µg/m^3)
Nitrogen Dioxide (NOx)	Annual (Arithmetic mean)	0.053 ppm (100 µg/m^3)	Same as Primary	0.05 ppm (100 µg/m^3)
	24-hour	None		0.10 ppm (200 µg/m^3)
Sulfur Oxides (SO_2)	Annual (Arithmetic mean)	0.03 ppm (80 µg/m^3)	-------	0.02 ppm (52 µg/m^3)
	24-hour[3]	0.14 ppm (365 µg/m^3)	-------	0.10 ppm (260 µg/m^3)
	3-hour[3]	-------	0.5 ppm (1300 µg/m^3)	0.5 ppm (1300 µg/m^3)
Particulate Matter (PM_{10})	Annual[4] (Arithmetic mean)	50 µg/m^3	Same as Primary	50 µg/m^3
	24-hour[3]	150 µg/m^3		150 µg/m^3
Particulate Matter ($PM_{2.5}$)	Annual[5] (Arithmetic mean)	15.0 µg/m^3	Same as Primary	15 µg/m^3
	24-hour[6]	65 µg/m^3		65 µg/m^3
Lead (Pb)	Quarterly Average	1.5 µg/m^3	Same as Primary	1.5 µg/m^3

Source: Environmental Protection Agency 2004b. Title 40, Part 50 of the Code of Federal Regulations.

Notes:
[1] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average O_3 concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
[2] The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is <= 1, as determined by appendix H.
The 1-hour NAAQS will no longer apply to an area one year after the effective date of the designation of that area for the 8-hour O_3 NAAQS. The effective designation date for most areas is June 15, 2004. (40 CFR 50.9; see Federal Register of April 30, 2004 [69 FR 23996].)
[3] Not to be exceeded more than once per year.
[4] To attain this standard, the expected annual arithmetic mean PM_{10} concentration at each monitor within an area must not exceed 50 µg/m^3.
[5] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.
[6] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 µg/m^3.
[a] Set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.
[b] Set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and ;buildings.
[c] New Mexico Ambient Air Quality Standards. (20.2.3 NMAC Oct. 2002).
ppm = parts per million µg/m3 = micrograms per cubic meter mg/m^3 = milligrams per cubic meter

APPENDIX C

RECENTLY COMPLETED ENVIRONMENTAL ASSESSMENTS AT KIRTLAND AIR FORCE BASE

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RECENTLY COMPLETED ENVIRONMENTAL ASSESSMENTS
AT
KIRTLAND AIR FORCE BASE

July 2004. Final Kirtland Air Force Base Perimeter Fencing EA.

September 2003. Final Kirtland Air Force Base Arsenic Compliance System EA.

January 2003. Final 2002 Construction and Demolition Projects EA.

December 2002. Final Kirtland Air Force Base Southern Fence EA.

April 2002. Kirtland Air Force Base Fire, Crash and Rescue Facility EA.