



Final
Environmental Assessment
Nellis Air Force Base Pipeline Project
Nevada

Prepared for
Calnev Pipe Line, L.L.C., an Operation Company of
Kinder Morgan Operating L.P.

In Cooperation with the United States Air Force
Air Combat Command, Nellis Air Force Base

March 2005

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE MAR 2005		2. REPORT TYPE		3. DATES COVERED 00-00-2005 to 00-00-2005	
4. TITLE AND SUBTITLE Final Environmental Assessment Nellis Air Force Base Pipeline Project Nevada				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) CH2M Hill,2285 Corporate Circle Ste 200,Henderson,NV,89074				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

FINDING OF NO SIGNIFICANT IMPACT/ FINDING OF NO PRACTICABLE ALTERNATIVE

1.0 Name of Action

Nellis Air Force Base Pipeline Project, Nevada

2.0 Introduction

The purpose of the Nellis Air Force Base (AFB) Pipeline Project is to increase the refueling and fuel storage capacity of Nellis AFB by installing a larger liquid fuel pipeline to the West Operational Bulk Storage Area (WOBS) and the East Side Operations Storage (ESOS), and by constructing larger fuel storage tanks.

3.0 Description of the Proposed Action and Alternatives

Proposed Action: Construct a new 8-inch fuel pipeline that would replace that portion of the existing 6-inch fuel pipeline system running from the Las Vegas Terminal to the ESOS and two new 420,000-gallon storage tanks. The new 8-inch steel pipeline, the two new storage tanks, and supporting infrastructure would be owned and operated by Calnev Pipe Line, L.L.C. (Calnev), an operation company of Kinder Morgan Operating L.P.

The route of the new 8-inch pipeline would generally follow the existing 6-inch pipeline from the Las Vegas Terminal to the WOBS, and from the WOBS to a new storage tank location east of the Nellis AFB flight line. Installation would be by open-trench except where horizontal directional drilling is called for, at the crossing of Las Vegas Boulevard and the Live Ordnance Loading Area (LOLA) plan overlay area.

The new 8-inch pipeline would begin within the Las Vegas Terminal and then exit onto Range Road. The proposed pipeline route would then follow the existing steel 6-inch pipeline south on Range Road. A small offset in the route to the west of Range Road would accommodate a connection to the WOBS, so that the new pipeline could supply fuel to the WOBS, which in turn would continue to supply the WSOS via a separate 6-inch fiberglass-reinforced plastic pipeline. From the WOBS, the proposed 8-inch pipeline would then turn east and cross under Las Vegas Boulevard onto Nellis AFB along Ellsworth Avenue. It would then follow the existing pipeline and a perimeter road north of the base flight line. The proposed pipeline would continue on to the northeast, offset from the road, to follow a route around the new Explosive Ordnance Disposal (EOD) building location, before turning back to run east parallel to Ellsworth Avenue. At the point where the existing 6-inch pipeline turns south, the proposed 8-inch pipeline would continue in an east-southeast direction for an additional 2,000 feet before turning south toward the new storage tank facility. The portion that will be installed by horizontal directional drilling under the planned LOLA will run southwest from the Fire Training Area (FTA) to Hollywood Boulevard and, exiting the bore, would then turn south to parallel the east side of this road. Along this portion of the route, the new 8-inch pipeline would be approximately 2,000 feet east and parallel to the existing 6-inch pipeline traveling south, following existing roads (principally Hollywood Boulevard), and then it would turn west to leading to the proposed new storage tank facility.

Alternative 2: Construct a new 8-inch fuel pipeline that would replace that portion of the existing 6-inch fuel pipeline system running from the Las Vegas Terminal to the ESOS and two new 420,000-gallon storage tanks

Under this alternative, the proposed new 8-inch pipeline route would be the same as that of the Proposed Action to a point at the extreme northeastern corner of the project. From that

point, Alternative 2 would run approximately 2,250 feet further east of the existing 6-inch pipeline than Alternative 1 and then turn south and run southerly for approximately 5,000 feet. Alternative 2 would then turn west for approximately 2,750 feet and then turn south again for approximately 2,750 feet. At this juncture, Alternative 2 would turn generally west to the new tank storage facility.

Storage Tank Alternatives: Five alternative sites were considered. Each would consist of two 420,000-gal. steel storage tanks, and a 6-inch diameter steel pipeline from the facility to the ESOS. All alternative sites were located from 250 to 2,750 feet from the existing ESOS; four would be above-ground facilities and one would be a below-ground storage facility. The Preferred Alternative Storage Tank Facility is an above-ground facility approximately 1,250 feet east of the ESOS.

No Action Alternative: Under the No Action Alternative, no change to the current fuel pipeline would occur and no new storage tanks would be installed.

4.0 Summary of the Environmental Consequences

The Proposed Action would generate minor impacts on the surrounding environment. Impacts associated with the Proposed Action would be either short-term or minimized by the utilization of best management practices. An Environmental Assessment (EA) was prepared to address the potential impacts of the Proposed Action. Resources not discussed further, but can be found in detail in the EA, include Land Use, Cultural Resources, Earth Resources, Utilities, and Hazardous Materials and Socioeconomics and Environmental Justice. These resources would have negligible impacts as a result of the Proposed Action.

Air Quality: Air quality impacts were considered for both the construction and operational phases of the Proposed Action. Criteria pollutant emissions that would result are: Carbon monoxide – 10.57 tons/year, Nitrogen oxide – 30.62 tons/year, Particulate matter greater than 10 microns in size – 17.44 tons/year, and Sulfur oxide – 30.62 tons/year. The total emissions are below de minimus levels described in the General Conformity rule (40 CFR Part 51, Subpart W); therefore a formal Conformity Determination is not required. The construction impacts would be temporary in nature and will use required Clark County mobile source control practices, including limiting the duration of equipment idling and maintaining equipment according to manufacturers' specifications. A dust control plan using Clark County's required Best Management Practice (BMP) would be developed to provide prescriptions that would be employed to reduce fugitive dust generation. In accordance with the State Implementation Plan (SIP) for PM10, a control efficiency of 87 percent would be achieved through implementation of Clark County required BMPs for control of fugitive PM10 emissions.

Biological Resources: Under the Proposed Action, direct impacts to biological resources would occur as a result of the loss of up to approximately 1.93 acres of previously undisturbed desert habitat, including burrowing owl habitat and 0.32 acre of marginal desert tortoise habitat. The remainder of the pipeline route would occur on previously graded or developed land, devoid of native vegetation. Because this is marginal desert tortoise habitat, and because the extent of undisturbed habitat affected by implementation of this alternative would be limited, impacts to biological resources from the construction and operation of the Proposed Action would be negligible. Appropriate minimization measures to protect biological resources during construction would be implemented.

Water Resources: For the Proposed Action, an approved Spill Prevention Control and Countermeasures (SPCC) plan would be in place to minimize the possibility of releases to

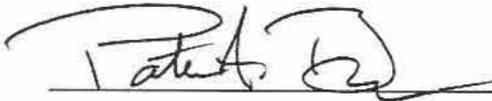
the environment, including groundwater and surface waters, of any substances that would adversely impact water quality.

Ephemeral desert washes are located in the northeastern portion of the construction area included in the Proposed Action. The pipeline route and storage tank siting in the Proposed Action were designed to meet the requirements of Department of Defense (DOD) and Air Force antiterrorism/force protection requirements while also minimizing the disturbance of the ephemeral desert washes in the area. Since a Section 404 Clean Water Act permit would be required and the restoration of the desert wash hydrology and function after implementation of the Proposed Action would be necessary, the restoration efforts would be coordinated with other restoration or wetland creation activities required of the base.

5.0 Findings

On the basis of the findings of the EA, conducted in accordance with the requirement of the National Environmental Policy Act, the Council on Environmental Quality regulations, and Air Force Instruction 32-7061 as promulgated in 32 Code of Federal Regulations Part 989, and after careful review of the potential impacts of the proposed action, I find that there would be no significant impact on the quality of the human or natural environment from implementation of the proposed action. Therefore I find no requirement to prepare an Environmental Impact Statement.

In accordance with Executive Order 11990, Protection of Wetlands, and the authority delegated in Secretary of the Air Force 791.1, including the written re-delegations accomplished pursuant to that Order, and taking the above information into account, I find that there is no practicable alternative to this action and that the Proposed action includes all practicable measures to minimize harm to wetland environments.



PATRICK A. BURNS
Brigadier General, USAF
The Civil Engineer, Air Combat Command



DATE

Final

Environmental Assessment Nellis Air Force Base Pipeline Project Nevada

Prepared for
Calnev Pipe Line, L.L.C., an Operation Company of Kinder
Morgan Operating L.P.

In Cooperation with
United States Air Force Air Combat Command,
Nellis Air Force Base

March 2005

CH2MHILL

Contents

Section	Page
Acronyms and Abbreviations	vii
Executive Summary.....	ES-1
1. Purpose and Need	1-1
1.1 Purpose of the Proposed Action.....	1-2
1.2 Need for the Proposed Action	1-2
1.3 Regulatory Requirements.....	1-5
2. Description of Proposed Action and Alternatives	2-1
2.1 Proposed Action	2-1
2.2 Project Alternatives	2-6
2.2.1 Alternative A (the Preferred Alternative)	2-6
2.2.2 Alternative B	2-7
2.2.3 Storage Facilities: Alternatives	2-8
2.3 No Action Alternative.....	2-9
2.4 Routing Options Considered But Rejected	2-9
3. Affected Environment	3-1
3.1 Land Use	3-1
3.2 Socioeconomics	3-2
3.3 Air Quality.....	3-3
3.3.1 Local Meteorology.....	3-3
3.3.2 Ambient Air Quality	3-3
3.4 Biological Resources.....	3-4
3.4.1 Threatened, Endangered, and Species of Concern – Plants	3-6
3.4.2 Threatened, Endangered, and Species of Concern – Wildlife.....	3-7
3.5 Cultural Resources	3-9
3.6 Earth Resources	3-10
3.7 Water Resources	3-10
3.7.1 Groundwater.....	3-13
3.7.2 Surface Water	3-13
3.8 Utilities.....	3-13
3.9 Hazardous Materials and Items of Special Concern	3-14
3.10 Environmental Justice	3-15
3.11 Resources Not Present	3-16
4. Environmental Consequences.....	4-1
4.1 Land Use	4-1
4.1.1 Preferred Pipeline Route: Alternative A	4-1
4.1.2 Pipeline Route: Alternative B.....	4-2

4.1.3 Storage Facility Alternatives	4-2
4.1.4 No Action Alternative	4-3
4.2 Socioeconomics.....	4-3
4.2.1 Preferred Pipeline Route: Alternative A.....	4-3
4.2.2 Pipeline Route: Alternative B.....	4-3
4.2.3 Storage Facility Alternatives	4-3
4.2.4 No Action Alternative	4-3
4.3 Air Quality	4-4
4.3.1 Preferred Pipeline Route: Alternative A.....	4-4
4.3.2 Pipeline Route: Alternative B.....	4-6
4.3.3 Storage Facility Alternatives	4-8
4.3.4 Construction Emissions From Project Implementation.....	4-10
4.3.5 Operational Emissions	4-10
4.3.6 No Action Alternative	4-11
4.4 Biological Resources	4-11
4.4.1 Preferred Pipeline Route: Alternative A.....	4-11
4.4.2 Pipeline Route: Alternative B.....	4-11
4.4.3 Storage Facility Alternatives	4-12
4.4.4 No Action Alternative	4-12
4.5 Cultural Resources.....	4-12
4.6 Earth Resources	4-13
4.6.1 Pipeline Route Alternatives.....	4-13
4.6.2 Storage Tank Facility Alternatives.....	4-13
4.6.3 No Action Alternative	4-14
4.7 Water Resources.....	4-14
4.7.1 Groundwater and Water Quality	4-14
4.7.2 Surface Water and Flood Control	4-15
4.8 Utilities	4-16
4.8.1 Pipeline Route Alternatives.....	4-16
4.8.2 Pipeline Route: Alternative B.....	4-17
4.8.3 Storage Tank Facility Alternatives.....	4-18
4.8.4 No Action Alternative	4-18
4.9 Hazardous Materials and Items of Special Concern.....	4-18
4.9.1 Preferred Pipeline Route: Alternative A.....	4-20
4.9.2 Pipeline Route: Alternative B.....	4-20
4.9.3 Storage Facility Alternatives	4-21
4.9.4 No Action Alternative	4-21
4.10 Environmental Justice	4-21
4.10.1 Preferred Pipeline Route: Alternative A.....	4-21
4.10.2 Pipeline Route: Alternative B.....	4-21
4.10.3 Storage Facility Alternatives	4-21
4.10.4 No Action Alternative	4-21
5. References.....	5-1
6. List of Preparers.....	6-1

7. Consultation and Coordination7-1

Appendices

A AF Form 813 – Executed by NAFB

B Legal Description of the Project

C Biological Reconnaissance Survey Results, Nellis AFB Proposed Liquid Fuel Line Routes

Tables

1-1 Other Major Federal Environmental Statutes, Regulations and Executive Orders Applicable to Federal Projects1-5

2-1 Equipment for Pipeline Construction.....2-3

2-2 Equipment for Storage Tank Facility Construction.....2-3

2-3 Utility Clearance / Permitting Plan for Pipeline Construction2-4

2-4 Alternative A Impacts.....2-7

2-5 Alternative B Impacts2-8

2-6 Alternative Storage Tank Facility Impacts.....2-9

3-1 Air Quality Summary, Craig Road Monitoring Station.....3-4

3-2 Plant and Wildlife Species Threatened, Endangered, or of Concern Known to Occur in the Vicinity of the Nellis AFB and the Proposed Project Area3-5

4-1 Pipeline Construction Equipment Emissions Factors4-5

4-2 Emissions During Pipeline Construction.....4-5

4-3 Emissions During Pipeline Construction.....4-7

4-4 Storage Pad Construction Equipment Emissions Factors.....4-9

4-5 Emissions During Storage Tank Facility Construction4-9

4-6 Total Emissions During Project Implementation (tons).....4-10

4-7 Tank Equipment Emissions Factors.....4-11

Figures

1-1 Nellis Fuel System Upgrade Location Map1-3

3-1 Utility/Environmental Info Display3-11

Acronyms and Abbreviations

ACC	Air Combat Command
ACECs	Areas of Critical Environmental Concern
ACOE	U.S. Army Corps of Engineers
AE	Airport Environs
AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Land Use Zone Program
AIRFA	American Indian Religious Freedom Act
ARPA	Archeological Resources Protection Act
AST	aboveground storage tank
ATC	Authority to Construct
bgs	below ground surface
BLM	Bureau of Land Management
BMPs	Best Management Practices
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAA	Clean Air Act
Calnev	Calnev Pipe Line, L.L.C.
CCRFCD	Clark County Regional Flood Control District
CCWRD	Clark County Water Reclamation District
CEQ	Council on Environmental Quality
CERCLA Act	Comprehensive Environmental Response, Compensation, and Liability
CES	Civil Engineering Squadron
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
DAQEM	Department of Air Quality and Environmental Management
DOPAA	Description of Proposed Action and Alternatives

EA	Environmental Assessment
EBS	Environmental Baseline Survey
EIAP	Environmental Impact Analysis Process
EO	Executive Order
EOD	Explosive Ordnance Disposal
ERP	Environmental Restoration Program
ESOS	East Side Operations Storage
F	degrees Fahrenheit
FLPMA	Federal Land Policy and Management Act
FTA	Fire Training Area
FWPCA	Federal Water Pollution Control Act
gal.	gallons
HAZWOPER	Hazardous Waste Operations and Emergency Response Standard
HSP	health and safety plan
IRP	Installation Restoration Program
LOLA	Live Ordnance Loading Area
LOP	letter of permission
MCL	Maximum Containment Level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OWS	oil/water separator
PL	Public Law
PM ₁₀	particulate matter less than 10 microns in diameter
POTW	publicly owned treatment works
RCRA	Resource Conservation and Recovery Act

ROW	right-of-way
RSL	Remote Sensing Laboratory
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SNWA	Southern Nevada Water Authority
SO _x	sulfur oxide
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
TCE	trichloroethene
TF	Tank Facility
US Alert	Underground Services Alert
USAF	United States Air Force
USC	United States Code
USDOE	United States Department of Energy
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
WOBS	West Operational Bulk Storage Area
WSOS	West Side Operations Storage
WUS	jurisdictional waters of the United States

Executive Summary

Calnev Pipe Line, L.L.C. (Calnev), an operation company of Kinder Morgan Operating L.P., in cooperation with the United States Air Force (USAF) Air Combat Command, Nellis Air Force Base (AFB), proposes to construct and operate a fuels pipeline and associated storage tank facility on Nellis AFB. The new fuels pipeline would be an 8-inch diameter steel pipe, and would replace an existing 6-inch diameter fiberglass reinforced plastic pipeline, which would be abandoned in place. The new fuels pipeline would originate at Calnev's Las Vegas Terminal, and would extend to the new storage tank facility, which would be located to the east of the Nellis AFB flight line. A new 6-inch steel pipeline would then convey fuel from this storage facility to the existing East Side Operations Storage (ESOS) tanks operated by Nellis AFB. In addition, a manifold would be installed at that portion of the new pipeline extending through the West Operational Bulk Storage Area (WOBS), allowing fueling of the West Side Operations Storage (WSOS) area as well. A 6-inch diameter steel pipeline that currently provides fuel to the WOBS from the Las Vegas Terminal would be taken out of active service, but held in a condition that would allow future use if needed.

The Proposed Action would result in an increase in the capacity and the reliability of the refueling infrastructure at Nellis AFB flight line. It would enhance aircraft refueling efficiency, promote overall workload efficiency, and increase ESOS capacity. The new pipeline would double the fuel pumping capacity relative to the current pipeline, and the new storage facility would increase tank storage capacity from a maximum of approximately 100,000 gallons (gal.) of fuel to a maximum of approximately 940,000 gal. Ground-disturbing activities are planned to occur from Calnev's Las Vegas Terminal to Nellis AFB, and from the northern perimeter of Nellis AFB to the ESOS. Temporary impacts to Nellis AFB facilities and operations during construction would be minimized by planning and coordinating prior to and during construction.

This Environmental Assessment (EA) describes the Proposed Action and evaluates the impacts of two alternative routes for the 8-inch fuel pipeline, and five alternative locations for the storage tank facility. These evaluations are pursuant to Air Force Instruction 32-7061, the *Environmental Impact Assessment Process*, and follow the initiation and approval of the appropriate Air Force Form 813 for this project (Appendix A). Associated with each storage tank facility alternative is a 6-inch steel pipeline that would convey jet fuel to the ESOS.

Under the **Preferred Pipeline Route Alternative A**, Calnev would install a new 8-inch diameter steel pipeline that would follow a route parallel to the existing 6-inch steel pipeline from the Las Vegas Terminal to the WOBS. A manifold would be constructed at the WOBS that would allow this new pipeline to service the WSOS as well as the ESOS. From the WOBS the new 8-inch pipeline would then parallel the existing 6-inch fiberglass-reinforced plastic pipeline to a point northeast of the terminus of the Nellis AFB runways. It would then follow a new route to the east of developed portions of the Nellis AFB flight line to the proposed new storage tank facility. Ground-disturbing activities would occur as a result of this alternative.

Under **Pipeline Route Alternative B**, the pipeline route would be the same as that proposed for Alternative A to a point northeast of the terminus of the Nellis AFB runways. It would then extend farther east of the proposed Alternative A pipeline route, and then turn south where it would connect with the new storage tank facility. Ground-disturbing activities would occur as a result of this alternative

For the **Storage Tank Facility Alternatives**, five alternative sites are being considered. Each would consist of two 420,000-gal. steel storage tanks, and a 6-inch diameter steel pipeline from the facility to the ESOS. All alternative sites are located from 250 to 2,750 feet from the existing ESOS; four would be above-ground facilities and one would be a below-ground storage facility. The **Preferred Alternative Storage Tank Facility #3** is an above-ground facility approximately 1,250 feet east of the ESOS, and outside of the potential blast damage areas associated with the Nellis AFB flight line facilities. Ground-disturbing activities would occur as a result of any of the storage tank facility alternatives.

Under the **No Action Alternative**, a new liquid fuel pipeline and new tank storage facility would not be constructed at Nellis AFB. The ESOS would remain in place with its four existing 25,000-gal. tanks and continue to receive fuel from the Las Vegas Terminal via the current 6-inch pipeline. There would be no ground-disturbing activities as a result of this alternative. The storage capacity and the reliability of the Nellis AFB fueling system would not be increased.

The potential effects resulting from the Proposed Action for each resource area are as follows:

Land Use: Under the Proposed Action, land along the pipeline route would be temporarily disturbed for trenching operations and then restored to its natural character or function. Temporary disturbance from trenching and excavations would also occur with the construction of the fuel storage facility. Construction of the pipeline route and fuel storage facility site would impact Nellis AFB flight line and security operations. Planning and consultations with Nellis AFB will ensure that on-going flight-line and security operations will not be affected by construction activities. Operations of the new refueling facility would be consistent with current land use in the vicinity.

Socioeconomics: The construction and operation of the pipeline and the storage facility would have minimal impact on the population, housing, and economy of Clark County. The land and facilities affected by the project are owned and operated (or leased) by Calnev, Nellis AFB, as well as utilities and municipalities, and property owners in the vicinity would not experience any long-term impact from the project. Beneficial economic impacts, albeit minor relative to the economy of the area, would accrue from project implementation.

Air Quality: Short-term air quality impacts are expected from the construction of the pipeline, and air quality impacts would occur from the construction and operation of the storage tank facility. Modeled construction phase emissions for the Preferred Alternative A pipeline route, are less than those for Alternative B for all criteria pollutants except sulfur oxides (SO_x). Implementation of Best Management Practices (BMPs), would reduce dust (PM₁₀) generation. Stockpiled soils also would be treated with a stabilizer to minimize the generating of dust prior to their re-use. Operational impacts resulting from any of the action alternatives would be negligible.

Biological Resources: The project site is located in a developed area, and extends to a highly disturbed desert habitat. Implementation of the preferred Alternative A pipeline route would disturb less than .5 acre of previously undisturbed desert habitat, while Alternative B would result in the disturbance of between 13 and 14 acres of habitat. Construction of the storage tank facility alternatives would result in the disturbance of between 0 and 1.61 acres of habitat, depending on the alternative. Construction of the preferred tank facility alternative TF#3 would occur in a previously disturbed area, and therefore not result in new habitat disturbance.

No species of concern have been encountered in the project area, with the exception of the burrowing owl (*Athene cunicularia hypugea*). No wetlands occur in the vicinity of the project area. Should construction in the area of the burrowing owl sighting occur during the nesting season, potential burrows will be cleared by a qualified biologist prior to construction entering the area. Nellis AFB is currently consulting with the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts to the desert tortoise in the project area. Because much of the area is disturbed, and is characterized as low quality tortoise habitat, no impacts to the tortoise are anticipated.

Cultural Resources: Based upon past Nellis AFB projects, the entire base has been previously surveyed and the project area has been the subject of prior consultations with the State Historic Preservation Office. Therefore, there would be no impact to historic properties resulting from project implementation.

Earth Resources: Soil disturbance would result from the construction activities, but would be transient. Stockpiled soils would be treated with a stabilizer to minimize erosion prior to re-use. No impacts to mineral resources would occur. The proposed pipeline route alternatives cross or are adjacent to two active Installation Remediation Sites. Should contaminated soils be exposed during construction, cleanup and removal of residual contamination within the pipeline right-of-way (ROW) would be undertaken in accordance with applicable regulations.

Water Resources: The Proposed Action would have no adverse impact on water quality, surface drainage, or groundwater resources. Transient impacts to surface waters during the construction phase would be minimized by the implementation of appropriate plans and permit conditions, including a Storm Water Pollution Prevention Plan (SWPPP) and BMPs. The discharge of hydrotesting water would occur only after the acquisition and implementation of the conditions of a National Pollutant Discharge Elimination System (NPDES) permit and consultation with the Clark County Regional Flood Control District (CCRFCD) and other agencies as appropriate. Both 8-inch pipeline alternatives cross tributaries to Range Wash, which are identified as jurisdictional waters of the United States (WUS). Delineation of these WUS and application to the U.S. Army Corps of Engineers (ACOE) for the appropriate permit under Section 404 of the Clean Water Act (CWA) would occur prior to ground disturbing activities in these tributaries. Construction impacts to WUS would be limited by the application of BMPs, and there would be no operational effects to WUS. None of the storage tank facility alternatives would affect WUS.

Utilities: There are multiple existing underground utilities near the pipeline within Nellis AFB and in off-base properties along the pipeline route. Coordination with the appropriate utilities and Nellis AFB Civil Engineering Squadron (CES) and administrative offices and

appropriate planning to obtain letters of permission or easements where required will minimize potential utility conflicts. Impacts to utilities resulting from construction would therefore be negligible.

Hazardous Materials and Items of Special Concern: The proposed pipeline route alternatives cross or are adjacent to two active Installation Remediation Sites. Should contaminated soils be exposed during construction, cleanup and removal of residual contamination within the pipeline ROW would be undertaken in accordance with applicable regulations. The implementation of a construction health and safety plan (HSP) and the update of a Spill Prevention Control and Countermeasure (SPCC) plan for operational safety will minimize the potential for increased hazardous conditions, such as encountering petroleum-impacted soil or soil vapor during pipeline construction.

Environmental Justice: The Proposed Action would not place any adverse environmental, economic, social, or health impacts upon minority or economically disadvantaged populations.

Issues and Resources Not Present or Not Affected: The following resources and issues are not present in the vicinity of, or not issues affected by, the Proposed Action:

- Areas of Critical Environmental Concern
- Wilderness
- Farm Lands
- Wetlands/Riparian Zones
- Recreation
- Visual Resources
- Wild and Scenic Rivers

SECTION 1

Purpose and Need

Nellis Air Force Base (AFB) is located in the southeast portion of the State of Nevada in Clark County (Figure 1-1). The base lies 5 miles northeast of downtown Las Vegas and is a United States Air Force (USAF) Air Combat Command (ACC) facility. Nellis AFB is an integral part of the training and readiness missions of the USAF. Nellis AFB is an active year-round military facility servicing and refueling military aircraft of all types. It is home to the Nellis Range Complex, which serves as the largest live-fire range available for military training in the United States. Nellis AFB is the chief facility supporting this training mission and a critical part of the overall ACC flight line support structure. Training is conducted in conjunction with the air and ground units of the Army, Navy, and Marine Corps, as well as with the air forces of our allied nations. Thus, the refueling system must be efficient and reliable and must be able to meet current and future demands.

Aviation fuel, currently JP-8, is delivered to the Las Vegas Terminal northwest of Nellis AFB via the Calnev Pipe Line, L.L.C. (Calnev), an operation company of Kinder Morgan Operating L.P. interstate pipeline from California. The fuel is then transferred via a 6-inch steel pipeline, owned and operated by Calnev, to the West Operational Bulk Storage Area (WOBS). A fiberglass-reinforced 6-inch plastic pipeline system, owned and operated by the USAF, is then used to deliver the fuel from the WOBS to two tank holding areas: The West Side Operations Storage (WSOS) north of the Nellis AFB flight line, and the East Side Operations Storage (ESOS) south of the flight line (Figure 1-1). At the ESOS, fuel is currently stored in four 25,000-gallon (gal.) aboveground storage tanks (ASTs), which are utilized to refuel aircraft at the 25 revetments (Hot Pads) along the flight line.

As shown in Figure 1-1, the Nellis AFB flight line has a dual runway system, and the existing pipeline follows the perimeter of the air field. The combined length of the steel and fiberglass reinforced plastic pipeline system is approximately 27,000 feet long from the Las Vegas Terminal to the ESOS, and crosses both military and non-military lands. The western portion of the pipeline system is in the vicinity of other underground utilities within limited space between existing roads and industrial development. The northern and eastern portions of the pipeline system are largely on undeveloped land. To the east the pipeline runs generally parallel to the runways, west of the Department of Energy Facility and the Live Ordnance Loading Area (LOLA).

Calnev, in cooperation with Nellis AFB, is proposing to construct and operate a new 8-inch diameter steel liquid fuel pipeline and two new 420,000-gallon storage tanks to enhance the capacity and the reliability of Nellis AFB's flight line refueling infrastructure. Upon installation of the new fuel line and supporting facilities, the 6-inch steel pipeline to the WOBS will be taken out of active service by Calnev, and the redundant portion of the 6-inch fiberglass-reinforced plastic pipeline will be abandoned in place by the USAF. The portion of the existing 6-inch pipeline serving the WSOS would remain in use. The new 8-inch steel pipeline, the two new storage tanks, and supporting infrastructure would be owned and operated by Calnev. A legal description of the project is included in Appendix B.

1.1 Purpose of the Proposed Action

The purpose of the Proposed Action is to increase the refueling and fuel storage capacity of Nellis AFB by installing a larger liquid fuel pipeline to the WOBS and the ESOS, and by constructing larger fuel storage tanks, thereby enhancing the reliability of the Nellis AFB refueling infrastructure as well. This would be achieved by the installation of:

- a new 8-inch diameter liquid fuel, steel pipeline providing increased fuel transmission capacity,
- two new storage tanks, each of 420,000 gal capacity, providing additional fuel holding capacity near the ESOS,
- a new 6-inch diameter liquid fuel, steel pipeline connecting the new storage tanks to the ESOS, enhancing the reliability of fuel transmission to the ESOS.

The installation of the new 8-inch pipeline would double pipeline fuel transmission capacity relative to the current 6-inch line, and the additional storage tanks would provide an eightfold increase in operational jet fuel storage east of the runways. Both would enhance aircraft refueling capacity and reliability.

1.2 Need for the Proposed Action

The USAF is committed to providing aerospace power in the defense of the United States. The USAF's testing and training programs are essential in fielding the world's finest trained aircrews and best-equipped aerospace force. This actualized training ensures the United States aircrews are ready to respond to real-world needs. A refueling facility that has the capacity and reliability to handle the demand of the training and other missions supported by Nellis AFB is an essential component of the base infrastructure.

Due to the closure of and increased operational restrictions placed on other live-fire ranges in the United States, as well as Nellis AFB's increased role as a support facility for a wide variety of defense-related activities, increased demand on flight-line services (including refueling) is expected to continue into the foreseeable future. To meet this demand, increased fuel transmission and storage capacity is required. Moreover, the current fiberglass-reinforced plastic, 6-inch diameter fuel line is more than a decade old, and the new steel 8-inch pipeline proposed as part of this project would enhance the reliability of this vital infrastructure component of Nellis AFB.

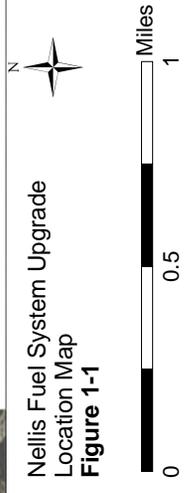
The reliability of the overall refueling system is in part dependent on the amount of fuel that can be stored at the ESOS. Should there be an interruption in flow from that part of the fuel transmission infrastructure outside of Nellis AFB, the ability of the ESOS to continue to provide fuel for vital defense-related activities would largely depend on the amount of fuel available at the ESOS. The addition of two new tanks at the ESOS under the Proposed Action would increase the amount of fuel storage capacity from the current maximum of 100,000 gal. to a maximum of 940,000 gal.

The need for increased refueling capacity and reliability is therefore to be addressed by installing a larger diameter fuel pipeline, two new 420,000 gal. storage tanks, ancillary



- EOD** Explosive Ordnance Disposal
- ESOS** East Side Operational Storage
- FTA** Fire Training Area
- LOLA** Live Ordnance Loading Area
- WOSOS** West Side Operational Bulk Storage
- WSOS** West Side Operational Storage

Nellis Fuel System Upgrade
Location Map
Figure 1-1



- Legend**
- Preferred Alternative
 - Existing 6 inch Pipeline
 - Nellis AFB Property Line
 - LOLA Planning Overlay
 - Storage Tank Location Alternatives
 - Ordnance Safety Zones
 - LOLA Planning Overlay

systems, and support structures. This would increase aircraft refueling efficiency by: 1) doubling the through-flow capacity of the pipeline and, 2) providing added system reliability by increasing fuel storage capacity immediately adjacent to the ESOS by more than eightfold. This would satisfy the need to enhance the ability of the ESOS to refuel multiple large-frame (transport, tanker or bomber) and fighter aircraft in quick succession. It would also reduce the immediate dependency of this system on the continued flow of fuel from the WOBS by providing a larger fuel storage capacity to service the flight line in the event of temporary disruption of flow from the WOBS or the Las Vegas Terminal.

1.3 Regulatory Requirements

This Environmental Assessment (EA) is prepared in compliance with the *National Environmental Policy Act* (NEPA) (Public Law [PL] 91-190, 1969, as amended), the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] 1500-1508, 1993) and Air Force Instruction (AFI) 32-7061, the *Environmental Impact Analysis Process* (EIAP). To initiate the EIAP for this Proposed Action, Nellis AFB completed a project specific AF Form 813, which is provided as Appendix A. This EA provides a Description of Proposed Action and Alternatives (DOPAA), and an evaluation of impacts pursuant to the EIAP. The NEPA requires federal agencies to consider the environmental consequences of all Proposed Actions in their decision-making process. The intent of NEPA is to protect, enhance, and restore the environment through a well-informed decisionmaking process. The CEQ was established under NEPA to implement and oversee federal policy in this process. The CEQ issued the *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR 1500-1508, 1993). Also, AFI 32-7061 implements the CEQ regulations within the USAF.

The NEPA process is intended to help the decision makers understand the environmental consequences and take actions that protect, enhance and restore the environment. Other federal statutes which may apply to the Proposed Action are listed in Table 1-1.

TABLE 1-1
Other Major Federal Environmental Statutes, Regulations and Executive Orders Applicable to Federal Projects

Environmental Resource	Statutes
Air	<i>Clean Air Act (CAA) of 1970</i> (PL 95-95), as amended in 1977 and 1990 (PL 91-604); U.S. Environmental Protection Agency (USEPA), Subchapter C – Air Programs (40 CFR 52-99)
Noise	<i>Noise Control Act of 1972</i> (PL 92-574) and Amendments of 1978 (PL 95-609); USEPA, Subchapter G -Noise Abatement Programs (40 CFR 201-211)
Water	<i>Federal Water Pollution Control Act (FWPCA) of 1972</i> (PL 92-500) and Amendments; <i>Clean Water Act (CWA) of 1977</i> (PL 95-217) including Sec. 402 on the implementation of the National Pollution Discharge Elimination System (NPDES), and Sec. 404 regulating dredge and fill activities in jurisdictional Waters of the U.S.; USEPA, Subchapter D – Water Programs (40 CFR 100-149); <i>Water Quality Act of 1987</i> (PL 100-4); USEPA, Subchapter N -Effluent Guidelines and Standards (40 CFR 401-471); <i>Safe Drinking Water Act (SDWA) of 1972</i> (PL 95-523) and Amendments of 1986 (PL 99-339); USEPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)

**TABLE 1-1
Other Major Federal Environmental Statutes, Regulations and Executive Orders Applicable to Federal Projects**

Environmental Resource	Statutes
Land	<i>Federal Land Policy and Management Act (FLPMA) of 1976 (PL 94-579); Military Lands Withdrawal Act (PL 99-606); Land Withdrawal Regulations (43 CFR 2300); Southern Nevada Public Land Management Act of 1998 (PL 105-263)</i>
Biological Resources	<i>Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-654); Sikes Act of 1960 (PL 86-97) and Amendments of 1986 (PL 99-561) and 1997 (PL 105-85 Title XXIX); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79)</i>
Cultural Resources	<i>National Historic Preservation Act (NHPA) of 1966 (16 United States Code (USC) 470 et seq.) (PL 89-665) and the Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); Protection and Enhancement of the Cultural Environment – 1971 (Executive Order [EO] 11593); Indian Sacred Sites – 1996 (EO 13007); American Indian Religious Freedom Act (AIRFA) of 1978 (PL 95-341); Antiquities Act of 1906; Archeological Resources Protection Act (ARPA) of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601)</i>
Solid/Hazardous Materials and Waste	<i>Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-5800), as Amended by (PL 100-582); USEPA, Subchapter I -Solid Wastes (40 CFR 240-280); Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (42 USC 9601) (PL 95-510); Toxic Substances Control Act (PL 94-496), USEPA Subchapter R - Toxic Substances Control Act (40 CFR 702-799); Federal Insecticide, Fungicide and Rodenticide Control Act, (40 CFR 162-180); Emergency Planning and Community Right-to-Know Act (40 CFR 300-399)</i>
Environmental Justice	<i>Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898); Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)</i>

Description of Proposed Action and Alternatives

2.1 Proposed Action

Nellis AFB is a major, active Air Force base and its primary mission is to provide a realistic combat training ground that involves every type of aircraft in the USAF inventory. Nellis AFB also supports test programs, evaluation programs and weapons schools for all USAF fighter aircraft. Support (including fueling facilities) of these and other activities is an integral part of the Nellis AFB mission.

Calnev, in cooperation with Nellis AFB, proposes to install a new 8-inch fuel pipeline that would replace that portion of the existing 6-inch fuel pipeline system running from the Las Vegas Terminal to the ESOS. Currently, a 6-inch diameter steel pipeline, owned and operated by Calnev, extends from the terminal south on Range Road to the WOBS in Area III (Figure 1-1). From the WOBS, Nellis AFB operates two 6-inch fiberglass reinforced plastic pipelines, one to the WSOS and one to the ESOS. The pipeline from the WOBS to the WSOS is not part of this proposed project. The pipeline from the WOBS to the ESOS extends east from the WOBS, and then turns southeast to cross Las Vegas Boulevard and enter the main cantonment of Nellis AFB. On Nellis AFB, the route follows the existing perimeter road along the west and north sides of the flight line, then turns south toward the ESOS along the east side of the flight line (Figure 1-1). The area from the Terminal to Nellis AFB is vacant, under industrial land use, or dedicated as rights-of-way (ROWs). The land within Nellis AFB is largely developed in the west as part of the main cantonment of Nellis AFB, and mostly undeveloped but disturbed desert terrain in the north and east (Figure 1-1). Subsequent to the installation of the new fuel pipeline, the 6-inch steel pipeline to the WOBS will be taken out of active service by Calnev, and the replaced portion of the existing 6-inch plastic pipeline from the WOBS to the ESOS will be abandoned in place by Nellis AFB.

Components of the new refueling system would include:

- An 8-inch, PRITEC® (polyethylene on butyl rubber) coated steel pipeline from the Las Vegas Terminal to the WOBS, and then from the WOBS to the proposed new storage tank area east of the ESOS.
- At the Las Vegas Terminal north of Nellis AFB, the installation of
 - a fuel filtration system consisting of particulate, clay, and water filtration;
 - an additive injection system;
 - two new shipping pumps operating in series, and suction piping to the pumps from pre-existing storage tanks at the Las Vegas Terminal;

- a strainer, turbine leak detection meter, prover and flow control valve; and
- a scraper launcher for pipeline cleaning.
- At the WOBS in Nellis AFB Area III, north of Las Vegas Boulevard, a manifold connection to allow the new pipeline to also serve the four, fuel storage tanks located between Range Road and Sloan Lane. These four ASTs, of 400,000-gal. total capacity, at the WOBS supply fuel to the WSOS via another 6-inch fiber-glass reinforced plastic pipeline that is not part of this project (Figure 1-1).
- East of the ESOS, the construction of the additional tank storage area would include
 - two new cone roofed, floating lid, internally coated fuel storage tanks, each with a capacity of 420,000 gal;
 - an access road leading from the pre-existing perimeter road to the new fuel storage tank area;
 - a perimeter fence and gate, and dike around the new fuel storage tanks
 - a scraper receiver;
 - a meter and relief system, and thermal relief valves;
 - a filtration system;
 - a water line for fire suppression leading from the flight line to the new tank storage area;
 - a fire suppression system;
 - a transfer pump and ultrasonic flow meter;
 - a pump system and bypass flow valve; and
 - a supervisory control and data acquisition (SCADA) system.

From the proposed new tank storage area to the ESOS, the project also includes the installation of a 6-inch, PRITEC[®] coated steel pipeline.

Electrical and communications facilities would also be installed in the same pipeline trench to supply power and connect instrumentation associated with the new pipeline and storage tank facility with the control center at the Las Vegas Terminal. Electricity and communications lines also would be extended from the storage tank facility to the ESOS.

Installation of the new pipeline would be accomplished by a trench-and-backfill operation, burying the line at a minimum depth of four feet below ground surface (bgs). Las Vegas Boulevard will be crossed by horizontal directional drilling under the road bed. In order to minimize potential interference with planned expansion of Nellis AFB aircraft bed-down areas to the east of the flight line, a portion of the pipeline (approximately 2,000 feet in length) will be installed by horizontal directional drilling at a depth ranging from 15 to 40 feet. A “Frac-out” plan will be prepared and implemented for the directional bore construction areas as a contingency for loss of drilling mud to the surface. A plan will also

be developed to address the possibility that contaminated soils might be encountered, and will include identification of the contaminated material and proper disposal in accordance with applicable federal, state, and local regulations. Soil stockpiled during pipeline construction will be treated with a stabilizer, and returned to the excavation at the completion of pipeline installation.

Construction of the new refueling system is expected to take 10 months, and ground disturbing activities (grading, trenching) would take place over a period of 6 months. Table 2-1 provides a list of the equipment to be utilized during pipeline construction. Table 2-2 provides a list of the equipment to be utilized during construction of the storage tank facility.

**TABLE 2-1
Equipment for Pipeline Construction**

Backhoe, 580 EKL
Bending Machine 6" - 20"
Excavator 225 Cat
Sideboom 561
Tractor D-5
Trenching Machine
Truck, Gang 1 1/2 - 2 1/2 Ton
Truck, Pick Up
Truck, Semi W/Cozad 60-Ton
Truck, Water 4,000 Gallon
Truck, Welding Arc & Acetylene
Paver
Semi-Dump Trucks (Semi W/Cozad- 60 Ton)
Directional Boring Equipment

**TABLE 2-2
Equipment for Storage Tank Facility Construction**

Truck, Pick Up
Truck, Crew
Truck, Gang 1 1/2 - 2 1/2 Ton
Bulldozer
Back hoe
Cement Trucks
Welding Trucks
Construction crane (60 ft)
Water Truck

Subsequent to the installation of the pipelines, storage tanks, and ancillary facilities the system would be pressure tested with water. This hydro-testing would require approximately 500,000 gal. of water, which would be discharged into the existing flood

control system, in accordance with the terms and conditions of the appropriate NPDES permit for this activity.

The Calnev Contractor Safety Manual (April 2003) will be a safety reference for the project. A site-specific Health and Safety Plan (HSP) would also be prepared for this project and approved by Calnev. These hazards include areas where the pipeline would cross sites that are undergoing investigation or remediation for releases of fuel or hazardous substances, and where utilities are either crossed, or are in close proximity.

Planning for pipeline construction would include consultation with Nellis AFB and off-Nellis AFB facility managers. A Nellis AFB Dig Permit, required for utility clearance of the pipeline route within Nellis AFB would be obtained before construction. The dig permit application is reviewed for utility conflicts. Utility clearance would include detailed review of utility drawing files at the Nellis AFB Civil Engineering Squadron (CES) offices. This pre-construction clearance process would also include consultation with other Nellis AFB staff to identify and protect utilities crossing the pipeline route.

Existing utilities outside of Nellis AFB Area III and Area I would be cleared by employing the Underground Services Alert (US Alert) call-before-you-dig program. Consultation with off-base facility managers for utilities located on the fuel storage areas and other industrial development would also occur. Letters of permission (LOP) and grants of easement, as appropriate, would be obtained as needed to encroach upon or cross utilities owned by such organizations as Southwest Gas Corporation and Nevada Power Company. The easement applications also would be subject to a review procedure to assure that potential conflicts and hazards are appropriately avoided and addressed. Table 2-3 summarizes the clearance and permitting process for utility crossings during pipeline construction.

TABLE 2-3
Utility Clearance / Permitting Plan for Pipeline Construction

Location or Utility	Description of Construction Impacts	Clearance or Permitting
Entire Pipeline Route	General Utility Clearance Requirements	<p>Nellis AFB Dig Permit clearance required from Nellis AFB.</p> <p>US Alert call-before-dig program clearance required outside of Nellis AFB.</p> <p>Also appropriate:</p> <ol style="list-style-type: none"> 1) Review of utility drawing files at the Nellis AFB CES offices 2) Consultation with other Nellis AFB staff for operations adjacent to the pipeline or supplied by utilities crossing the pipeline route 3) Consultation with off-Nellis AFB owners of utilities located in the fuel storage areas, public ROWs, and other industrial development outside of Area III 4) Consultation with and application to the Clark County department of Comprehensive Planning regarding ROW easements 5) Conduct site meetings with utility representatives as part of the US Alert and Nellis AFB Dig Permit process.

**TABLE 2-3
Utility Clearance / Permitting Plan for Pipeline Construction**

Location or Utility	Description of Construction Impacts	Clearance or Permitting
	Environmental Clearance Requirements	<p>Section 404 Permit required by USACE for impacts to waters of the U.S.</p> <p>Informal Consultation with the USFWS to address potential impacts to Threatened and Endangered species.</p> <p>Authority to Construct (ATC) Certificate required by the Clark County Department of Air Quality and Environmental Management.</p> <p>Dust permit required by the Clark County Department of Air Quality and Environmental Management.</p> <p>Implementation of a Stormwater Pollution Prevention Plan to protect water quality and prevent surface soil runoff.</p>
Las Vegas Boulevard	Boring to cross under Las Vegas Boulevard ROW, trenching at other ROW.	City of North Las Vegas – permitting for horizontal directional drilling under Las Vegas Boulevard; and coordination with other utilities present under the ROW. Consult as appropriate for Range Road and Sloan Lane ROW crossing, including traffic control.
Gas	Natural gas supply lines	Consult with Southwest Gas Corporation; obtain LOP for crossing or easement, if needed.
Water	Potable water supply lines	Consult with Southern Nevada Water Authority (SNWA); obtain LOP for crossing or easement, if needed.
Sewer	Sanitary sewer lines	Consult with Clark County Water Reclamation District (CCWRD).
Stormwater	Underground storm sewer and surface drainage; Range Wash area.	Consult with Clark County Regional Flood Control District (CCRFCD).
Electrical	Underground and overhead electric lines	Consult with Nevada Power Company; obtain LOP for crossing or easement, if needed.
Nellis Fuel Pipeline	Existing 6-inch JP-8 pipeline, and other fuel system crossings	Consult with Nellis AFB Liquid Fuels Management.
Other Utilities	Communications (telephone, security, etc.)	Consult with Nellis AFB operations and security staff, other utility owners identified during US Alert and Nellis AFB clearance, and off-Nellis AFB facility managers.
	Irrigation water	Consult with Nellis AFB Environmental Flight and CES staff.
Nellis Operations	Flight Ops (runways & navigation)	Consult with Nellis AFB EM, CES, and Nellis AFB flight and ordnance operations staff to identify affected operations or locations, and develop appropriate actions.
	Flight Support Ops (liquid fuels supply and refueling, munitions hauling and loading)	
	Environmental Restoration Program (ERP) sites ST-27 & SS-46 treatment systems	

2.2 Project Alternatives

The alternatives identified for the Proposed Action include the No-Action alternative, two alternative pipeline routes for the 8-inch line leading from the Las Vegas Terminal to the new tank storage facility, and five alternative tank storage locations. Each tank storage facility alternative includes a 6-inch diameter pipeline leading from the facility to the ESOS. This EA also considers the No-Action alternative: Continued use of the existing 6-inch steel pipeline from the Las Vegas Terminal to the WOBS, the fiberglass-reinforced plastic 6-inch fuel pipeline from the WOBS to the ESOS, and the existing ESOS storage tanks.

Under all alternatives, except for the no-action alternative, the portions of the existing 12-to 14- year old 6-inch, fiberglass-reinforced plastic JP-8 pipeline that would be redundant with the new pipeline would be abandoned in place after the installation and testing of the proposed new pipeline.

The following descriptions of the project alternatives include several dimensions that are necessary for evaluating different project impacts. The calculations of area disturbed during construction use a width of 70 feet for the construction activities along the pipeline route. The total length of the pipeline and the areas of the storage alternatives are used to calculate the area disturbed by construction, which in turn, determines the disturbed area for air quality and stormwater permitting. The total area affected on Nellis AFB (the majority of the pipeline route and the applicable storage alternative) is considered for the Authority to Construct (ATC) air permitting.

The length of the pipeline and area of storage alternatives on undisturbed desert habitat is a smaller quantity measured to assess potential impacts to species' habitat within the project area. The area disturbed by construction of each storage alternative was considered equal to the actual footprint of the entire fenced area that would surround the tanks. The areas calculated for the storage alternatives also include a 70-foot width of construction activities for the 6-inch piping that connects the storage area to the ESOS.

2.2.1 Alternative A (the Preferred Alternative)

Under Alternative A, the preferred pipeline alternative, the route of the new 8-inch pipeline would generally follow the existing 6-inch pipeline from the Las Vegas Terminal to the WOBS, and from the WOBS to a new storage tank location east of the Nellis AFB flight line. Installation would be by open-trench except where horizontal directional drilling is called for, at the crossing of Las Vegas Boulevard and the LOLA plan overlay area (see Section 3.1). Depth of the new pipeline would be approximately 4 feet except in the directional borings, where the depth would be approximately 15 to 40 feet.

The new 8-inch pipeline would begin within the Las Vegas Terminal and then exit onto Range Road (Figure 1-1). The proposed pipeline route would then follow the existing steel 6-inch pipeline south on Range Road. A small offset in the route to the west of Range Road would accommodate a connection to the WOBS, so that the new pipeline could supply fuel to the WOBS, which in turn would continue to supply the WSOS via a separate 6-inch fiberglass-reinforced plastic pipeline. From the WOBS, the proposed 8-inch pipeline would then turn east and cross under Las Vegas Boulevard onto Nellis AFB along Ellsworth Avenue. It would then follow the existing pipeline and a perimeter road north of the base

flight line. The proposed pipeline would continue on to the northeast, offset from the road, to follow a route around the new Explosive Ordnance Disposal (EOD) building location, before turning back to run east parallel to Ellsworth Avenue. At the point where the existing 6-inch pipeline turns south, the proposed 8-inch pipeline would continue in an east-southeast direction for an additional 2,000 feet before turning south toward the new storage tank facility (Figure 1-1). The portion that will be installed by horizontal directional drilling under the planned LOLA will run southwest from the Fire Training Area (FTA) to Hollywood Boulevard and, exiting the bore, would then turn south to parallel the east side of this road. Along this portion of the route, the new 8-inch pipeline would be approximately 2,000 feet east and parallel to the existing 6-inch pipeline traveling south, following existing roads (principally Hollywood Boulevard), and then it would turn west to leading to the proposed new storage tank facility (Figure 1-1).

The total length of 8-inch pipeline ROW that would be required under Alternative A under each of the storage facilities alternatives (see Section 2.2.3), the area of relatively undisturbed desert habitat that would be impacted by construction, and the total area that would be disturbed, is presented in Table 2-4.

TABLE 2-4
Alternative A Impacts

Storage Tank Alternative	Pipeline Right-of-Way Length (miles)	Area of Previously Undisturbed Habitat Affected by Project (acres)	Total Area Disturbed (acres)
1	4.61	0.08	39.08
2	4.77	0.08	40.43
3	5.05 5.03	0.0	42.87
4	5.11	0.0	43.34
5	4.81	0.32	40.80

Although the pipeline length for Alternative A exceeds 4.6 miles in order to reach any of the storage tank alternative locations, the area of previously undisturbed desert habitat that would be impacted is relatively small. This is because most of the route crosses areas that are already developed, or that have been extensively disturbed in the past, based on the biological reconnaissance and as determined by previous ESA consultations at Nellis AFB. The area of relatively undisturbed desert habitat that would be affected by the Alternative A pipeline route is in the vicinity of the storage alternatives, generally east of the ESOS and in the southeast portion of the overall project area (Figure 1-1).

2.2.2 Alternative B

Under Alternative B, the proposed new 8-inch pipeline route would be the same as that of Alternative A to a point at the extreme northeastern corner of the project area (Figure 1-1). From that point, Alternative B would run approximately 2,250 feet further east of the existing 6-inch pipeline than Alternative A. Alternative B would then turn south and run southerly for approximately 5,000 feet. Alternative B would then turn west for approximately 2,750 feet and

then turn south again for approximately 2,750 feet. At this juncture, Alternative B would turn generally west to the new tank storage facility (Figure 1-1).

Table 2-5 presents the total length of 8-inch pipeline ROW that would be required by Alternative B under each of the storage facilities alternatives (see Section 2.2.3), the area of previously undisturbed desert habitat that would be disturbed, and the total area that would be disturbed.

TABLE 2-5
Alternative B Impacts

Storage Tank Alternative	Pipeline Right-of-Way Length (miles)	Area of Previously Undisturbed Habitat Affected by Project (acres)	Total Area Disturbed (acres)
1	5.72	13.34	48.50
2	5.88	13.34	49.85
3	6.16	13.26	52.29
4	6.22	13.26	52.76
5	5.92	13.58	50.22

The pipeline length for Alternative B exceeds 5.7 miles in order to reach any of the storage tank alternative locations. The area of disturbed habitat for Alternative B is appreciably larger than for Alternative A, because the more eastern portions of the Alternative B pipeline route cross areas that have not been extensively disturbed in the past (Figure 1-1).

2.2.3 Storage Facilities: Alternatives

The new 8-inch pipeline would terminate at a new storage tank facility consisting of two 420,000-gal. tanks. These, in turn, would be used to fill the four existing 25,000-gal. tanks at the ESOS via a 6-inch polyolefin coated steel pipeline. There are five alternative sites considered for the new tank storage facility, all generally east of the existing ESOS (Figure 1-1). These are:

- Alternative Tank Facility (TF) #1, located approximately 2,750 feet east-northeast of ESOS.
- Alternative TF #2, sited approximately 2,000 feet east-northeast of ESOS.
- Alternative TF #3, located approximately 1,250 feet east-southeast of ESOS. This is the preferred storage tank facility alternative.
- Alternative TF #4, approximately 250 feet northeast of ESOS.
- Alternative TF #5, approximately 2,400 feet east-northeast of ESOS.

Alternatives TF #1, #2, #3 and #5 would be ASTs. Because of its proximity to the flight line where aircraft carrying live ordnance operate, Alternative TF #4 would consist of underground storage tanks. For all storage tank facility alternatives, the tanks would be installed in a containment area complete with dikes, an access roadway, a fire protection

system, and ancillary facilities as noted in Section 2.1. A new waterline would be installed from the ESOS for the fire protection system. A new 6-inch pipeline would travel in a western direction from the new tank facility to the ESOS.

The storage facility alternatives would each occupy approximately 1.61 acres. Because the location of each storage facility alternative differs, the length of 6-inch pipeline to the ESOS would also differ and, therefore, the area that would be disturbed by each alternative also differs. Additionally, some alternative sites (TF# 3 and #4) are on disturbed land that is no longer viable natural habitat, located within existing Nellis AFB fences and adjacent to areas driven by security patrols, while other storage tank alternative sites are in relatively undisturbed desert habitat (Table 2-6).

TABLE 2-6
Alternative Storage Tank Facility Impacts

Storage Tank Alternative	Six-inch Pipeline Right-of-Way to ESOS Length (miles)	Area of Previously Undisturbed Habitat Affected by Project (acres)	Total Area Disturbed (acres)
1	0.58	1.61	6.54
2	0.42	1.61	5.19
3	0.32	0.0	4.31
4	0.06	0.0	2.09
5	0.53	1.61	6.14

2.3 No Action Alternative

Under the No Action Alternative, a new 8-inch liquid fuel pipeline and new storage tank facility would not be constructed. The existing fiberglass-reinforced plastic 6-inch pipeline, which was constructed 12 to 14 years ago, would continue to be utilized as the principle re-supply line for the ESOS facility. The ESOS would remain in place with its four existing 25,000-gallon tanks and continue to receive fuel from the WOBS. No increase in storage capacity or reliability of the Nellis AFB refueling infrastructure would be realized.

2.4 Routing Options Considered But Rejected

A number of different routing options were considered for the 8-inch pipeline from the Las Vegas Terminal to the ESOS in order to avoid conflicts with present and planned future facilities. Those options that were considered but rejected from further analysis included the following:

- Routing the pipeline around the EOD facility, to the north of the flight line, in a tight configuration around that land parcel - This was determined to be an inefficient pipeline design involving an unnecessary number of angles
- Routing the pipeline immediately south of the EOD facility - This option would generate construction-phase access problems to that facility, and utility conflicts.

- To the southwest of the FTA, routing the pipeline closer in (closer to the northwest) to the flight line - It was determined that this would generate potential conflicts with future land-use plans in the area.

SECTION 3

Affected Environment

Nellis AFB is located in the northeastern part of the Las Vegas Valley. The area is characterized by alluvial deposits bordered by north-trending mountain ranges to the north and east. The elevation of Nellis AFB averages approximately 1,900 feet above sea level with the ground surface being relatively flat with slopes of 1 percent or less.

The desert climate in this area is affected by two main sources of air movement. From autumn to spring, the area is influenced by Pacific air movements that come across the Sierra Nevada. From the summer to the early autumn, winds from Mexico predominate. The area's annual precipitation mainly depends on elevation and ranges from 4 inches on the desert floor to above 12 inches in the higher mountain areas. Precipitation in the vicinity of Nellis AFB is approximately 4 inches per year. Winter precipitation is typically of low intensity and tends not to produce heavy runoff. Summer rains usually occur as thunderstorms and can be intense to the point of producing flash floods.

The hottest months of the year are July and August where daily temperatures rise into the low 100s and drop into the high 70s (degrees Fahrenheit [F]) at night. During the winter months, daily highs seldom exceed 60 F, and freezing temperatures at night are not unusual. Diurnal (day to night) temperature variations typically exceed 25 F, which is in part caused by the typically low atmospheric humidity. The relative humidity in the area averages around 40 percent in the morning and decreases to an average daily low of about 21 percent in the late afternoon (NOAA, 2004).

3.1 Land Use

The pipeline route alternatives would follow a route that begins at the Las Vegas Terminal and extends from the terminal south on Range Road, then across Las Vegas Boulevard to Nellis AFB (Figure 1-1). Land use is industrial in the Las Vegas Terminal vicinity. The most common land use within Nellis AFB adjacent to the proposed pipeline route is runways, taxiways, and aprons for Nellis AFB flight operations. Other areas within Nellis AFB west of the runways and near the pipeline route have industrial (maintenance) and administrative buildings, also largely in support of flight line operations.

Nellis AFB is used in conjunction with the Nellis Range Complex for military aviation training and exercises and the Base is located adjacent to and east of the City of North Las Vegas. Nellis AFB is approximately 5 miles northeast of downtown Las Vegas. The City of North Las Vegas has a population of 137,691, as of January 2003.

Land east of Nellis AFB is undeveloped and is managed by the Bureau of Land Management (BLM). This includes Sunrise Mountain and the Rainbow Gardens Geological Preserve located approximately 3 miles southeast of Nellis AFB. Land to the east within the boundary of Nellis AFB serves as a security buffer zone east of current Nellis AFB operations.

Land south of the Nellis AFB flight line includes the base golf course and undeveloped land, with residential development (and some remaining undeveloped land) south of Cheyenne Avenue and west of Hollywood Boulevard. Generally, to the west of the flight line are USAF maintenance and administrative facilities, base housing and then, west of Nellis Boulevard, commercial establishments and residential neighborhoods (Figure 1-1).

Land use in the area immediately surrounding Nellis AFB generally conforms to the Airport Environs (AE) overlay zones adopted by the Clark County Board of Commissioners. Those zones are also based on the Air Installation Compatible Land Use Zone (referred to as AICUZ) Program. These zones accommodate the risk of aircraft or live ordnance accidents in the flight paths approaching and departing Nellis AFB, and incorporate aircraft noise levels. AE and AICUZ land use planning discourage residential development, and favor industrial or commercial land uses, in zones closer to an airfield.

Land use in the immediate vicinity of the pipeline route alternatives includes a newly constructed EOD building north of the northeastern terminus of the flight line (Figure 1-1). This is an administrative facility to support EOD activities on the Nellis Ranges.

Planned land uses include a live ordnance haul road parallel to and approximately 1,000 feet south of Minot Avenue, which currently serves that function. In addition, Figure 1-1 shows the “quantity-distance arcs” that establish minimum setback distances for occupied structures from the LOLA and the flight line that serve as explosion safety zones. The *Live Ordnance Loading Area Conceptual Land Use Study*, included in the *Nellis AFB General Plan* (Nellis AFB 2002), contains plans for expanded aircraft operations and maintenance areas located east of the flight line. This planning overlay extends from the vicinity of the Alternative A pipeline route east of the runways, to the vicinity of the Alternative B pipeline route (Figure 1-1). Airfield pavement, buildings for operational and maintenance activities, and other facilities to support flight line operations are anticipated in this area.

3.2 Socioeconomics

In 2000, the U.S. Census enumerated 1,375,765 people for Clark County, which was 68.8 percent of the State of Nevada’s total population of 1,998,257 people. The U.S. Census Bureau reported that the population of Clark County on April 1, 1990, was 741,459 people. This indicates that the decade of the 90’s added 634,306 people to Clark County. This was an 85.5 percent increase in county growth, which ranked 13th among the nation’s 3,141 counties in the U.S. Those counties, which showed even higher rates of growth during the 1990’s, are significantly less populated than Clark County.

As of July 1, 2002, the population for Clark County in the year 2002 was estimated to be 1,522,164 persons, an increase of 146,426 people, or 11 percent, from the year 2000 (US Census Bureau). The Clark County Department of Advanced Planning forecasts substantial growth of Clark County population: to 1,945,409 in 2010, 2,276,021 in 2020, and 2,603,885 in 2030. These growth projections assume the supporting expansions of city and county infrastructure and services and a parallel growth in utility supply.

In the Las Vegas Valley, construction-related employment accounts for 9.2 percent of civilian employment, or approximately 72,300 jobs (Clark County, 2003). According to State

Industrial Code 28, chemical and petroleum work account for 894 jobs within Clark County (Nevada DETR, 2002).

Since Clark County is one of the fastest growing counties in the U.S., this rapid population growth also includes a corresponding increase in the demand for affordable and quality housing. As of July 2002, there were 611,161 housing units in the County with an overall vacancy rate of 5.5 percent (Clark County, 2003). While the vacancy rate for single family detached homes is 2.8 percent, the rate for other forms of vacant housing, including apartments, 2-, 3-, and 4-plex units, mobile homes, townhouses and condominiums, varies between 5.3 percent for apartments to 8.6 percent for condominiums. This is based upon the total housing stock including over 161,000 apartments, over 31,000 mobile homes, and approximately 333,000 detached homes.

The median household income in Clark County is \$45,607, while the per capita personal income is \$28,922 (Nevada Development Authority, 2003). Taxable sales in Clark County for the fiscal year ending June 2003 were approximately \$24.54 billion.

3.3 Air Quality

Air quality in a given location is described as the concentration of various pollutants in the atmosphere. Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality standards in Nevada are enforced by the Clark County Department of Air Quality and Environmental Management (DAQEM) under the authority of the Federal CAA, which established maximum allowable pollutant levels and requires the preparation of a State Implementation Plan (SIP) to outline enforcement and attainment strategies.

The Las Vegas urban area currently does not meet air quality standards to the extent that it is in non-attainment for particulate matter less than 10 microns in diameter (PM₁₀) and carbon monoxide (CO). The proposed pipeline project is within the non-attainment area. A non-attainment area has more stringent controls than an area which is classified in attainment of the National Ambient Air Quality Standards (NAAQS).

3.3.1 Local Meteorology

The Las Vegas Valley is situated in the Mojave Desert and experiences an arid climate typical of the region. Due to the "rain shadow" effect of the Sierra Nevada and Spring Range to the west, moisture associated with storms originating in the Pacific Ocean rarely reaches the Valley. Dry air masses move over the valley resulting in clear to partly cloudy skies with 85 percent sunshine in an average year. The arid climate of the project area is characterized by warm, dry summers and cool winters. The temperature ranges from an average daily minimum of 36 degrees F in February to an average daily maximum of 99 degrees F in July. The annual precipitation is approximately 4 inches per year in the valley bottom, and increases modestly with increasing elevation on the valley margins.

3.3.2 Ambient Air Quality

Air quality at a given location is a function of several factors, including the amounts and types of pollutants being emitted both locally and regionally, and the dispersion rates of

pollutants within the region. The major factors affecting pollutant dispersion are wind speed and direction, atmospheric stability, temperature, the presence or absence of inversions, and the topographic and geographic features of the region.

Nellis AFB is located in the northeastern part of the Las Vegas Valley. The closest DAQEM air quality monitoring station operating in the vicinity of the study area is the Craig Road monitoring station, located at 4701 Mitchell Street. The Craig Road air quality monitoring station monitors ozone, CO, PM₁₀, and PM_{2.5}. Table 3-1 presents a summary of the highest pollutant values recorded at this station in the last 3 years of record.

TABLE 3-1
Air Quality Summary, Craig Road Monitoring Station

Pollutant	Averaging Time	Federal Primary Standards	Maximum Concentrations ^a			Number of Days Exceeding Federal Standard ^b		
			2001	2002	2003	2001	2002	2003
Ozone	1-hr	0.12	0.102	0.097	0.111	0	0	0
	8-hr	0.08	0.078	0.089	0.089	0	1	1
Carbon Monoxide	1 hr	35 ppm	3.5	2.3	1.5	0	0	0
	8 hrs	9 ppm	2.4	1.8	0.9	0	0	0
PM _{2.5}	24 hrs	65	25	53	47	0	0	0
	Annual	15	12.0	13.0	13.0	0	0	0
PM ₁₀	24 hrs	150 µg/m ³	151	535	230	0	3	1
	Annual	50 µg/m ³	43.0	50.3	45.8	0	0	0

Source: EP A Air Quality System Quick Look Report (APM450), 2003.

Notes:

^a Concentration units for CO and Ozone are in ppm; Concentration units for PM_{2.5} and PM₁₀ are in µg/m³.

^b For annual standards, a value of 1 indicates that the standard has been exceeded.

3.4 Biological Resources

The proposed project area is generally within an urban setting characterized by developed land and by highly disturbed desert habitat. Present and past habitat disturbances are generally a result of recreational uses and land development activities. The disturbed desert habitat borders existing paved and dirt roads, existing security/property fence lines, and is generally devoid of vegetation.

The general habitat type present in the vicinity is native desert scrub vegetation dominated by creosote bush (*Larrea tridentata*), salt bush (*Atriplex polycarpa*), and white bursage (*Ambrosia dumosa*). Wildlife occurring on the proposed project sites is generally a combination of common species associated with native desert scrub habitat and native and exotic species common to urban habitats. There are no wetland habitats within or adjacent to the project area.

Based on information from federal and state resource agencies, previous and current biological work (Appendix C), existing area habitat, and extensive area familiarity, the species listed in Table 3.2 have special recognition by federal, state, and/or local resource conservation agencies (primarily due to declining or limited populations usually resulting from habitat reduction), and are known to occur or to potentially occur in the vicinity of the proposed project area. Further information on the biological resources of the project area was gained during the course of a biological reconnaissance of the project area carried out on August 18, 2003.

TABLE 3-2
Plant and Wildlife Species Threatened, Endangered, or of Concern Known to Occur in the Vicinity of the Nellis AFB and the Proposed Project Area

Common Name	Scientific Name	USFWS Status	BLM Status	State Status
Plants				
Las Vegas bear poppy	<i>(Arctomecon californica)</i>	SOC	SS	CE
Yellow two-tone beardtongue	<i>(Penstemon bicolor ssp. Bicolor)</i>	SOC	SS	None
Three corner milkvetch	<i>(Astragalus geyeri var. triquetrus)</i>	SOC	SS	None
Sticky ringstem	<i>(Anulocaulis leiosolenus)</i>	SOC	SS	None
Large flowered sunray	<i>(Enceliopsis argophylla var. grandiflora)</i>	SOC	SS	None
Reptiles				
Mojave Desert tortoise	<i>(Gopherus agassizii)</i>	T	SS	State Protected
Western chuckwalla	<i>(Sauromalus obesus obesus)</i>	SOC	SS	State Protected
Banded gila monster	<i>(Heloderma suspectum cinctum)</i>	SOC	SS	State Protected
Birds				
Western burrowing owl	<i>(Athene cunicularia hypugea)</i>	SOC	SS	State Protected
Mammals				
Small-footed myotis	<i>(Myotis ciliolabrum)</i>	SOC	SS	None
Long-eared myotis	<i>(Myotis evotis)</i>	SOC	SS	None
Fringed myotis	<i>(Myotis thysanodes)</i>	SOC	SS	None
Long-legged myotis	<i>(Myotis volans)</i>	SOC	SS	None
Yuma myotis	<i>(Myotis yumanensis)</i>	SOC	SS	None
California leaf-nosed bat	<i>(Macrotis californicus)</i>	SOC	SS	None
Townsend's big-eared bat	<i>(Corynorhinus townsendii)</i>	SOC	SS	None
Spotted bat	<i>(Euderma maculatum)</i>	SOC	SS	State Protected
Allen's big-eared bat	<i>(Idionycteris phyllotis)</i>	SOC	SS	None
Big free-tailed bat	<i>(Nyctinomops macrotis)</i>	SOC	SS	None
Western mastiff bat	<i>(Eumops perotis)</i>	SOC	SS	None

Notes: T = Threatened; SO = Species of Concern; SS = Sensitive Species; CE = Critically Endangered

3.4.1 Threatened, Endangered, and Species of Concern—Plants

Las Vegas Bear Poppy (*Arctomecon californica*)

The Las Vegas bear poppy, a perennial herb, stands approximately 20 to 50 centimeters in height, with yellow flowers and with hirsute leaves that are generally wedge-shaped with rounded teeth. This species is state listed as critically endangered and federally designated as a species of concern.

The Las Vegas bear poppy is endemic to this portion of the Mojave Desert and, historically, major populations could be found in the Las Vegas Valley on gypsum soils. General habitat for the Las Vegas bear poppy is gypsum soils of the creosote bush-bursage plant community.

No individuals of the Las Vegas bear poppy occur on the proposed project site.

Yellow Two-tone Beardtongue (*Penstemon bicolor* ssp. *bicolor*)

The yellow two-tone beardtongue is an herbaceous perennial that stands up to 120 centimeters in height with a stem that is thick with smooth, leathery leaves that are irregularly toothed. The plant bears light yellow flowers which may be somewhat granular pubescent within and “are usually sparsely long-pubescent across the base of the lobes of the lower lip” (Mozingo and Williams, 1980). This species is listed as a federal species of concern.

The yellow two-tone beardtongue is endemic to southern Nevada, and is generally found in creosote bush-bursage and Mojave mixed scrub communities. This species prefers rocky outcrops, gravelly washes, road sides and can be found at elevations between 2,000 and 5,500 feet.

No individuals of the yellow two-tone beardtongue were found on the proposed project site.

Three Corner Milkvetch (*Astragalus geyeri* var. *triquetrus*)

The three corner milkvetch is an annual plant with small white flowers, seed pods that are oblong and somewhat flattened with an oblong groove on the lower side, and with leaves that are generally 3 to 5 centimeters long. This species is a federally listed species of concern.

No individuals of this species were observed in the vicinity of the proposed project site.

Sticky Ringstem (*Anulocaulis leiosolenus*)

The sticky ringstem is an herbaceous perennial plant approximately 60 to 100 centimeters in height, with leaves that are approximately 3.5 to 15 centimeters in length. This species is a federally listed species of concern.

Distribution of the sticky ringstem in Clark County, Nevada is primarily in the Frenchman and Sunrise Mountain area. Habitat for this species is found in creosote bush-bursage and salt bush (*Atriplex* spp.) vegetation communities, and it is generally limited to soils with high gypsum content on rolling hills and terraces. (RECON, 2000).

No individuals of the sticky ringstem were observed in the vicinity of the proposed project site.

Large Flowered Sunray (*Enceliopsis argophylla* var. *grandiflora*)

The large flowered sunray is another herbaceous perennial, and is approximately 10 to 40 centimeters in height, with relatively large, rubbery leaves that have fine grayish-white hairs. The leafless flower stalks can be over a foot long, and bear flowers with disks approximately one to two inches across, with the flowers themselves having yellow coronas and usually numbering in the range of 11 to 23. This species is a federally listed species of concern.

The large flowered sunray is endemic to this portion of the Mojave Desert, and its distribution in Clark County is primarily in Las Vegas Valley and in the drainages adjacent to Lake Mead.

No individuals of the large flowered sunray were observed in the vicinity of the proposed project site.

3.4.2 Threatened, Endangered, and Species of Concern—Wildlife

Mojave Desert Tortoise (*Gopherus agassizii*)

Size and Appearance. Desert tortoises are members of the family Testudinidae. An adult tortoise has a domed carapace and relatively flat, unhinged plastron. The shell comprises an epidermis of keratinous scales over bony dermal plates with the ribs and vertebrae fused to the carapace. Shell color is brownish with yellow to tan scute centers. The forelimbs of the desert tortoise are adapted for burrowing, with laterally-extended limbs, flattened feet with enlarged scales, and broad nail-like claws. The rear legs are rounded and elephantine in appearance. The head is rounded in the front with a blunt, horny beak and greenish eyes. Males are distinguished from females by a rounded posterior carapace, longer curved gular plates on the anterior portion of the plastron, enlarged chin glands, a concave posterior plastron, as well as longer tail.

Adult desert tortoises range in diameter from about 9 to 14 inches. Hatchlings are about the size of a silver dollar and resemble adults except with their shells that are spongy and pale and their eyes more golden. At approximately five years of age, their shells have hardened considerably.

Habits. Although exact age has been impossible to verify in the wild, the life span of an adult tortoise is estimated to be 50 to 80 years. Mortality is highest among hatchlings and juveniles.

Desert tortoise have a low birthrate, low recruitment of juveniles into the breeding population, low mortality in older age categories, and a low population turnover rate.

Desert tortoise activity is seasonal, with peak activity periods occurring in the spring between late March and early June when temperatures range around 80 degrees F. As the temperatures rises, the annual vegetation begins to become scarce and the tortoises aestivate underground to escape the extreme heat. During the summer, tortoises may emerge in the early morning and late evening to forage. Tortoises also emerge from their burrows when precipitation occurs. A second peak in activity generally occurs in the late fall when temperatures once again are around 80 degrees F. Winter burrows are generally deeper than

summer cover sites, and several tortoises have been documented occupying a single winter burrow at the same time.

The desert tortoise is federally listed as a threatened species, and is classified as state protected.

Neither desert tortoise nor their sign were found during the biological reconnaissance of the project area. However, the project area to the east and south of the flight line includes some desert areas that have not been disturbed, and that represent marginal desert tortoise habitat.

Western Chuckwalla (*Sauromalus obesus obesus*)

Size and Appearance. A member of the family Iguanidae, the Western Chuckwalla is a large, pot-bellied, dark-bodied lizard with loose folds of skin around its neck and shoulders. The back is covered with small, granular scales. The tail is thick and blunt at the tip. Average total body length is 6 to 10 inches. The head, chest, and limbs of adult males are usually black and are sometimes spotted and flecked with pale gray.

Habits. The chuckwalla is a rock-dwelling, herbivorous lizard. It is usually found on lava flows, rocky hillsides and outcrops that provide shelter and basking sites. When disturbed, chuckwallas distend their body wedging themselves tightly between rock crevices. Diet consists of a variety of desert annuals and perennials. Eggs are laid from June to August with clutches normally consisting of 5 to 16 eggs.

The chuckwalla is a U.S. Fish and Wildlife Service (USFWS) species of concern, is designated as a sensitive species by the BLM, and is protected under state regulations as well.

No chuckwallas or their habitat occur in the vicinity of the proposed project.

Banded Gila Monster (*Heloderma suspectum cinctum*)

The banded gila monster is a member of the family Helodermatidae, averaging approximately 13 to 18 inches in length with a heavily built cylindrical body. Color is generally orange and black or brown with bands on the back. The banded gila monster is a venomous reptile.

Little is known about the habits of the gila monster as this species spends the majority of its life underground. Preferred habitat is generally considered rocky desert washes and canyon bottoms. Gila monsters lay eggs and the young are born in the spring. The young emerge from their eggs capable of fending for themselves. Gila monsters generally feed on small mammals, eggs, lizards, and insects.

The gila monster is state protected and a federal species of concern. No suitable banded gila monster habitat was observed on proposed project sites.

Western Burrowing Owl (*Athene cunicularia hypugea*)

Size and Appearance. Western burrowing owls are members of the family Strigidae. Average size is approximately 9-1/2 inches in height with long legs that help distinguish it from all other owls. The adult is spotted and barred, with juveniles appearing buff in color.

Habits. The burrowing owl prefer open country, but is also found in areas of human habitation. Burrowing owls are active during daylight and night hours. Diet consists primarily of lizards, rodents, and occasionally insects. Nesting commonly occurs in small colonies in abandoned mammal burrows that have been enlarged. Nests are usually lined with food debris, dry grass, weeds, pellets, and feathers. Females remain inside the burrow during most of the egg laying and incubation periods and are fed by the male throughout brooding. The female begins to forage when the young are three to four weeks old.

The Western burrowing owl is listed as a species of concern by the USFWS, a sensitive species by the BLM, and is state protected. It is protected further by the Migratory Bird Treaty Act. Suitable Western burrowing owl habitat is present adjacent to the proposed project area. One burrowing owl was identified flying and landing on a large dirt mound adjacent to the Alternative A pipeline route during field survey (Figure 3-1).

Mammals. Bats are the only mammals likely to be found in the study area that are considered species of concern by the USFWS (Table 3-2). With the exception of the spotted bat, all bat species are classified as unprotected by the State of Nevada. No suitable roosting habitat for bat species was found in the vicinity of the proposed project site.

3.5 Cultural Resources

Cultural resources are buildings, structures, sites, or objects which have historical, architectural, archaeological, cultural, and/or scientific importance. These resources include prehistoric and historic archaeological sites, historic buildings and linear features, and places of traditional cultural or religious importance for various social or cultural groups. The Las Vegas Valley has been occupied by humans for at least 12,000 years, while the last 150 years have seen vast changes in the nature of that occupation with the advent of Euro-American immigrants.

An assessment of impacts to cultural resources is a component of the NEPA review process. Section 106 of the NHPA of 1966, as amended, requires federal agencies to identify cultural resources that may be affected by any undertaking involving federal lands, funds, or permitting. The significance of the resources that may be affected by that action must be addressed using established criteria (36 CFR 60.4) determining eligibility for the National Register of Historic Places (NRHP).

When a resource is determined to be eligible for nomination to the NRHP, Section 106 of the NHPA (80 Stat. 915; 16 U.S.C. 470) and its implementing regulations (36 CFR 800) require that effects of the proposed project to that resource be determined. When NRHP eligible resources are identified that would be adversely affected by the implementation of the project, prudent and feasible measures to avoid or mitigate adverse impacts must be implemented. The State Historic Preservation Office (SHPO) must also be provided an opportunity to review and comment on eligibility determinations and mitigation measures.

Based on previous Nellis AFB projects, the entire main base has been surveyed and concurrence received from SHPO of no archaeological or cultural properties. The project's pipeline route Alternative A and the Storage Tank Facility Alternatives are covered by the Main Base consultation and SHPO concurrence in a letter dated 9 February 1993. The Pipeline Route Alternative B is covered by the LOLA consultation, dated 3 July 2000.

3.6 Earth Resources

Nellis AFB is located in the northeastern portion of the Las Vegas Valley and lies within the broader Basin and Range physiographic province of southwestern North America. The northwest to southeast trending Las Vegas Valley Shear Zone is the dominant structural feature in this area. The Las Vegas Valley is an alluvium-filled northwest-southeast trending valley that drains southeasterly through the Las Vegas Wash into Lake Mead. The elevation of Nellis AFB is approximately 1,900 feet above sea level. Relatively flat alluvial deposits characterize the Nellis AFB area, with the toes of alluvial fans from Frenchman Mountain present at the eastern edges of Nellis AFB.

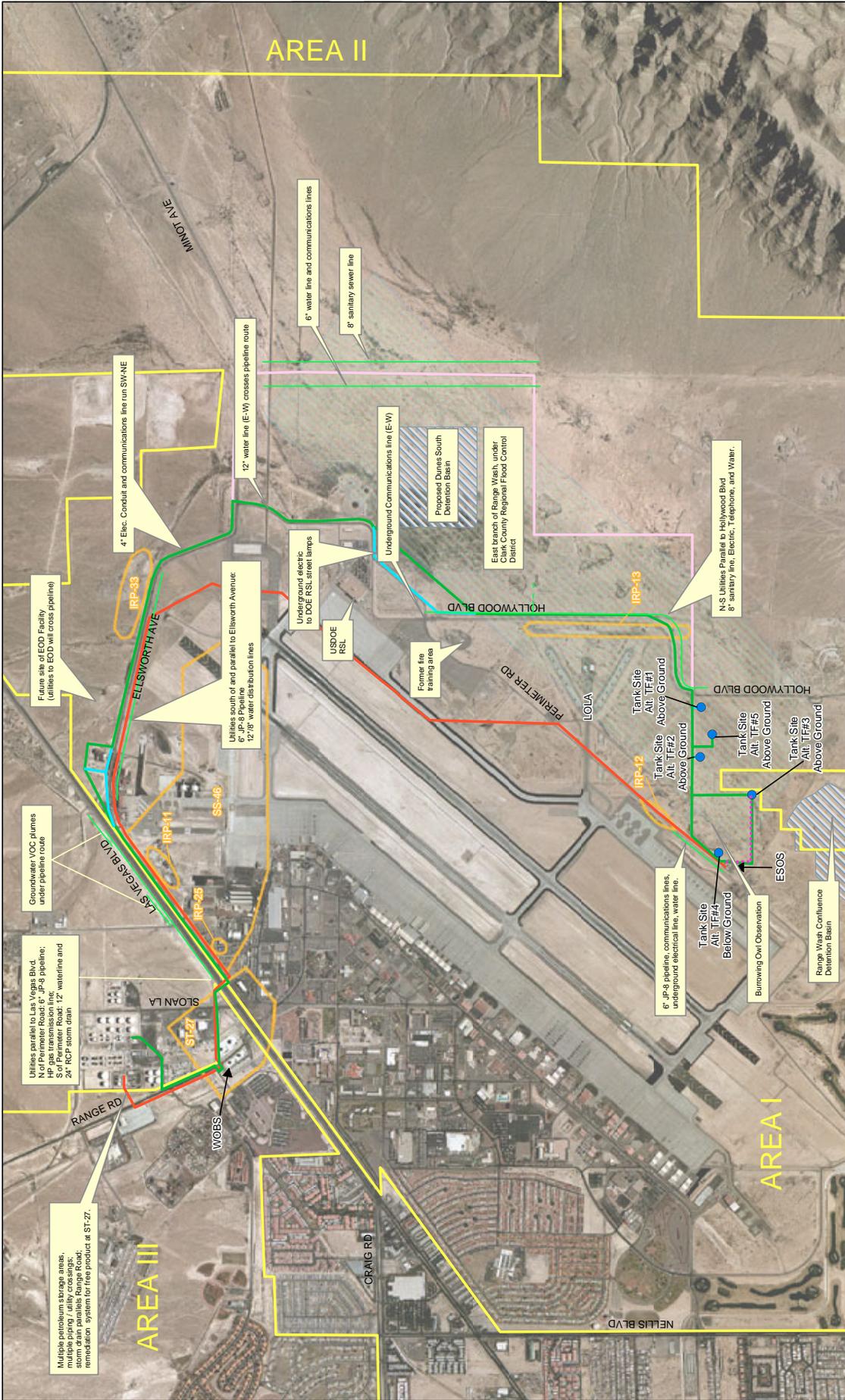
The Las Vegas Valley is bounded by the Las Vegas Range approximately 5 miles north of Nellis AFB, Sunrise and Frenchman Mountains approximately 1 to 3 miles to the southeast, and the Spring Mountain Range approximately 20 miles to the west. Mount Charleston is located at the summit of the Spring Mountains, approximately 25 miles to the west of Nellis AFB, attains an elevation of 11,918 feet, and is the highest peak in the region.

Bedrock in the mountains east of Nellis AFB includes Precambrian metamorphic rocks at the base of Frenchman Mountain. Sunrise and Frenchman Mountains are composed of Paleozoic to Mesozoic rocks, which include sandstone, conglomerate, shale and some limestone. This geological setting is the likely make up of most of the bedrock within the vicinity of Nellis AFB. Fans of coarse alluvial material closer to the mountains grade distally into valley fill comprised primarily of fine-grained alluvium which underlies the project area, with more restricted areas of fine-grained lacustrine sediments.

Soils at Nellis AFB consist of poorly sorted alluvial and wind-blown silts, sands, and clay. Typical surface soils are light brown sandy loam with gravel and clay rich sand. The average depth to caliche is approximately 2 feet with drainage being good above the caliche horizons but poor below the caliche horizons. Soil associations in and around Nellis AFB include Glendale soils, Weisner soils and lacustrine silts and clays. Glendale and Weisner soils are deep, well-drained medium textured soils while poorly-drained lacustrine silts and clays occur in the lower elevation areas.

3.7 Water Resources

Nellis AFB is located on the eastern side of the Las Vegas Valley, and groundwater flow in the valley is generally from west to east. Deep valley fill deposits are host to a large aquifer system under confined and semi-confined conditions. Principal aquifers are considered to be deeper than about 200 feet. Nellis AFB obtains potable water supply from a mixture of groundwater from wells south and far west of the pipeline and storage areas planned for this project. Nellis AFB also obtains municipal water from the Southern Nevada Water Authority (SNWA). As of 1999, approximately 70 percent of the potable water supply for Nellis AFB came from SNWA and 30 percent from production wells.



N

Utility / Environmental Info Display
Figure 3-1

0 0.5 1 Miles

CH2MHILL

Legend

- Existing 6 inch Pipeline
- Preferred Alternative A
- Alternative B
- Other Options Considered But Not Subject to Detailed Analysis
- Range Wash
- Flood Control Basins
- Fire Water Line and Access Road (Preferred Alt. TF#3)
- Identified Utilities
- Tank Locations
- IRP Site
- Nellis AFB Property Line

LAS VEGAS/PROJECTS/INTELLIGENCE/3-1.MXD 10/01/04

3.7.1 Groundwater

In the Las Vegas Valley groundwater occurs principally in the alluvial valley fill at depths that vary with location. Groundwater occurs at a depth of approximately 40 to 70 feet below ground surface (bgs) across the pipeline route, and generally flows to the east or southeast, in the direction of the East Branch of the Range Wash, based on review of recent groundwater monitoring reports from four Installation Restoration Program (IRP) sites (CH2M HILL, 2004). Groundwater less than 100 feet bgs is considered part of the “near surface aquifer” and this shallow groundwater is not generally used for potable water. Principal aquifers are considered to be more than 200 feet deep within the valley fill, and the principal aquifer may be tapped by wells up to 1,000 feet deep.

Groundwater quality from the deeper principal aquifer is considered to be generally suitable for domestic, agricultural, and industrial uses. Several wells formerly used for potable water production have either been abandoned or restricted to irrigation use, due to concern about natural arsenic concentrations. Wells 2, 3, 4, and 5 are located near the northeastern portion of the pipeline route and are now restricted to irrigation use. The near-surface aquifer is impacted at several IRP sites in the vicinity of the pipeline route. Review of Nellis AFB engineering drawings and groundwater monitoring reports during EBS preparation (CH2M HILL, 2004) confirmed that the pipeline route is approximately 1.25 miles distant from the closest potable water supply well. The pipeline route is located within 0.25 to 1.0 mile of four former potable water supply wells (Nellis AFB wells number 2, 3, 4, and 5) that are currently out-of-service or used only for non-potable irrigation water supply due to arsenic content.

3.7.2 Surface Water

Surface drainage across Area I of Nellis AFB is to the southeast, to the East Branch of the Range Wash, which drains south-southwest to Las Vegas Wash (Figure 3-1). The eastern portions of the pipeline route alternatives are located adjacent to or within the broad, shallow, and normally dry drainage of the East Branch of the Range Wash. Drainage at the western portion of Nellis AFB is collected by a storm drain system that discharges by surface flow to the south to join the East Branch of the Range Wash. The Range Wash Confluence retention basin and the proposed Dunes South detention basin are under the management of the CCRFCD.

As noted in Section 3.4, there are no wetlands within or adjacent to the project area. Tributaries to the Range Wash drainage system that channel runoff during infrequent cloud bursts in this desert environment are considered to be jurisdictional waters of the U.S. (WUS), and dredge and fill activities within WUS are regulated under Section 404 of the CWA (Table 1-1). These tributaries are ephemeral desert washes and occur at the foot of the alluvial fan extending toward the project area from the Sunrise Mountain area to the east, and to the immediate east Hollywood Boulevard.

3.8 Utilities

This section describes the utilities in the vicinity of the project area that are located in proximity or that cross the pipeline route and storage tank facility alternatives. There are

multiple existing underground utilities near the pipeline route, both within Nellis AFB and in off-site properties along the pipeline route. Figure 3-1 shows the general location of existing utilities that are located near, and those that cross, the project alternatives.

Electricity is supplied to Nellis AFB by Nevada Power Company. Underground electrical conduits are indicated by manholes along pipeline route Alternatives A and B at Hollywood Boulevard, south of the Hollywood guard gate, and east of the tank storage facility alternatives.

Sanitary sewage and industrial wastewaters generated at Nellis AFB have been discharged to the public sanitary sewer since 1972, and are treated at an offsite publicly owned treatment works facility managed by the CCWRD. Wastewater lines run from Area III south to Area I, and are also found at the eastern limit of the project area, and parallel to Hollywood Boulevard.

Water supply lines are present parallel to Las Vegas Boulevard, parallel to the north-south portion of Hollywood Boulevard, and east of the ESOS and the new storage tank area alternatives. A water supply line also runs north-south parallel to an unpaved dirt road at the far eastern portion of the project area (Figure 3-1).

The Southwest Gas Company supplies natural gas to Nellis AFB, and a high pressure gas transmission line is located parallel to Ellsworth Avenue and Las Vegas Boulevard, north of Ellsworth Avenue.

Communications lines and other underground utilities present in the vicinity of the project include those in the vicinity of the Las Vegas Terminal, northeast of the flight line, along Hollywood Boulevard, in proximity to the United States Department of Energy (USDOE) Remote Sensing Laboratory (RSL), and those along the perimeter road leading to the ESOS.

3.9 Hazardous Materials and Items of Special Concern

Figure 3-1 shows several areas where the pipeline route alternatives cross existing IRP sites¹. Two IRP sites where the pipeline route alternatives are proposed are undergoing active remediation or continued investigation. These are:

IRP Site ST-27 is located along Range Road in Nellis AFB Area III and Area I. This site had past fuel releases of JP-4 and JP-8. A groundwater pump and free product recovery system with 33 extraction wells operates within the boundaries of ST-27. Treated groundwater is discharged via an effluent pipeline.

IRP site SS-46 lies to the east of site ST-27, adjacent to the pipeline alternative routes as they extend northeast along Ellsworth Avenue parallel to Las Vegas Boulevard. SS-46 is receiving ongoing soil and groundwater investigation for the extent of trichloroethene (TCE), benzene, toluene, ethylbenzene, and xylenes (BTEX). Possible release sources include former ASTs and an oil/water separator (OWS) at an aircraft engine test cell area

¹ The USAF program that originally identified these sites was known as the RP. Those sites still undergoing investigation or remediation are now referred to as environmental restoration program, or ERP, sites by Nellis AFB Environmental Flight.

that was in use during the 1970s. Groundwater impacts at SS-46 appear to underlie portions of the pipeline route.

There are several areas of past surface disposal that were identified as IRP sites but are no longer actively being investigated and do not require further remediation. These include IRP sites 11, 12, 13, 25, and 33 shown on Figure 3-1. These are discussed further in the Environmental Baseline Survey (EBS) for the pipeline installation (CH2M HILL, 2004). No onsite solid waste disposal presently occurs in the vicinity of the project. The Nellis AFB dig permit process, to be completed prior to ground disturbing activities, includes a review for possible LBP, PCB, and ACM issues by Nellis AFB EM staff.

Hazardous and petroleum wastes are not stored in the vicinity of the project area, nor have spills or releases been reported in the vicinity. No OWS are located in the project vicinity. Four low point drains are present along the existing 6-inch fuel pipeline. They were dry when inspected and have not been the source of petroleum waste, according to Nellis AFB Liquid Fuels Management personnel.

Existing ASTs located in Nellis AFB Area III are used to supply the existing 6-inch pipeline, and would be used to supply the proposed 8-inch pipeline. At the termination of the project route at the ESOS, four ASTs are used to supply the refueling hydrants in that area. Otherwise, ASTs are not located on the pipeline route.

No recorded underground storage tanks (USTs) are located along the pipeline route according to interviews with Nellis AFB personnel and observations made during data collection while conducting the EBS visual site inspection.

There is no sanitary wastewater or treatment in the vicinity of the pipeline route, and no septic tanks were identified.

Transformers, PCB-contaminated equipment, and other PCB-contaminated items were not observed during visual inspection at the pipeline route. Nellis AFB maintains records of transformers and PCB test results for transformer oils.

No buildings are present in the immediate vicinity of the pipeline route alternatives or the tank storage alternatives. No indication of lead-based paint or paint pigments on the land surface was observed during the pipeline route inspection conducted for the EBS.

ACM consisting of asbestos-reinforced cement pipe, were identified and removed from adjacent properties for proper disposal in construction debris discovered on the land surface east of the LOLA and ESOS (Figure 3-1). This cleanup was completed following acquisition of BLM lands referred to as the LOLA parcel by the USAF in 1999. The southeastern portions of the pipeline route Alternatives A and B cross the LOLA parcel.

3.10 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994), requires that Federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs and activities on minority and low-income populations.

In 2000, the population of Nevada was estimated at 1,988,257 persons, the population of Clark County was estimated at 1,375,765 persons. The population of Clark County was approximately 71.6 percent White, 13.0 percent Hispanic, 9.1 percent African American, 5.3 percent Asian, and 1 percent “other” which includes Native American populations.

Residential and commercial urban development occurs adjacent to Nellis AFB, up to the southern and western property boundaries of Nellis AFB, with primarily industrial development to the north. Residents and commercial businesses adjacent to the Nellis AFB property boundary are similar in ethnicity and income level to the surrounding area.

3.11 Resources Not Present

The following elements of the natural and human environment are not present on the proposed project land or in the vicinity and would not be affected by the Proposed Action or any project alternatives. The following listed resources would not be considered any further in this EA.

- Areas of Critical Environmental Concern (ACECs) – The closest ACEC is the Sunrise Mountain – Rainbow Gardens area, more than 3 miles distance to the southeast. Implementation of any of the action alternatives would have no impact on access or values contributing to this area.
- Farm Lands (Prime or Unique) – There are no prime or unique farmlands in this desert region.
- Wetlands/Riparian Zones – There are no wetlands or riparian zones in this portion of the Las Vegas Valley drainage.
- Wild and Scenic Rivers – There are no wild or scenic rivers in this region.
- Wilderness – The closest wilderness area is more than 10 miles to the north, and implementation of any of the action alternatives would have no impact on this area
- Recreation – Occasional dispersed recreational activities (dirt bike and ATV riding) occur in the area to the east of the project alignment, but these activities are infrequent.
- Viewshed – The project area is not a part of any specially designated viewshed management area, would take place in a topographically subdued area, and largely consists of underground facilities

Environmental Consequences

This chapter provides an assessment of environmental impacts that would result from implementation of the project alternatives. The following sections describe the environmental consequences that the Alternative Pipeline Route A, Alternative Pipeline Route B, the Storage Facilities Alternatives and the No Action Alternative would have on the environmental resources described in Section 3.

4.1 Land Use

4.1.1 Preferred Pipeline Route: Alternative A

Under pipeline route Alternative A, the preferred alternative, the proposed 8-inch fuel pipeline would follow a route as described in Section 2.2.1 (Figure 1-1). The area from the Las Vegas Terminal to Nellis AFB is vacant, under industrial land use, or dedicated as ROWs. The land within the Nellis AFB property is either undeveloped desert terrain, or adjacent to existing roads and flight line facilities (Figure 3-1).

A portion of the pipeline route between the USDOE RSL facility and the ESOS would cross the planning overlay for the expanded aircraft operations and maintenance area shown in the *Live Ordnance Loading Area Conceptual Land Use Study* (Nellis AFB 2002; Figure 3-1). Coordination with the operational and planning staff at Nellis AFB regarding this portion of the Alternative A route led to the decision to install the pipeline by directional bore at a depth of approximately 20 feet. Installation at this depth would minimize the potential for future conflicts. This coordination process addressed and resolved negative land use impacts on the proposed pipeline and storage tank installation.

The northern portion of the proposed pipeline route would cross to the north of the planned EOD facility (Figure 1-1), thereby minimizing the potential for conflicts with access requirements to that new facility; access requirements for the new EOD facility would be primarily from the south.

The southeastern extent of the Alternative A pipeline route would be within the designated explosion safety zones (Figure 1-1), but the pipeline would be buried a minimum depth of 4 feet below the ground and therefore would not be susceptible to this hazard.

The construction activities involved in pipeline installation would occur in proximity to the runways, LOLA, munitions haul road, and east side revetments. These construction activities have the potential to impact Nellis AFB flight operations and security procedures. Coordination with Nellis AFB would occur prior to and during construction to minimize those impacts. Crossings of roadways (Las Vegas Boulevard, Ellsworth Avenue, Hollywood Boulevard, and the perimeter road) have the potential to interfere with traffic. A traffic control plan will be developed and implemented during construction.

4.1.2 Pipeline Route: Alternative B

Under pipeline route Alternative B, the proposed new 8-inch pipeline route initially would follow much the same course as that of Alternative A, and diverge from that route to follow a ROW farther east in the project area before converging on the portion of the route shared between the two alternatives in the vicinity of Hollywood Boulevard (Figure 1-1). Land use impacts resulting from the implementation of pipeline route Alternative B would be much the same as those resulting from the implementation of Alternative A. However, because Alternative B extends farther to the east, only small portions would be within the explosion safety zones associated with the Nellis AFB flight line and supporting facilities. The pipeline route would not cross, but would run adjacent to the eastern and southern boundaries of the planning overlay for the expanded aircraft operations and maintenance area shown in the *Live Ordnance Loading Area Conceptual Land Use Study* (Nellis AFB, 2002). Since the pipeline route in this area would be parallel to and immediately outside of the boundaries of the planning area, there would be no impact to this planned future land use.

Construction phase impacts to flight line and security operations for Alternative B implementation would be somewhat less than that which would occur under Alternative A given the greater distance of the Alternative B pipeline route from most of the operations on the east side of the flight line (Figures 1-1, 3-1).

4.1.3 Storage Facility Alternatives

The proposed new tank storage facility would be located east of the ESOS. As described in Section 2.0, the new storage facility area would contain two 420,000-gallon tanks, and there are five alternative sites for the new facility (Figure 1-1). Alternative storage tank facility sites TF#1, TF#2, TF#3, and TF#5 would be above ground tanks, while Alternative TF#4 would employ underground tanks.

The land use at the selected storage alternative location would become industrial (fuel storage for Nellis AFB operations). This change in land use for the limited area developed for storage (not more than 1.61 acres) is generally consistent with adjacent land use within Nellis AFB. However, storage tank facility Alternatives TF#1, TF#2, and TF#4 are within or at the limits of the "quantity-distance arcs" explosion safety zones that establish minimum setbacks for occupied structures from areas where live ordnance is handled (Figure 1-1). For Alternative TF#4, the storage tanks would be underground structures to minimize exposure to potential blasts. Alternatives TF#3 and TF#5 would be beyond the limits of these explosion safety zones, with TF#3 (the preferred storage tank facility alternative) being in immediate proximity to the boundary of Nellis AFB in that area, north of the CCRFCD Range Wash Confluence Detention Basin (Figure 3-1).

The 6-inch pipeline leading from any of the storage tank facility alternatives to the ESOS would be buried to a depth of approximately 4 feet and therefore would not represent a potential conflict with the established explosion safety zones.

Similar to the effects of the construction of the 8-inch pipeline, construction activities associated with the implementation of any of the storage tank facility alternatives, and their associated 6-inch pipeline to the ESOS, would affect on-going flight line and Nellis AFB security operations. Close coordination with Nellis AFB will ensure that on-going flight-line and security operations will not be affected by construction activities.

4.1.4 No Action Alternative

Under the No Action Alternative, the new liquid fuel pipeline and new storage tank facility would not be constructed. The existing 6-inch pipeline would continue to be utilized as the principal re-supply line for the ESOS. The ESOS would continue to receive fuel directly from the Las Vegas Terminal. The existing pipeline would not conflict with construction activities for the expanded aircraft operations and maintenance area shown in the *Live Ordnance Loading Area Conceptual Land Use Study* (Nellis AFB, 2002).

Land use would remain unchanged under this alternative.

4.2 Socioeconomics

It is assumed for the sake of this analysis that implementation of any of the pipeline and storage tank alternatives would involve a construction work force of not more than 60 personnel, and an additional operations staff of not more than 2 individuals. It is also assumed that construction associated with the implementation of any of the pipeline route and tank storage facility alternatives would cost approximately \$10 to 11 million. Project implementation, then, would involve a work force equivalent to less than one-thousandth of the construction work force in Clark County, with total cost equivalent to less than one-thousandth of the taxable sales within the County.

4.2.1 Preferred Pipeline Route: Alternative A

Operation of the new 8-inch liquid fuel pipeline under Alternative A would have negligible economic impact on the population and economy of Clark County. The surrounding area would not experience any population change or change in housing demand. Positive but relatively minor economic impacts would result from the creation of new jobs and purchase of goods and services resulting from the construction of the new 8-inch pipeline facility.

4.2.2 Pipeline Route: Alternative B

Under this alternative, socioeconomic impacts would be much the same as pipeline route Alternative A. There would be some increase in expenditures associated with the increased pipeline distance, but these would still have a negligible economic impact relative to the area as a whole.

4.2.3 Storage Facility Alternatives

The implementation of any of the storage tank facility alternatives would have negligible impact on the population, housing demand, or economy of Clark County.

4.2.4 No Action Alternative

Under this alternative, current activities would continue on Nellis AFB. With no changes in the development of both military and non-military lands, there would not be an impact in the population, housing or economy of Clark County.

4.3 Air Quality

Air quality impacts are considered for both the construction and operational phases of the Proposed Action. The construction impacts would be temporary in nature and will use required Clark County mobile source control practices. These include limiting the duration of equipment idling and maintaining equipment according to manufacturers' specifications. A dust control plan using Clark County's required Best Management Practice (BMP) will be developed to provide prescriptions that would be employed to reduce fugitive dust generation. In accordance with the SIP for PM₁₀, a control efficiency of 87 percent would be achieved through implementation of Clark County required BMPs for control of fugitive PM₁₀ emissions.

For the 8-inch pipeline alternatives, and for the 6-inch pipeline associated with the storage tank facility alternatives, it is assumed that the width of the area of disturbance involved in pipeline installation would be 70 feet. As noted in Section 2.1 construction will take place over a 10-month period, during which ground disturbing activities will occur for 6 months.

4.3.1 Preferred Pipeline Route: Alternative A

As described in Section 2.2, there are two 8-inch pipeline alternatives and five storage tank facility alternatives subject to analysis under this EA. The beginning and ending points of this proposed fuel system upgrade are the same for all alternatives under consideration. Therefore, for Alternative A only negligible differences exist in the total length of the pipeline route, from the Las Vegas Terminal to the ESOS under different Storage Tank Facility Alternatives.

To assess potential air quality impacts from fugitive dust generation under the preferred Alternative A, the maximum area of disturbance includes the area that would be impacted by 8-inch pipeline construction, plus the area disturbed by the construction of the pipeline from the preferred storage tank facility alternative TF#3 to the ESOS.

Construction Impacts

For the preferred 8-inch pipeline route Alternative A and the preferred storage tank facility alternative TF#3, the total combined disturbed area would be 45.57 acres, corresponding to 5.05 miles of 8-inch pipe (42.87 acres) and 0.32 mile of 6-inch pipe (2.70 acres) from storage tank facility TF#3 to the ESOS.

Pipeline Construction. The construction activities that would occur along the 8-inch and 6-inch pipeline routes would be primarily associated with grading and site preparation, trenching and back filling, and site recovery. Total project emissions would primarily be a function of duration of construction activities. It is estimated that, within the overall 10-month construction schedule, these ground disturbing construction activities will occur over a 6-month period. Emission factors for equipment that are used for the grading and trenching activities are shown in Table 4-1.

**TABLE 4-1
Pipeline Construction Equipment Emissions Factors**

Vehicle Type	Criteria Pollutant Emissions (lbs/hour)				
	ROG*	CO	NOx	PM ₁₀	SOx
Backhoe, 580 EKL	0.27	0.81	1.50	0.173	1.1
Bending Machine 6" – 20"	0.3	2.13	6.50	0.394	5.5
Excavator 225 Cat	0.32	0.92	1.93	0.166	0.36
Sideboom 561	0.27	0.81	1.50	0.173	1.1
Tractor D-5	0.27	0.81	1.50	0.166	1.1
Trenching Machine	0.12	0.48	1.30	0.108	1.1
Truck, Gang 1 ½ - 2 ½ ton	0.3	2.13	6.50	0.394	5.5
Truck, Pick-up	0.3	2.13	6.50	0.394	5.5
Truck, Semi w/Cozad 60-Ton	0.3	2.13	6.50	0.394	5.5
Truck, Water 4,000 Gallon	0.3	2.13	6.50	0.394	5.5
Truck, Welding Arc & Acetylene	0.3	2.13	6.50	0.394	5.5
Paver	0.3	2.13	6.50	0.394	5.5
Semi-Dump Truck (Semi w/Cozad- 60-Ton)	0.3	2.13	6.50	0.394	5.5
Directional Boring Equipment	0.12	0.32	1.37	0.088	1.1

* Reactive organic gasses

Fugitive dust would be generated from the grading and trenching activities during the construction phase of the 8-inch and 6-inch pipelines, and site preparation for the storage tank facility. The Clark County emission factor for PM₁₀ from construction activities is 0.42 ton/acre-month. A fugitive dust control efficiency factor of 87 percent was used based on implementation of required Clark County BMPs to control fugitive dust. PM₁₀ emissions per day for the pipeline construction period are calculated below:

$$\text{Fugitive Emissions} = (0.42 \text{ ton/acre-mo.})(45.57 \text{ acre})(0.13 \text{ control})(1 \text{ month}/30 \text{ days})(2000 \text{ lb/ton}) = 165.87 \text{ lb/day}$$

Table 4-2 presents the estimated air quality impacts from the construction of the pipeline under Alternative A.

**TABLE 4-2
Emissions During Pipeline Construction**

Vehicle Type	Equipment Days ^a	In-Use, Hours Per Day	Criteria Pollutant Emissions (lbs/Equipment day)				
			ROG	CO	NOx	PM ₁₀	Sox
Backhoe, 580 EKL	69	7	1.86	5.67	10.50	1.21	7.69
Bending Machine 6" – 20"	44	6	1.80	12.78	39.00	2.36	33.00

TABLE 4-2
Emissions During Pipeline Construction

Vehicle Type	Equipment Days ^a	In-Use, Hours Per Day	Criteria Pollutant Emissions (lbs/Equipment day)				
			ROG	CO	NOx	PM ₁₀	Sox
Excavator 225 Cat	56	7	2.22	6.44	13.51	1.16	2.52
Sideboom 561	219	7	1.86	5.67	10.50	1.21	7.69
Tractor D-5	31	7	1.86	5.67	10.50	1.16	7.69
Trenching Machine	25	7	0.85	3.36	9.10	0.76	7.69
Truck, Gang 1 ½ - 2 ½ ton	116	3	0.90	6.39	19.50	1.18	16.50
Truck, Pick-up	761	3	0.90	6.39	19.50	1.18	16.50
Truck, Semi w/Cozad 60-Ton	25	7	2.10	14.91	45.50	2.76	38.50
Truck, Water 4,000 Gallon	100	8	2.40	17.04	52.00	3.15	44.00
Truck, Welding Arc & Acetylene	204	6	1.80	12.78	39.00	2.36	33.00
Paver	5	7	2.10	14.91	45.50	2.76	38.50
Semi-Dump Truck (Semi w/Cozad-60-Ton)	20	7	2.10	14.91	45.50	2.76	38.50
Directional Boring Equipment	15	6	0.70	1.92	8.22	0.53	6.59
Disturbed Surfaces ^b	180	24	-	-	-	165.87	-
Total Emissions (lbs/Equipment day)	-	-	23.4	129	368	190	298

^a The total days of use times the number of pieces of equipment of this type

^b Value is total potential emissions without administrative control, described below

Construction impacts are considered to be temporary in nature so they are not counted in the overall facility impacts. The project will institute administrative controls including the use of soil stabilizers on stockpiled soil and will implement Clark County required BMPs to control PM₁₀ emissions from the pipeline ROW under construction. The project will also institute required measures to control CO, Nitrogen Oxides (NOx), SOx, and ROG emissions from construction equipment. These required measures include limiting the duration of idling and assuring that engines are tuned according to manufacturers' specifications.

Operational Impacts

The pipelines constructed under this alternative would be underground facilities, and consequently there would be no operational emissions associated with this project component.

4.3.2 Pipeline Route: Alternative B

As described in Section 2.2, there are two 8-inch pipeline alternatives and five storage tank facility alternatives subject to analysis under this EA. The beginning and ending points of this proposed fuel system upgrade are the same for all alternatives under consideration. Therefore, for Alternative B only negligible differences exist in the total length of the

pipeline route, from the Las Vegas Terminal to the ESOS under different Storage Tank Facility Alternatives.

To assess air quality impacts from fugitive dust generation under this alternative, the area of disturbance would be the area that impacted by Alternative B pipeline construction, plus the area disturbed by the construction of the 6-inch pipeline from storage tank facility alternative TF#3 to the ESOS.

Construction Impacts

For the pipeline route Alternative B, the total combined disturbed area of 54.99 acres corresponds to 6.16 miles of 8-inch pipeline ROW (52.29 acres) and 0.32 mile of 6-inch pipeline ROW (2.70 acres).

Pipeline Construction. The construction activities that would occur along the 8-inch and 6-inch pipeline routes would be primarily associated with grading and site preparation, trenching and back filling, and site recovery. Total project emissions would be a function primarily of duration of construction activities. It is estimated that, within a total project construction schedule of ten months, these ground disturbing construction activities will occur over a 6-month period. The equipment listed in Table 4-1 also would be used for the construction of Alternative B.

Fugitive dust would be generated from the grading and trenching activities in the construction phase of the 8-inch and 6-inch pipelines, and for the storage tank facility. The Clark County emission factor for PM₁₀ from construction activities is 0.42 ton/acre-month. A fugitive dust control efficiency factor of 87 percent was used based on implementation of required Clark County BMPs to control fugitive dust, including the use of stabilizers on stockpiled soil. PM₁₀ emissions per day for the pipeline construction period are calculated below:

$$\text{Fugitive Emissions} = (0.42 \text{ ton/acre-mo.})(54.99\text{-acre})(0.13 \text{ control})(1 \text{ month}/30 \text{ days})(2000 \text{ lb/ton}) = 200.16 \text{ lb/day}$$

The estimated impacts from the construction of pipeline Alternative B is presented in Table 4-3.

TABLE 4-3
Emissions During Pipeline Construction

Vehicle Type	Equipment Days ¹	In-use, hours per day	Criteria Pollutant Emissions (lbs/Equipment day)				
			ROG	CO	NO _x	PM ₁₀	SO _x
Backhoe, 580 EKL	83	7	1.86	5.67	10.50	1.21	7.69
Bending Machine 6" – 20"	53	6	1.80	12.78	39.00	2.36	33.00
Excavator 225 Cat	68	7	2.22	6.44	13.51	1.16	2.52
Sideboom 561	264	7	1.86	5.67	10.50	1.21	7.69
Tractor D-5	38	7	1.86	5.67	10.50	1.16	7.69
Trenching Machine	30	7	0.85	3.36	9.10	0.76	7.69

**TABLE 4-3
Emissions During Pipeline Construction**

Vehicle Type	Equipment Days ¹	In-use, hours per day	Criteria Pollutant Emissions (lbs/Equipment day)				
			ROG	CO	NOx	PM ₁₀	SOx
Truck, Gang 1 ½ - 2 ½ ton	140	3	0.90	6.39	19.50	1.18	16.50
Truck, Pick-up	919	3	0.90	6.39	19.50	1.18	16.50
Truck, Semi w/Cozad 60-Ton	30	7	2.10	14.91	45.50	2.76	38.50
Truck, Water 4,000 Gallon	120	8	2.40	17.04	52.00	3.15	44.00
Truck, Welding Arc & Acetylene	247	6	1.80	12.78	39.00	2.36	33.00
Paver	5	7	2.10	14.91	45.50	2.76	38.50
Semi-Dump Truck (Semi w/Cozad-60-Ton)	24	7	2.10	14.91	45.50	2.76	38.50
Directional Boring Equipment	5	6	0.70	1.92	8.22	0.53	6.59
Disturbed Surfaces ²	180	24	-	-	-	200.16	-
Total Emissions (lbs/Equipment day)	-	-	23.4	129	368	225	298

^a The total days of use times the number of pieces of equipment of this type

^b Value is total potential emissions without administrative control, described below

Construction impacts are considered to be temporary in nature so they are not counted in the overall facility impacts. The project will institute administrative controls including the use of soil stabilizers on stockpiled soil and will implement Clark County required BMPs to control PM₁₀ emissions from the pipeline ROW under construction. The project will also institute required measures to control CO, NOx, SOx, and ROG emissions from construction equipment. These required measures include limiting the duration of idling and assuring that engines are tuned according to manufacturers' specifications.

Operational Impacts

The pipelines constructed under this alternative would be underground facilities, and, consequently, there would be no operational emissions associated with this project component.

4.3.3 Storage Facility Alternatives

Construction Impacts

The storage facility alternatives all consist of the same area of disturbance; approximately 1.61 acres will be disturbed during the construction of the storage tank facility. The construction activities that would occur during storage tank facility construction would be primarily associated with site clearing, grading, and site recovery. Total emissions would be a function of duration of construction activities. It is estimated that the pad construction activities will occur 8 hours per day and 5 days per week over a 6-month period. The equipment and emission factors are presented in Table 4-4.

**TABLE 4-4
Storage Pad Construction Equipment Emissions Factors**

Vehicle Type	Criteria Pollutant Emissions (lbs/hour)				
	ROG ^a	CO	NOx	PM ₁₀	SOx
Pick-up Trucks	0.30	2.13	6.50	0.394	5.50
Crew Trucks	0.30	2.13	6.50	0.394	5.50
Flat-bed Truck	0.30	2.13	6.50	0.394	5.50
Bulldozer	0.27	0.81	1.50	0.173	1.1
Back Hoe	0.27	0.81	1.50	0.173	1.1
Cement Trucks	0.30	2.13	6.50	0.394	5.50
Welding Trucks	0.30	2.13	6.50	0.394	5.50
Construction Crane (60 ft)	0.27	0.81	1.50	0.173	1.1
Water Truck	0.30	2.13	6.50	0.394	5.50

^a Reactive organic gasses

As noted above, all storage tank alternatives would involve construction disturbance of the same area, resulting in a disturbed acreage of 1.61 acres. Fugitive dust would be generated from the grading and filling activities in the construction phase of the storage pad. The Clark County emission factor for PM₁₀ for construction activities is 0.42 ton/acre-month. A fugitive dust control efficiency factor of 87 percent was used based on required Clark County BMPs for control of fugitive dust. A conservative estimate was made that the entire tank facility area would be disturbed for the entire construction period, and approximately 180 days will be required to complete the pad construction. PM₁₀ emissions per day for the pad construction period are calculated below:

$$\text{Fugitive Emissions for Storage Pad TF\#3 (Pipeline Route Alternative A)} = (0.42 \text{ ton/acre-mo.})(1.61 \text{ acre})(0.13 \text{ control})(1 \text{ month}/30 \text{ days})(2000 \text{ lb/ton}) = 5.86 \text{ lb/day}$$

The estimated impacts from the construction of the storage tank facility is presented in Table 4-5.

**TABLE 4-5
Emissions During Storage Tank Facility Construction**

Vehicle Type	Equipment Days ^a	In Use, Hours Per Day	Criteria Pollutant Emissions (lbs/Equipment day)				
			ROG	CO	NOx	PM ₁₀	SOx
Pick-up Trucks	125	3	0.90	6.39	19.50	1.18	16.50
Crew Trucks	200	3	0.90	6.39	19.50	1.18	16.50
Flat-bed Truck	30	3	0.90	6.39	19.50	1.18	16.50
Bulldozer	30	8	2.12	6.48	12.00	1.38	8.79
Back Hoe	50	8	2.12	6.48	12.00	1.38	8.79

TABLE 4-5
Emissions During Storage Tank Facility Construction

Vehicle Type	Equipment Days ^a	In Use, Hours Per Day	Criteria Pollutant Emissions (lbs/Equipment day)				
			ROG	CO	NOx	PM ₁₀	SOx
Cement Trucks	3.6	2	0.60	4.26	13.00	0.79	11.00
Welding Trucks	240	8	2.40	17.04	52.00	3.15	44.00
Construction Crane (60 ft)	30	4	1.06	3.24	6.00	0.69	4.40
Water Truck	100	3	0.90	6.39	19.50	1.18	16.50
Pad Area Disturbed Surfaces	180	24	-	-	-	5.86	-
Total Emissions	-	-	11.9	63.1	173.0	17.96	143.0

^a The total days of use times the number of pieces of equipment of this type

Construction impacts are considered to be temporary in nature so they are not counted in the overall facility impacts. The project would implement Clark County required BMPs to limit emissions. The project would also institute required measures to control CO, NOx, SOx, and ROG emissions from construction equipment. These required measures include limiting the duration of idling and assuring that engines are tuned according to manufacturers' specifications.

4.3.4 Construction Emissions From Project Implementation

Table 4-6 provides estimates of total emissions that would result from project implementation under pipeline route Alternatives A or B. For each implementation scenario, modeled emissions are those that would result from the construction of the 8-inch pipeline, the storage tank facility, and the 6-inch pipeline to the ESOS.

TABLE 4-6
Total Emissions During Project Implementation (tons)

	ROG	CO	NOx	PM10	SOx
Alternative A Pipeline construction	1.76	10.57	30.62	17.44	30.62
Alternative B Pipeline construction	1.99	11.94	34.54	20.79	28.63

In general, because of the greater length of Alternative B, construction of that alternative would result in higher total construction emissions than those that would result from Alternative A.

4.3.5 Operational Emissions

Operational emissions resulting from project implementation would be restricted to those from working and breathing losses from the storage tanks. Such emissions are directly related to the tank design and type and throughput of fuel. The fuel throughput for all the storage tanks will be the same for all of the alternatives along with the design for the

aboveground internal floating roof storage tanks. Since the tank design and throughput are the same for four of the alternatives, then the operational emissions would be the same. However, the underground storage tanks would have different emissions; since the tanks are located underground the working and breathing losses would be lower. The tank emissions were estimated using TANKS4.0 software and are presented in Table 4-7.

TABLE 4-7
Tank Equipment Emissions Factors

Tank Type	Criteria Pollutant Emissions (lbs/day)
	ROG
Above Ground Storage Tank	0.002
Underground Storage Tank	N/A

These operational emissions would not have a substantive impact on air quality.

4.3.6 No Action Alternative

Under this alternative, current activities would continue on NAFB. There would not be any short term construction impacts due to the construction of the pipeline or storage tanks. The operational emissions of the storage tanks would remain at the current levels since there is no estimated increase in fuel throughput.

4.4 Biological Resources

Informal consultation under Section 7 of the ESA is currently on-going between Nellis AFB and the USFWS. It is anticipated at this time that, due to the low quality desert habitat in the project area (Appendix C), and due to the absence of any desert tortoises or their sign, that the USFWS will concur with a finding of “no effect” to species listed under the ESA.

4.4.1 Preferred Pipeline Route: Alternative A

Under this pipeline route alternative, direct impacts to biological resources would occur as a result of the loss of 0 to approximately 0.32 acre of previously undisturbed desert habitat, depending on the tank storage facility alternative selected (see Section 2.2.1). The remainder of the pipeline route Alternative A would occur on previously graded or developed land, devoid of native vegetation. These areas represent marginal desert tortoise habitat. Because this is marginal desert tortoise habitat, and because the extent of undisturbed habitat affected by implementation of this alternative would be limited, impacts to biological resources from the construction and operation of the preferred Alternative A pipeline route would be negligible.

4.4.2 Pipeline Route: Alternative B

Under this alternative, direct impacts to biological resources would occur as a result of the loss of approximately 13.26 to 13.58 acres of undeveloped desert habitat, depending on the

storage tank facility alternative selected (see Section 2.2.2). This habitat is considered marginal for the desert tortoise. The remainder of the pipeline route Alternative B would be constructed on previously graded or developed land, devoid of native vegetation. Impacts to biological resources, based on the extent of habitat disturbed, would be greater than those that would result from the implementation of Alternative A.

4.4.3 Storage Facility Alternatives

The storage tank facility alternatives and associated 6-inch pipeline from the new facility to the ESOS are variously placed within 0.5-mile east of the ESOS. The area of desert habitat that would be impacted by the implementation of various alternatives is presented in Section 2.2.3. The implementation of Alternatives TF#1 and TF#2 would impact approximately 1.61 acres of habitat each. The implementation of TF#3 (the preferred storage tank alternative) and TF#4 would not affect land serving as desert habitat due to the fact that they would be built on previously disturbed land. Implementation of the Alternative TF#5 would also impact approximately 1.61 acres of desert habitat (see section 2.2.3).

Installation of the 6-inch pipeline that would run to the ESOS from any of the storage tank facility alternatives would bring construction activities close to the area where a burrowing owl was sighted (Section 3.4.2; Figure 3-1). Potential impacts to the burrowing owl would be minimized by clearance of possible owl burrows by a qualified biologist prior to the initiation of construction, should construction take place during the nesting season (April through June).

In summary, impacts to biological resources resulting from the construction and operation of the storage tank facility preferred Alternative TF#3, as well as Alternative TF#4, would result in no impact to relatively undisturbed desert habitat. Implementation of Alternatives TF#1, TF#3 or TF#4 would each affect approximately 1.61 acres of lands that can be characterized as desert habitat. Implementation of any of the storage tank facility alternatives have the potential to affect the burrowing owl, which would be minimized by burrow clearance prior to construction. Habitat in the vicinity of the storage tank facility alternatives is considered marginal desert tortoise habitat, and therefore potential impact to the desert tortoise resulting from the implementation of any of these alternatives would be negligible. Calnev construction personnel would be trained in desert tortoise awareness and avoidance. Because this is low quality desert tortoise habitat, biological monitoring for desert tortoise would not be conducted.

4.4.4 No Action Alternative

Under this alternative, no impacts to biological resources would occur.

4.5 Cultural Resources

As noted in Section 3.5, the SHPO has concurred that no archaeological or cultural properties exist within the project area. Therefore, implementation of either of the pipeline route alternatives, or any of the storage tank facility alternatives, would not impact cultural resources. Adoption of the no action alternative would also have no impact on cultural resources.

4.6 Earth Resources

Soil-disturbing activities consisting of pipeline trenching and grading during construction would occur under any of the action alternatives. Emplacement of the 8-inch pipeline (pipeline route Alternatives A and B), and the 6-inch pipeline leading to the ESOS from any of the storage tank facility alternatives, would involve the excavation of soil 6 to 8 feet below the ground surface.

4.6.1 Pipeline Route Alternatives

Trenching for the implementation of either the preferred pipeline route Alternative A, or pipeline route Alternative B, would occur adjacent to the existing 6-inch pipeline for approximately 7,000 feet. There is a possibility of encountering impacted soil along pipeline route Alternatives A or B, where some sites are undergoing active remediation or investigation (Figure 3-1). As noted in Section 2.1, a plan to recover and properly dispose of contaminated soils will be developed and implemented should they be encountered. Implementation of any of the action alternatives would also involve stockpiling of soil during pipeline installation. Stockpiles will be treated with a soil stabilizer to minimize the generation of dust or sediment runoff.

Preferred Pipeline Route: Alternative A

The remainder of Alternative A pipeline route after it diverges from the existing fuel line ROW, is within an area of undisturbed soils approximately 1,000 to 2,000 feet east of the existing 6-inch fuel pipeline. No additional impacts to soils, with the exception of temporary disturbance from trenching and fill operations, would be expected to occur from the implementation of the preferred pipeline route Alternative A.

Pipeline Route: Alternative B

The remainder if pipeline route Alternative B, after diverging from the existing fuel line ROW, is within an area of undisturbed soils approximately 4,000 to 5,000 feet east of the existing 6-inch fuel pipeline. No additional impacts to soils, with the exception of temporary disturbance from trenching and fill operations, would be expected to occur from the implementation of pipeline route Alternative B.

4.6.2 Storage Tank Facility Alternatives

The storage tank facility alternative sites TF#1 through TF#5 are all located in an area where no known soil contamination has occurred. Grading and trenching that would be associated with the implementation of any of the tank facility alternatives are not expected to impact soils, with the exception of the temporary disturbance of soils associated from that excavation. The amount of temporary soil disturbance would generally vary in proportion to the length of the 6-inch pipeline leading from the alternatives to the ESOS. This would be the least disturbance for storage tank facility Alternative TF#4, and the greatest disturbance for Alternative TF#1.

Under any of the action alternatives, there would be soil disturbance from construction activities. The storage tank facility alternative would be located within 2,750 feet of the ESOS area. Thus, this area would be developed for the purposes of industrial use. There

would be little impact to the soils where the three aboveground tanks would be cited. The one underground tank would require earthwork where the removed soil would probably be stockpiled or used as fill. No impacts to the soils are expected to occur because this area has had minimum disturbance in the past. Alternative Tank Facility sites TF#1, TF#2, TF#3, and TF#5 would be aboveground tanks, while TF#4 would be underground.

4.6.3 No Action Alternative

Under this alternative, current activities on the Nellis AFB and surrounding properties would continue as in the past. Impacts to the potential mineral resources in the area are not expected under this alternative.

4.7 Water Resources

4.7.1 Groundwater and Water Quality

Groundwater occurs in the alluvial valley fill at a depth of approximately 40 to 70 feet bgs across the pipeline route, and generally flows to the east or southeast. This shallow groundwater is not generally used as a source of potable water. Principal aquifers are considered to be more than 200 feet deep within the valley fill. Groundwater from the deeper principal aquifer is considered to be generally suitable for domestic, agricultural, and industrial uses. The near-surface aquifer is impacted at several IRP sites in the vicinity of the pipeline route.

For all the action alternatives, an approved Spill Prevention Control and Countermeasures (SPCC) plan would be in place to minimize the possibility of releases to the environment, including groundwater and surface waters, of any substances that would adversely impact water quality.

Preferred Pipeline Route: Alternative A

The replacement of the 12- to 14-year old existing 6-inch, fiberglass reinforced plastic pipeline with a polyolefin coated steel pipeline would reduce the possibility of fuel releases to the environment and potentially to groundwater. The Alternative A pipeline route is at least a mile from currently used potable water supply wells. The Alternative A pipeline route is within ¼-mile of Nellis AFB well #5, a former potable water supply well that is currently used only for irrigation due to arsenic concentrations above Maximum Containment Levels (MCLs). Implementation of the preferred pipeline route Alternative A would have no adverse impact on groundwater resources.

Pipeline Route: Alternative B

Pipeline route Alternative B is at least a mile from currently used potable water supply wells. The Alternative B pipeline route is adjacent to Nellis AFB well #3, within ¼-mile of Nellis AFB well #5, and within 1 mile of wells #2 and #4. These are former potable water supply wells that are currently used only for irrigation due to arsenic concentrations above MCLs. Construction of the Alternative B pipeline route would have no adverse impact on groundwater resources.

Storage Tank Facility Alternatives

Implementation of any of the aboveground tank alternatives, including TF#3, the preferred storage tank facility alternative, would facilitate leak detection and containment, compared to the underground storage tank alternate TF#4. Implementation of any of the aboveground storage tank facility alternatives would have no adverse impacts to groundwater resources.

No Action Alternative

The no action alternative would have no direct adverse impact on groundwater resources or quality. However, the potential for the existing fiberglass reinforced plastic pipeline to be a source of fuel releases to soil and groundwater would increase over time as the existing pipeline ages.

4.7.2 Surface Water and Flood Control

Surface drainage across Area I of Nellis AFB is to the southeast, entering the East Branch of the Range Wash, which drains south-southwest to Las Vegas Wash. The eastern portions of the pipeline alternatives are located adjacent to or within in the broad, shallow, and normally dry drainage way of the East Branch of the Range Wash. Drainage at the western portion of Nellis AFB is collected by a storm drain system that discharges by surface flow to the south to join the East Branch of the Range Wash.

Operation of the new underground pipeline would have no effect on surface water in the vicinity. Appropriate permits and plans would be obtained and followed for storm water pollution prevention during construction of any of the action alternatives. This will include the development and implementation of a SWPP incorporating BMPs to minimize any potential storm water generated pollution.

Effects of constructing the pipeline and storage areas included with this project on groundwater and surface water are considered to be minimal. The replacement of the 12- to 14-year old existing 6-inch fuel pipeline would remove a possible source of fuel release to the environment and, potentially, to groundwater. The new underground pipeline would have no effect on surface water in the vicinity, after the transient disturbance during construction. Appropriate permits and plans would be obtained and followed for stormwater pollution prevention during construction. The burial depth of the pipeline and the cover material would be planned to accommodate possible surface water flows in the Range Wash. Effects of the different alternatives are discussed more specifically below.

Preferred Pipeline Route: Alternative A

The proposed action would have no adverse impact on surface water quality or flood control after the transient disturbance during construction. Implementation of Alternative A would entail the crossing of four drainages that are tributaries to Range Wash and are considered for the purpose of this analysis to be WUS. Prior to disturbance of WUS, their extent would be delineated, the U.S. Army Corps of Engineers (ACOE) would be consulted regarding that delineation, and the appropriate permit for conducting construction activities within WUS would be obtained. Measures to minimize impacts to WUS would be developed and implemented as part of this effort.

Pipeline Route: Alternative B

The proposed Alternative B would have no adverse impact on surface water quality or flood control after the transient disturbance during construction. Installation of the new underground pipeline in disturbed but undeveloped areas of Nellis AFB would not affect the East Branch of the Range Wash or the existing and proposed flood control basins that are discussed in the EBS.

Implementation of Alternative B would involve three crossings of tributaries to Range Wash that are considered for the purpose of this analysis to be WUS. Prior to disturbance of WUS, their extent would be delineated, the ACOE would be consulted regarding that delineation, and the appropriate permit for conducting construction activities within WUS would be obtained. Measures to minimize impacts to WUS would be developed and implemented as part of this effort.

Storage Tank Facility Alternatives

Enactment of any of the storage tank facility alternatives would have negligible impact on surface water quality or flood control after the transient disturbance during construction. The aboveground alternatives (TF#1, TF#2, TF#3, and TF#5) would allow greater ease of leak detection and containment compared to the underground storage tank option (Alternative TF#4).

In general, the area where the storage tank facility alternatives are sited lies to the northwest of the Range Wash drainage systems, and build out of any of these alternatives would not affect WUS.

No Action Alternative

The no action alternative would have no direct adverse impact on surface water quality or flood control after the transient disturbance during construction; however, the potential for the existing pipeline to be a source of fuel releases may increase over time as the existing pipeline ages.

4.8 Utilities

There are multiple existing underground utilities near the pipeline route, both within Nellis AFB and in off-site properties. Figure 3-1 shows potential utility conflicts where existing utilities are located next to, or cross, the proposed pipeline route alternatives.

4.8.1 Pipeline Route Alternatives

Effects Common to Both Pipeline Route Alternatives

As noted previously, both pipeline route Alternatives A and B follow the same course from the Las Vegas Terminal to the area northeast of the flight line before they diverge. Both alternative routes converge again east of the area where the storage tank facility alternatives would be located, immediately west of Hollywood Boulevard (Figures 1-1, 3-1). Utilities that would be in close proximity, or be crossed, by either pipeline route alternative include the following:

- Underground electrical conduits run along pipeline route Alternatives A and B at Hollywood Boulevard, east of where the tank storage facility alternatives are proposed
- A wastewater line that carries treated groundwater from the Area III remediation system crosses the pipeline route alternatives in Area I, and possibly in Area III
- A 12-inch water supply pipeline is located next to the pipeline route alternatives, south of and parallel to Ellsworth Avenue, west of the Nellis AFB flight line
- A 12-inch and/or an 8-inch water supply line parallels the south side of Ellsworth Avenue to the north of the runways
- Electrical and communications lines that cross the proposed ROW in common to pipeline route Alternatives A and B include the following:
 - Communications and electrical lines in the vicinity of Range Road and the Las Vegas Terminal
 - Electrical conduit and communications lines northeast of the instrument runway (eastern runway)
 - Along and south of the turn in Hollywood Boulevard, east of the ESOS

In addition, a new EOD facility north of the flight line and Ellsworth Avenue is currently planned, and utilities serving that facility would cross the proposed 8-inch pipeline ROW (Figure 3-1).

Preferred Pipeline Route: Alternative A

Underground electrical conduit(s) that supply power to runway navigational aids and the instrument landing system would cross pipeline route Alternative A in the vicinity of the runways. Underground electrical conduit(s) that supply power to the USDOE RSL lighting also cross pipeline route Alternative A south and east of the RSL, east of the runways (Figure 3-1). Electrical and communications lines also parallel the north-south portion of Hollywood Boulevard in proximity to this pipeline route alternative.

An 8-inch sanitary sewer line runs north-south along the pipeline route Alternative A, south of the Hollywood Boulevard guard gate, and east of the LOLA aprons. This line is located on the east side of Hollywood Boulevard. A 24-inch reinforced concrete pipe underground storm drain is located parallel to pipeline route Alternative A along Ellsworth Avenue, to the west and north of the Nellis AFB runways.

A 12-inch water supply line crosses pipeline route Alternative A after the proposed route turns south from Ellsworth and Minot Avenues, northeast of the runways.

Implementation of the planning and permitting measures prior to construction, and the project-specific safety program as described in Section 2.1, would minimize the potential for adverse impacts arising from the implementation of the preferred pipeline route Alternative A.

4.8.2 Pipeline Route: Alternative B

Because pipeline route Alternative B extends farther into undeveloped land to the east (Figure 3-1), it would have fewer potential utility conflicts than pipeline route Alternative A.

Utilities that are in close proximity to pipeline route Alternative B alone include an 8-inch sanitary sewer line east of an unpaved north-south road, parallel to the easternmost portion of the Alternative B, and a 6-inch water supply line also parallel to that road, on its west side (Figure 3-1).

Implementation of the planning and permitting measures prior to construction, and the project-specific safety program as described in Section 2.1 would minimize the potential for adverse impacts arising from the implementation of pipeline route Alternative B.

4.8.3 Storage Tank Facility Alternatives

All storage tank facility alternatives would be located in undeveloped areas east of the ESOS area at the terminus of the proposed new pipeline. The 6-inch pipeline that would lead from the storage tank facility to the ESOS would be installed in proximity to the existing 6-inch fuel pipeline, communications lines, and electrical lines. Utilities including electricity, communications lines, and water (fire fighting water) also need to be extended above or below ground to the selected storage location alternative. Implementation of the planning and permitting measures described in Section 2.1 would occur prior to construction, and reduce the potential for utilities conflicts to a negligible level.

4.8.4 No Action Alternative

Under the no action alternative, no new utilities would be required and there would be no impacts to or conflicts with existing utilities.

4.9 Hazardous Materials and Items of Special Concern

Since Nellis AFB began operations, various hazardous materials and fuel products have been used to support the various military programs. Section 3.9 provides a review of hazardous materials and items of concern, and Nellis AFB methods to address them in the dig permit process. The Alternative A route (and the western portion of the Alternative A route that is common with Alternative B) passes through the most industrial and developed portion of the pipeline route and has the greatest potential for discovery of petroleum-impacted soil or soil vapor during construction.

The proposed 8-inch fuel pipeline route would:

- Cross portions of the Las Vegas Terminal facilities and run near other properties with similar uses. These areas have the potential for past fuel releases to soil.
- Cross two active ERP sites (ST-27 and SS-46). These are areas of known groundwater impacts (at a depth of 40 feet or more below ground surface) and present the potential for impacts to soil or release of hazardous soil vapor during the pipeline excavation.
- Parallel the existing 6-inch fuel pipeline. The existing pipeline is a potential source of fuel release to soil.
- Cross inactive IRP sites that present the potential for non-hazardous construction debris to be encountered during excavation.

- Cross or run adjacent to areas where surface past surface dumping was observed and there is the potential for ACM (such as Transite® pipe) to be encountered in the excavation.
- Cross the Nellis AFB munitions haul route between Nellis AFB Area II and Nellis AFB Area I.

As noted above, the two active ERP sites, ST-27 and SS-46, present a potential for the presence of soil or soil vapor impacts. Items of special concern also include hazards related to the following typical construction-related activities, and are among those that would be addressed by project-specific safety plan(s):

- Trench-and-fill construction,
- Construction activities at the Calnev terminal and adjacent fuel storage,
- Construction and traffic control near active streets, including Las Vegas Boulevard, Range Road, Sloan Lane, and roadways within Nellis AFB,
- Pipeline, AST, and UST construction,
- Health and safety procedures in the event of a fuel product spill or release, and
- The dig permit process and clearing and spotting during excavation near existing underground and overhead utilities.

Construction safety actions to minimize or avoid these potential impacts would include screening for the presence of stained soil or odor that could indicate soil impacts. Air monitoring would be used as a follow up to discovery of stained soil or odors. Site safety procedures would include enforcing safety zones ranging from hardhat/steel toe/safety glass areas under level D operations, to appropriate exclusion and decontamination zones should environmental hazards be encountered.

If debris is encountered and appears to be possible ACM, the suspect ACM would be tested and be properly prepared and disposed, with documentation of proper disposal. If fuel- or TCE-impacted soils are encountered, they would be properly characterized and disposed, with documentation of proper disposal. On Nellis AFB property this would involve coordination with Nellis AFB EM staff. If discovered, petroleum or hazardous waste impacts to soil or soil vapor at construction areas would require the following actions are necessary: air monitoring, efforts to ventilate the excavation, work by Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) trained personnel, and upgrade to Level C personal protective equipment, including respiratory protection. Additionally, appropriate agency notification or release reporting by the site owner or the project Certified Environmental Manager is required.

Hazardous and fuel wastes are not stored at the pipeline route ('waste' JP-8 is collected from aerial tanker operations, at flight line locations beyond the existing and proposed pipelines, and the JP-8 is recycled). Spills and releases have not occurred at the pipeline route. Four low point drains are present along the existing 6-inch fuel pipeline. They are dry when inspected and have not been the source of fuel waste, according to Nellis AFB Liquid Fuels Management personnel. No OWSs are located at the pipeline route. However, portions of

the pipeline route overlies areas of investigation or remediation for spills from adjacent properties, and these IRP Sites are discussed in Section 3.2 and 3.9.

No onsite solid waste disposal occurs at the pipeline route. Sanitary sewage and wastewaters (i.e., nonhazardous waste streams) generated at the Nellis AFB route are discharged to the public sanitary sewer and treated at an offsite publicly owned treatment works (POTW) facility, CCWRD, beginning in 1972. There is no sanitary wastewater or treatment at the pipeline route. No septic tanks were identified at the pipeline route.

Transformers, PCB-contaminated equipment, and other PCB-contaminated items were not observed during visual inspection at the pipeline route.

No buildings are present on the pipeline route. No indication of lead-based paint or paint pigments on the land surface was observed during the pipeline route inspection conducted for the EBS. The existing 6-inch pipeline was installed circa 1990. Since the existing pipeline is planned to be abandoned in place following new pipeline installation, release of LBP to the environment from the existing pipeline is not expected.

Implementation of any of the action alternatives would include the appropriate planning and permitting activities described in Section 2.1.

4.9.1 Preferred Pipeline Route: Alternative A

The proposed action would cross two sites that are undergoing active remediation or investigation, ERP sites SS-46 and ST-27 in Nellis AFB Area III and Area I. There is potential for additional historical releases to be discovered during excavation for pipeline construction.

The project would increase the maximum fuel pumping rate (up to double the capacity of the existing pipeline) and add 840,000 gallons of fuel storage near the ESOS. This additional fuel system capacity would likely increase the volume of fuel that is recycled from flight line maintenance activities and aerial tanker operations.

The project would involve the possible discovery of additional soil impacts that may require limited remedial excavation during construction. Identification of potential fuel releases from the existing pipeline or adjacent Nellis AFB and off-Nellis AFB operations, and replacement of the older existing pipeline, are considered positive impacts of the proposed action. Implementation of the safety measures described in Chapter 2 would reduce potential impacts resulting from the implementation of the preferred pipeline route Alternative A.

4.9.2 Pipeline Route: Alternative B

The eastern extension of the pipeline route in Alternative B would not cross sites undergoing active remediation or investigation. Therefore, and with the implementation of the planning, permitting and safety measures described in Chapter 2, implementation of Alternative B would result in negligible impacts.

4.9.3 Storage Facility Alternatives

The underground tank storage alternative TF#4 may present greater potential for adverse impacts because leak detection and spill containment is inherently more difficult for underground storage facilities. All storage tank facility alternatives would involve the installation of a 6-inch pipeline to the ESOS, and this would be installed close to the existing fuel pipeline for part of its route near the ESOS for all alternatives except the preferred alternative TF#3 (Figure 3-1). Therefore, impacts resulting from the implementation of the preferred alternative TF#3 will be somewhat less than those resulting from implementation of any of the other aboveground storage tank facility alternatives (TF#1, TF#2, and TF#5).

4.9.4 No Action Alternative

The conveyance and storage of fuel products, and the generation and storage of fuel and hazardous wastes, would not change under the no action alternative. The probability of a release of fuel from the existing pipeline would increase over time. There would be no potential for the exhumation of historical fuel-affected soils under the no action alternative.

4.10 Environmental Justice

A significant impact to environmental justice occurs if the Proposed Action or Alternatives place a disproportionate amount of adverse environmental, economic, social or health impacts on minority, elderly or low-income populations.

4.10.1 Preferred Pipeline Route: Alternative A

The Proposed Action Pipeline Route Alternative A would not place a disproportionate amount of adverse environmental, economic, social or health impacts on minority, elderly or low-income populations.

4.10.2 Pipeline Route: Alternative B

The Pipeline Route Alternative B would not place a disproportionate amount of adverse environmental, economic, social or health impacts on minority, elderly or low-income populations.

4.10.3 Storage Facility Alternatives

The Storage Facility Alternative would not place a disproportionate amount of adverse environmental, economic, social or health impacts on minority, elderly or low-income populations.

4.10.4 No Action Alternative

The No Action Alternative would not place a disproportionate amount of adverse environmental, economic, social or health impacts on minority, elderly or low-income populations.

SECTION 5

References

CH2M HILL. 2004. Site-Specific Environmental Baseline Survey for JP-8 Pipeline Route, Nellis Air Force Base, Las Vegas, Nevada. Henderson, NV.

Clark County. 2003. Department of Comprehensive Demographics summary. www.co.clark.nv.us/comprehensive_planning/advanced/Demographics/popbroch2003

Mozingo, Hugh N. and Margaret Williams. 1980. Threatened and Endangered Plants of Nevada. U.S. Fish & Wildlife Service and Bureau of Land Management. Portland, OR.

National Oceanic and Atmospheric Administration (NOAA). 2004. *Climate of Las Vegas, Nevada*. <http://www.wrh.noaa.gov/Lasvegas/climate/index>.

Nellis Air Force Base. 2002. *General Plan, Nellis Air Force Base – Nevada: Volume II Area Development Plan Conceptual Studies*. Nellis AFB, Nevada.

Nevada Development Authority. 2003. *Las Vegas Perspective 2002*. Nevada development Authority, Las Vegas, Nevada.

RECON. 2000. *Final Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement*. Clark County Department of Comprehensive Planning, Las Vegas, Nevada.

Nevada DETR (Departments of Employment, Training and Rehabilitation). 2002. <http://detr.state.nv.us>

U.S. Census Bureau. 2002. *Census 2000*. www.census.gov.

SECTION 6

List of Preparers

Marjorie Eisert	Project Management
Fred Turnier*	Planning, Project Management
Bob Turner*	EA Manager; Biology; Cultural Resources
Jay Piper	Soils and Geology, Hazardous Materials, Project Management
Stephen Sands	Air Quality
Scott Hall*	Socioeconomics; Land Use; Water Resources
Sean Collier	Geographic Information Systems; Mapping
Holly Agustin	Word Processing
Robin Dewey	Editing
Geof Spaulding	Senior Review, Compilation
Rick Thornton	Editing

* Formerly CH2M HILL

SECTION 7

Consultation and Coordination

Calnev Pipeline, L.L.C., an Operating Partnership of Kinder Morgan Energy Partners, L.P.

Greg Coppola – Project Engineer
David Cornman - Director, Project Permitting
Elisha Back – Program Administrator

Nellis Air Force Base

Col. Michael P. Norris, 99th Air Base Wing Vice Commander
Col. David L. Oles, 99th Air Base Wing Vice Commander
Chief Master Sergeant Whittaker, Liquid Fuel Management
Jim Campe, NEPA Program Manager CES/CEV
Bill Sandeen, Land Manager CES/CEV
Larry Calhoun, Liquid Fuel Management
Joe Hart, NAFB Community Planner CES/CECP
Shimi Matthews, Air Quality Manager

SPEC Services

Fernando Orozco – Construction Engineer

Sun Engineering Services, Inc.

Lee Mandley – Project Engineer

APPENDIX A

AF Form 813 – Executed by NAFB

Note

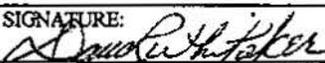
The project description attached to the AF Form 813 was that used for initial scoping purposes, and is superceded by that found in Chapter 2 of this Environmental Assessment.

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS

Report Control Symbol
RCS:

INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).

SECTION I PROPONENT INFORMATION

1) TO: (Environmental Planning Function)	2) FROM:	2a) Telephone No.:
99 CES/CEV		
3) TITLE OF PROPOSED ACTION: Nellis Air Force Base Liquid Fuel System Upgrade		
4) PURPOSE AND NEED FOR ACTION: (Identify decision to be made and need date) See Item No. 1, Attachment 1		
5) DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action) See Item No. 2, Attachment 1		
6) PROPONENT APPROVAL: (Name and Grade)	6a) SIGNATURE: 	6b) DATE: 6 Oct 03

SECTION II PRELIMINARY ENVIRONMENTAL SURVEY (Check appropriate box and describe potential environmental effects including cumulative effects) (+ = Positive Effect; 0 = No Effect; - = Adverse Effect; U = Unknown Effect)	+	0	-	U
7) AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)				
8) AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)				
9) WATER SOURCES (Quality, quantity, source, etc.)				
10) SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, etc.)				
11) HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)				
12) BIOLOGICAL RESOURCES (Wetlands/floodplains, flora, fauna, etc.)				
13) CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)				
14) GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)				
15) SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)				
16) OTHER (Potential impacts not addressed above)				

SECTION III ENVIRONMENTAL ANALYSIS DETERMINATION

17) PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; or
 PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED

18) REMARKS:

19) ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION: (Name and Grade) 19a) SIGNATURE: 19b) DATE:

ATTACHMENT 1

AF Form 813 for Nellis Air Force Base Liquid Fuel System Upgrade

ITEM No. 1- PURPOSE & NEED

Project Background

Nellis Air Force Base (NAFB) and its associated Range Complex are an integral part of the training and readiness missions of the United States Air Force (USAF). The Nellis Air Force Base (NAFB) flight line is active year-round servicing and refueling military aircraft of all types. The Nellis Range Complex serves as the largest live-fire range available for military training in the United States and NAFB is the chief facility supporting this training mission. As an essential part of the overall NAFB flight line support infrastructure, the refueling system must be capable of meeting current and future demand, and be efficient and reliable. Aviation fuel (JP-8) is received from Kinder Morgan's Las Vegas Calnev Terminal northwest of NAFB. This terminal receives JP-8 from the Calnev interstate pipeline, and then transports it via a pipeline system to the NAFB flight line. In an area called the East Side Operations Storage (ESOS), JP-8 fuel is stored in four existing 25,000 gallon aboveground storage tanks with a total capacity of 47,400 barrels (1,990,800 gallons). Attached bulk storage fillstands are utilized to fill commercial tanker trucks and government refuelers, which in turn, carry the JP-8 to fuel the aircraft on the flight line.

The liquid petroleum pipeline follows the Calnev Terminals east and south property lines to where it exits on to Range Road. The existing line travels south on Range Road and then turns east at the military tank facility. The existing line travels east to Las Vegas Boulevard where it goes under Las Vegas Boulevard and enters onto Nellis Air Force Base. The existing six inch pipeline then follows the existing perimeter road along the west and north sides of the flightline. The existing pipeline travels approximately 3,500 feet in an easterly direction along the north side of the flightline and then turns south/southeast along the eastern flightline. The existing pipeline travels in a south/southeast direction along the eastern flightline and west of the Department of Energy (DOE) Ramp. The existing pipeline then continues in a south/southwest direction west of the Live Ordnance Loading Area (LOLA) and east of the Bomber Pads and Revetments to the ESOS.

The ESOS refueling facility was designed to conduct refueling operations for the initial 13 Jet Refueling Revetments constructed on the flight line in 1990. Jet

This math doesn't work

*East side
100,000 gal
2381 bbl*

Someone is not well inf

There is a gage of total capai and on 4 Eastside founded

ATTACHMENT 1

AF Form 813 for Nellis Air Force Base Liquid Fuel System Upgrade

Refueling Revetments (hot pads) provide for rapid turnaround time for refueling fighter aircraft. There now are 25 hot pads and three large-frame bomber-fueling points along the eastern flightline. The revetments draw fuel from the east fuel storage's tanks.

NAFB also has three fillstand systems (Bulk Storage, North Fuel Yard and South Side). The bulk-storage fillstands are utilized to fill commercial tanker trucks and government refuelers. The North Fuel Yard consists of five issue points supplied by three 50,000 gallon underground storage tanks (UST). The South Side fillstand consists of four issue points, supplied by one 25,000-gallon aboveground storage tank (AST).

R-11 tanker trucks refuel wide-body aircraft. In a typical situation, one R-11 tanker is refueling an aircraft, a second full tanker is in route to the aircraft, while a third tanker is returning to the fuel yard.

Purpose And Need

The purpose of the proposed project is to increase the refueling capacity and the reliability of the ESOS facility. This will be achieved by installing a new eight-inch diameter liquid petroleum steel pipeline to deliver JP-8 from the Calnev Terminal, and by constructing a new fuel-holding facility near the ESOS. The new pipeline would replace the six-inch pipeline between the Calnev Terminal and the existing storage facility, and the six inch fiberglass pipeline between the storage facility and ESOS. The new pipeline will be constructed from the Calnev Terminal to the existing storage facility and then to the new tank storage facility. The installation of the new eight-inch pipeline and tank storage facility will enable increased turnaround times for the tanker trucks refueling aircraft, enhancing aircraft refueling efficiency.

The need for this project is the result of the increased demands placed on the ESOS to service a larger number of aircraft. As the use of the ESOS has increased, there is need as well for increased reliability. Using R-11 tanker trucks for large frame refueling requires an efficient fueling loading process to minimize the turnaround time of the tanker trucks to awaiting aircraft. For safety reasons, the tanker trucks are not parked close to the flight line fuel yard, and it currently takes 18 minutes for a tanker to travel from the flight line fuel yard to the bulk storage fillstands.

*No fillstands
are go in.
Revetments use
to fill trucks
The system
is true*

ATTACHMENT 1

AF Form 813 for Nellis Air Force Base Liquid Fuel System Upgrade

Installation of a larger diameter fuel pipeline, two new 420,000-gallon tanks, and a new hydrant system pumphouse will enhance aircraft refueling efficiency by decreasing tanker turnaround times and overall workload. The presence of the new storage tanks in the vicinity of the ESOS will provide added system reliability by providing an increased storage capacity immediately adjacent to the ESOS, reducing immediate dependency on continual flow from the Las Vegas Calnev Terminal.

ITEM No. 2- DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Project Description

Nellis Air Force Base (NAFB) receives its bulk JP-8 jet fuel from the Las Vegas Terminal located just north of the base's bulk Jet Fuel Storage tanks. Storage facilities consist of four large-capacity jet-fuel tanks with a total capacity of 47,400 barrels (1,990,800 gallons) of JP-8. The JP-8 is pumped through a six-inch liquid petroleum pipeline to re-supply the East Fuel Storage and South Side Fillstand. The current existing six-inch liquid petroleum pipeline follows the Calnev Terminal (Figure 1) east and south property lines to where it exits on to Range Road (Figure 2). The existing line travels south on Range Road, and then turns east at the military tank facility. The new pipeline route will follow the existing six-inch pipeline south on Range Road to the existing storage facility. The pipeline will then turn east and will cross under Las Vegas Boulevard and enter the base. The existing pipeline travels in a south/southeast direction along the eastern flightline and west of the Department of Energy (DOE) Ramp. The existing pipeline then continues in a south/southwest direction west of the Live Ordnance Loading Area (LOLA) and east of Bomber Pads and Revetments to the East Side Operations Storage (ESOS).

The proposed route will follow along the Calnev Terminal's east and south property lines, where it will exit on to Range Road. The route will follow the existing six-inch line Right of Way (ROW) south on Range Road, and then turn east at the military tank facility. A bored crossing will be installed across Las Vegas Boulevard going into NAFB. On NAFB property, the route will follow the existing perimeter road along the west and north sides of the flightline, with the pipeline installed under the roadway. At the point where the existing six-inch pipeline turns south, the proposed new eight-inch pipeline will continue in an east-southeast direction an additional 2,000 feet before turning south toward the

ATTACHMENT 1

AF Form 813 for Nellis Air Force Base Liquid Fuel System Upgrade

new tank facility. The pipeline will follow existing roadways to the new tank facility. This southern section of the pipeline will be installed in dirt adjacent to the existing road.

The new proposed pipeline will terminate at the new tank facility. Upon completion of the installation of the new eight-inch pipeline, the existing six-inch pipeline will be abandoned in place. The proposed action will enhance aircraft refueling efficiency, enabling shortened return times for tanker trucks, promote overall workload efficiency and augment the ESOS storage capacity.

The need for this project is the result of the increased demands placed on the ESOS to service a larger number of aircraft. As the use of the ESOS has increased, there is need as well for increased reliability. The ESOS was originally designed to conduct refueling operations for the initial 13 Jet Refueling Revetments constructed on the flight line in 1990. Currently there are 25 revetments in addition to three large-frame bomber-fueling points with two outlets per parking spot, along the eastern flight line.

Jet Refueling Revetments (hot pads) provide for rapid turnaround time for refueling fighter aircraft. There now are 25 hot pads and three large-frame bomber-fueling points along the eastern flightline. The revetments draw fuel from the East Fuel Storage's four 25,000-gallon aboveground storage tanks.

Nellis Air Force Base also has three fillstand systems (Bulk Storage, North Fuel Yard, and South Side). The bulk-storage fillstands are utilized to fill commercial tanker trucks and government refuelers. The North Fuel Yard consists of five issue points supplied by three 50,000-gallon underground storage tanks (UST). The South Side fillstand consists of four issue points, supplied by one 25,000-gallon aboveground storage tank (AST).

R-11 tanker trucks refuel wide-body aircraft. In a typical situation, one R-11 tanker is refueling an aircraft, a second full tanker is in route to the aircraft, while a third R-11 tanker is returning to the fuel yard.

Under the proposed action, a new eight-inch liquid petroleum pipeline will be installed from the Calnev Terminal to a new holding facility located on NAFB (Figure 1). Installation will be accomplished by mechanically trenching with the new pipeline right-of-way (ROW), and burying the pipeline to a depth of 6 to 8 feet below ground surface. Staging for construction material and equipment will

ATTACHMENT 1

AF Form 813 for Nellis Air Force Base Liquid Fuel System Upgrade

be off base on the grounds Kinder Morgan's Las Vegas Terminal. The following equipment will be used to accomplish this construction:

Equipment required for pipeline trenching and installation

Number	Description
1	Backhoe
1	Stringing Truck
1	Bulldozer
1	Water Truck
1	Welding Truck
2	Crew Trucks

Note: All construction vehicle refueling and servicing will be conducted off base at Kinder Morgan's Las Vegas Terminal

Staging of construction material and equipment will be off base on the grounds of Kinder Morgan's Las Vegas Terminal.

Pipeline Route Alternative A

Under Alternative A, the preferred alternative, the pipeline route of the new eight-inch fuel pipeline will be within, and will follow the Calnev Terminal's (Figure 1) east and south property lines, exiting onto Range Road. The new pipeline route will follow the existing six-inch pipeline south on Range Road to the existing storage facility, and then turn east and will cross under Las Vegas Boulevard and enter NAFB. On the north side of the base, the pipeline will follow the existing six-inch pipeline and will be installed under Ellsworth Avenue. On NAFB property, the route will follow the existing pipeline and a perimeter road along the west of the base flightline. At the point where the existing six-inch pipeline turns south, the proposed new eight-inch pipeline will continue in an east-southeast direction an additional 2,000 feet before turning south toward the new tank facility. The new eight-inch pipeline will be approximately 2,000 east and parallel to the existing six-inch pipeline, traveling south and following existing roads down to the new storage tank locations.

The proposed tank farm will consist of two new 420,000-gallon tanks that will be located east of the existing Revetment Tankage Area (the ESOS). These new tanks will be used to fill the four existing 25,000-gallon tanks at the ESOS via the new eight-inch pipeline.

The new proposed pipeline will terminate at the new tank facility. Upon completion of the installation of the new eight-inch pipeline, the existing six-inch

ATTACHMENT 1

AF Form 813 for Nellis Air Force Base Liquid Fuel System Upgrade

pipeline will be abandoned in place. The proposed action will enhance aircraft refueling efficiency, enable shortened return times for tanker trucks, promote overall workload efficiency and augment the East Side Operations Storage (ESOS) storage capacity.

Pipeline Route Alternative B

Under Alternative B, the proposed new eight-inch liquid petroleum pipeline route would follow that of Alternative A up to a point at the extreme northeastern corner of the project area (Figure 1). From there Alternative B would run farther east of the existing route and Alternative A (Figure 1). Alternative B would follow the existing and the preferred alternative route from the Calnev Terminal to the point where the existing pipeline turns south towards the ESOS tanks. From this point, the alternative route would follow the preferred proposed route to the point of where the preferred proposed route would turn south to the ESOS tanks. The alternative route would extend east of this point for approximately 2,250 feet. At this point the alternative route would turn south and extend in a south direction for approximately 5,000 feet. The alternative route will then turn west and extend in a west direction for approximately 2,750 feet, and then turn south again and extending a distance of approximately 2,750 feet in a south direction. At this point, the alternate route will again turn west and extend in a west direction for approximately 2,750 feet, where it will then intersect with the preferred route. From this point, the alternative route will then follow along the preferred route previously described to the new tank facility

Storage Facility Alternatives

The proposed new storage facility will generally be located to the east of the existing ESOS (Figure 1). The new tank facility will contain two new 10,000 barrel tanks which will be used to fill the four existing 25,000 gallon tanks at the ESOS. Four alternative sites are being considered for the new tank facility. These sites vary in range and direction from approximately 250 feet northeast of the ESOS to approximately 2,750 feet northeast of the ESOS. Alternative Tank Facility (TF) #1 is located approximately 2,750 feet northeast of the ESOS, Alternative TF #2, approximately 2,000 feet northeast, Alternative TF #3, approximately 1,250 feet southeast and Alternative TF #4, approximately 250 feet northeast. Alternative TF sites #1, #2, and #3 would be above ground tanks, while Alternative TF #4 would be underground tanks. The tanks will be installed

ATTACHMENT 1

AF Form 813 for Nellis Air Force Base Liquid Fuel System Upgrade

in a containment area complete with dikes, roadway, and a fire protection system, with a new waterline installed from the Revetment area to the tanks for the fire protection system.

A new 500 bb/hr (barrels per hour) transfer pump, ultrasonic flow meter, and eight-inch pipeline would be installed with each of these TF alternatives, connecting the new tank facility to the existing four 25,000 gallon ESOS tanks. In addition, a bypass line will be installed at the receiving tankage so that the Revetment area tanks can be filled directly from the Calnev Terminal if required.

The following equipment will be required to install the new storage facility and ancillary equipment:

Equipment needed for fuel storage tank construction

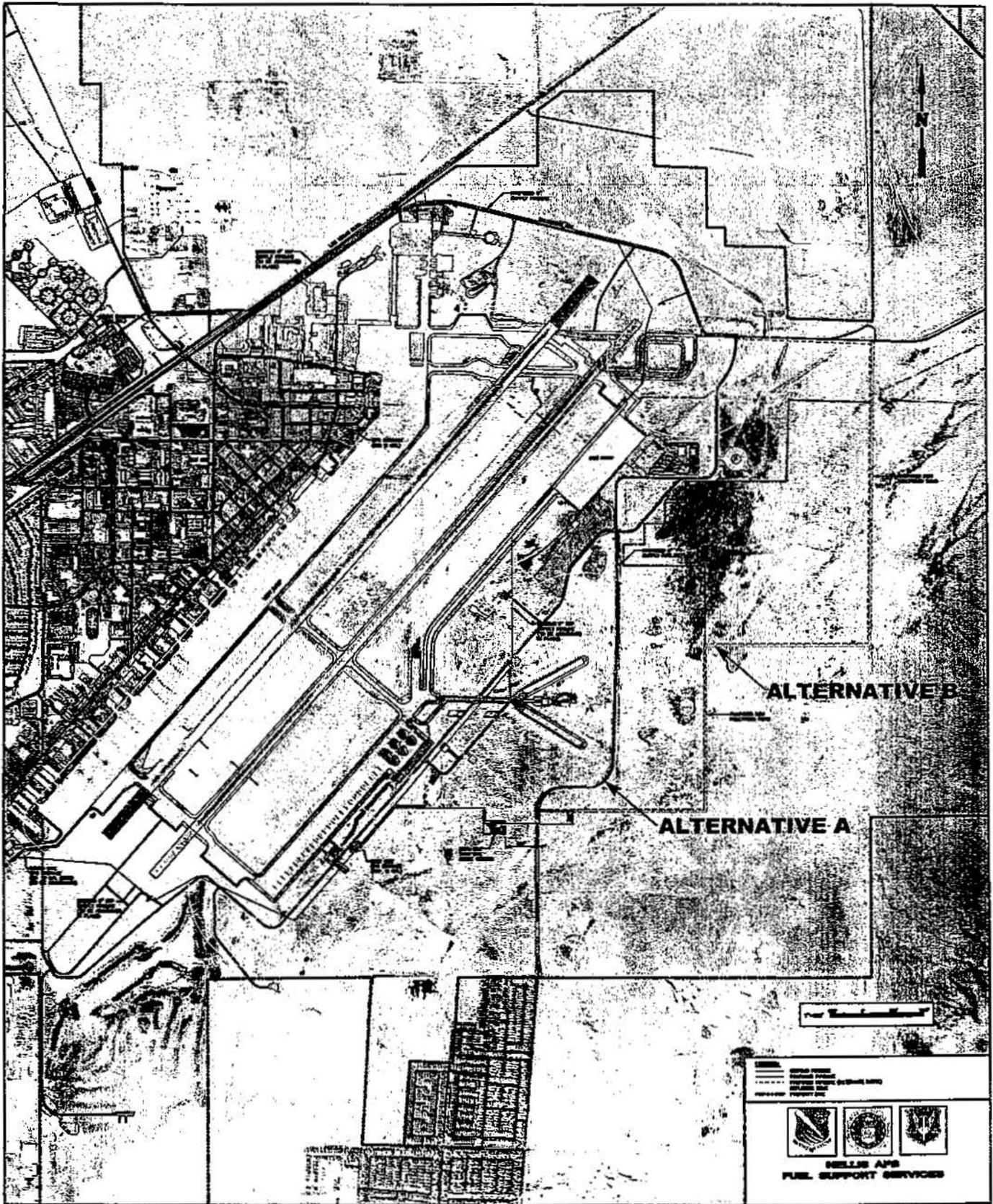
Number	Description
1	Back hoe
5	Cement trucks (maximum present at any one time)
1	Bulldozer
3	Welding Trucks
2	Crew Trucks
1	Construction crane (60 feet)
1	Water Truck

Note: All construction vehicles refueling and servicing will be conducted off base at Kinder Morgan's Las Vegas Terminal

Staging of construction material and equipment will be off base on the grounds of Kinder Morgan's Las Vegas Terminal. Temporary lay-down of construction material will be within the ROW of the storage facility.

No-Action Alternative

Under the No-Action Alternative, a new eight-inch liquid petroleum pipeline and a new tank facility would not be constructed. The existing six-inch liquid petroleum pipeline would continue to be utilized as the principle re-supply line for the ESOS facility. The ESOS facility would remain in place with the four existing 25,000-gallon tanks receiving their fuel re-supply straight from the Calnev Terminal.



PROJECT NAME	DATE	SCALE
PROJECT NUMBER	DATE	SCALE
PROJECT LOCATION	DATE	SCALE
PROJECT STATUS	DATE	SCALE
PROJECT DESCRIPTION	DATE	SCALE

FIGURE 1
FUEL HANDLING FACILITY
NELLIS AIR FORCE BASE


 NELLIS AFB
 FUEL SUPPORT SERVICES

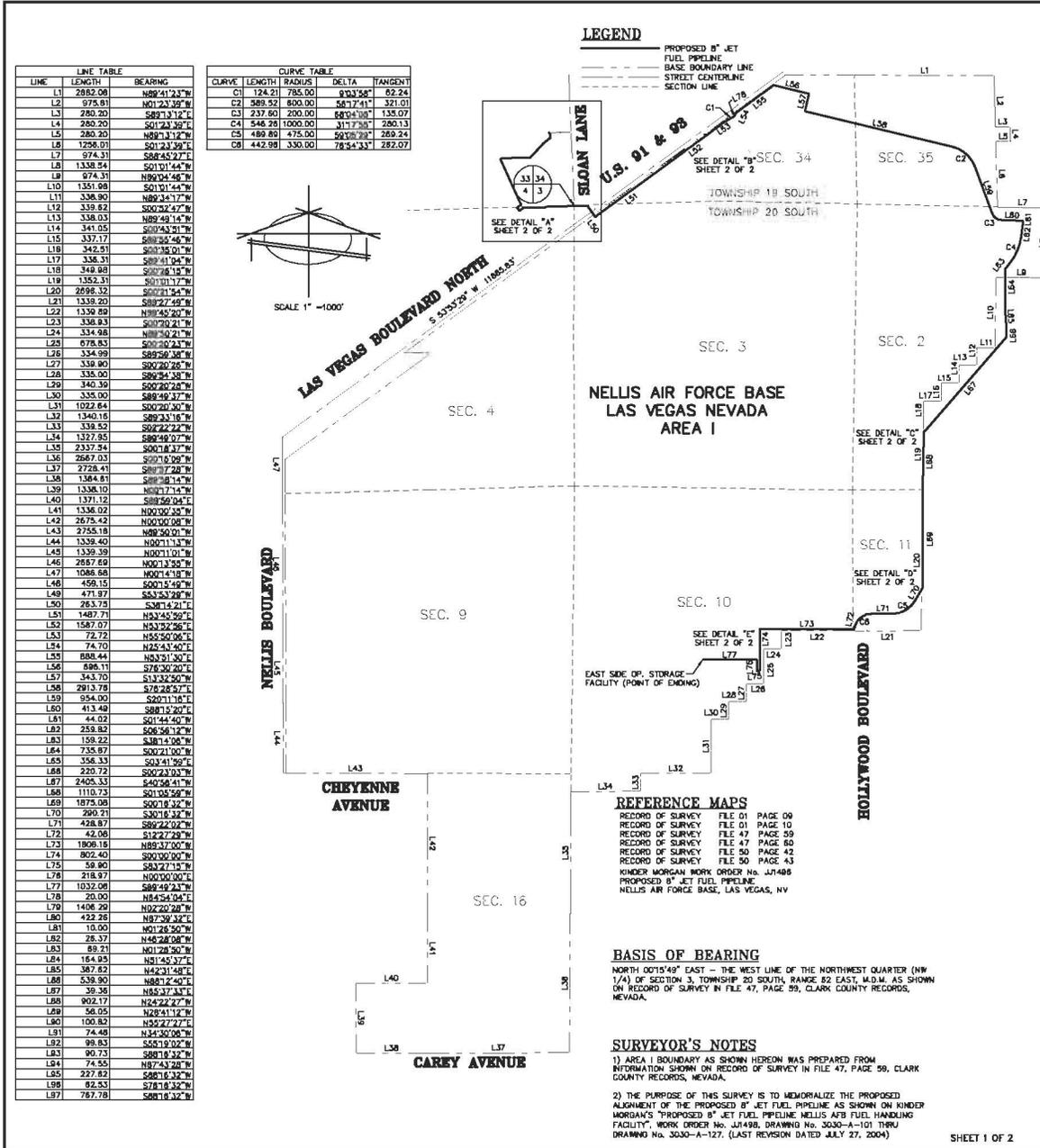
KINDER MORGAN
ENERGY PARTNERS, L.P.

2740-EX-001

APPENDIX B

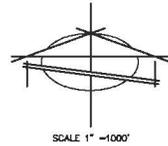
Legal Description of the Project

- 1. COPY TO BE MADE
- 2. TO BE FILED IN THE OFFICE OF THE COUNTY RECORDER
- 3. TO BE FILED IN THE OFFICE OF THE COUNTY ENGINEER
- 4. TO BE FILED IN THE OFFICE OF THE COUNTY PLANNER
- 5. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK
- 6. TO BE FILED IN THE OFFICE OF THE COUNTY COMMISSIONER
- 7. TO BE FILED IN THE OFFICE OF THE COUNTY ATTORNEY
- 8. TO BE FILED IN THE OFFICE OF THE COUNTY SHERIFF
- 9. TO BE FILED IN THE OFFICE OF THE COUNTY JUDGE
- 10. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 11. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 12. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 13. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 14. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 15. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 16. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 17. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 18. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 19. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 20. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 21. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 22. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 23. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 24. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 25. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 26. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 27. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 28. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 29. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 30. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 31. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 32. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 33. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 34. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 35. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 36. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 37. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 38. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 39. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 40. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 41. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 42. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 43. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 44. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 45. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 46. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 47. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 48. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 49. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT
- 50. TO BE FILED IN THE OFFICE OF THE COUNTY CLERK OF DISTRICT COURT



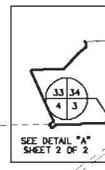
LINE	LENGTH	BEARING
L1	2892.08	N89°21'24.70"
L2	974.81	N01°33'02.96"
L3	280.20	S82°13'12.47"
L4	280.20	S01°23'39.77"
L5	280.20	N89°13'12.47"
L6	1259.01	S01°33'02.96"
L7	974.31	S88°45'27.77"
L8	1338.54	S01°01'44.70"
L9	974.31	N89°24'56.70"
L10	1351.98	S01°01'44.70"
L11	336.90	N89°34'17.70"
L12	339.82	S00°22'47.70"
L13	338.03	N89°49'14.70"
L14	341.05	S00°43'21.70"
L15	337.17	S88°32'46.70"
L16	342.58	S00°35'01.70"
L17	336.31	S89°11'26.70"
L18	349.98	S00°26'15.70"
L19	1352.31	S01°01'17.70"
L20	2696.32	S00°15'14.70"
L21	1339.20	S89°27'49.70"
L22	1339.89	N89°42'20.70"
L23	336.83	S00°20'21.70"
L24	334.98	N89°52'14.70"
L25	678.83	S00°20'21.70"
L26	334.99	S89°26'36.70"
L27	338.89	S00°20'26.70"
L28	335.00	S89°24'10.70"
L29	340.39	S00°20'24.70"
L30	335.00	S89°49'37.70"
L31	1022.84	S00°20'26.70"
L32	1340.16	S89°13'16.70"
L33	339.52	S82°22'22.70"
L34	1327.95	S89°49'07.70"
L35	334.98	S00°13'16.70"
L36	2667.03	S00°10'09.70"
L37	2728.41	S89°27'28.70"
L38	1368.48	S89°18'14.70"
L39	1338.10	S89°17'11.70"
L40	1371.12	S89°59'04.70"
L41	1336.02	N00°00'36.70"
L42	2675.43	N00°00'00.70"
L43	2755.18	N89°50'01.70"
L44	1339.40	N00°11'13.70"
L45	1339.39	N00°11'01.70"
L46	2827.69	N00°13'52.70"
L47	1088.68	N00°14'18.70"
L48	459.15	S00°15'49.70"
L49	471.97	S83°23'28.70"
L50	283.70	S89°14'10.70"
L51	1487.71	N83°45'59.70"
L52	1587.07	N83°22'26.70"
L53	72.79	N85°56'06.70"
L54	74.70	N85°54'01.70"
L55	888.44	N83°31'30.70"
L56	896.71	S76°39'20.70"
L57	543.70	S33°23'02.70"
L58	291.78	S76°28'57.70"
L59	954.00	S00°11'18.70"
L60	413.48	S88°12'20.70"
L61	44.02	S01°44'09.70"
L62	258.82	S08°56'17.70"
L63	158.22	S38°14'06.70"
L64	735.87	S00°21'00.70"
L65	356.33	S03°41'59.70"
L66	220.72	S00°23'03.70"
L67	2405.33	S49°54'41.70"
L68	1119.73	S01°36'59.70"
L69	1975.08	S00°18'32.70"
L70	290.21	S30°18'32.70"
L71	428.87	S89°22'02.70"
L72	42.08	S12°22'02.70"
L73	1808.18	N89°37'00.70"
L74	802.40	S00°00'00.70"
L75	39.86	S83°27'15.70"
L76	218.97	N00°00'00.70"
L77	1032.08	S89°49'23.70"
L78	20.00	N84°54'04.70"
L79	1408.28	N82°02'28.70"
L80	422.28	N87°39'42.70"
L81	10.00	N01°28'50.70"
L82	28.37	N48°28'08.70"
L83	69.21	N01°28'50.70"
L84	164.83	N51°45'37.70"
L85	387.82	N42°31'28.70"
L86	539.90	N88°12'40.70"
L87	39.86	N85°37'14.70"
L88	902.17	N24°22'27.70"
L89	58.05	N28°41'12.70"
L90	100.83	N82°22'27.70"
L91	74.48	N44°50'06.70"
L92	99.83	S55°19'02.70"
L93	90.73	S88°18'32.70"
L94	74.85	N87°43'24.70"
L95	227.82	S88°18'32.70"
L96	82.53	S78°18'32.70"
L97	787.78	S88°18'32.70"

CURVE	LENGTH	RADIUS	DELTA	TANGENT
C1	124.21	785.00	8°03'30"	62.24
C2	389.82	800.00	28°17'11"	331.01
C3	237.60	200.00	65°04'30"	138.07
C4	546.29	1000.00	31°17'30"	280.13
C5	489.89	875.00	39°59'20"	269.24
C6	442.98	330.00	78°34'33"	282.07



LEGEND

- PROPOSED 8" JET FUEL PIPELINE
- BASE BOUNDARY LINE
- STREET CENTERLINE
- SECTION CENTERLINE
- SECTION LINE



U.S. 91 & 93

SEC. 34 SHEET 2 OF 2

SEC. 35

TOWNSHIP 19 SOUTH

TOWNSHIP 20 SOUTH

SEC. 3

SEC. 2

SEC. 4

NELLIS AIR FORCE BASE LAS VEGAS NEVADA AREA I

SEC. 11

SEC. 10

SEC. 9

SEC. 16

LAS VEGAS BOULEVARD NORTH S 575°22'29" W 1186.85'

NELLIS BOULEVARD S 71°11'11" W 971.12'

CHEYENNE AVENUE S 76°28'57" W 291.78'

CAREY AVENUE S 78°18'32" W 787.78'

HOLLYWOOD BOULEVARD S 76°28'57" W 291.78'

EAST SIDE OP. STORAGE FACILITY (POINT OF BEGINNING)

SEE DETAIL TO SHEET 2 OF 2

REFERENCE MAPS

- RECORD OF SURVEY FILE 01 PAGE 09
- RECORD OF SURVEY FILE 01 PAGE 10
- RECORD OF SURVEY FILE 47 PAGE 59
- RECORD OF SURVEY FILE 47 PAGE 60
- RECORD OF SURVEY FILE 50 PAGE 42
- RECORD OF SURVEY FILE 50 PAGE 43
- KINDER MORGAN WORK ORDER No. J11498
- PROPOSED 8" JET FUEL PIPELINE
- NELLIS AIR FORCE BASE, LAS VEGAS, NV

BASIS OF BEARING

NORTH 06°18'49" EAST - THE WEST LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 3, TOWNSHIP 20 SOUTH, RANGE 82 EAST, M.D.M. AS SHOWN ON RECORD OF SURVEY IN FILE 47, PAGE 59, CLARK COUNTY RECORDS, NEVADA.

SURVEYOR'S NOTES

- 1) AREA I BOUNDARY AS SHOWN HEREON WAS PREPARED FROM INFORMATION SHOWN ON RECORD OF SURVEY IN FILE 47, PAGE 59, CLARK COUNTY RECORDS, NEVADA.
- 2) THE PURPOSE OF THIS SURVEY IS TO MEMORIALIZE THE PROPOSED ALIGNMENT OF THE PROPOSED 8" JET FUEL PIPELINE AS SHOWN ON KINDER MORGAN'S "PROPOSED 8" JET FUEL PIPELINE, NELLIS AFB FUEL HANDLING FACILITY," WORK ORDER No. J11498, DRAWING No. 3030-A-101 TRN3 DRAWING No. 3030-A-127 (LAST REVISION DATED JULY 27, 2004)

SURVEYOR'S CERTIFICATE

I, PAUL B. CHANDLER, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF NEVADA, AS AGENT FOR BAUGHMAN & TURNER, INC., CERTIFY THAT:

1. THIS PLAT REPRESENTS THE RESULTS OF A SURVEY CONDUCTED UNDER MY DIRECT SUPERVISION AT THE INSTANCE OF SPEC SERVICES.
2. THE LANDS SURVEYED LIE WITHIN SECTIONS 2, 3, 4, 10 AND 11, TOWNSHIP 20 SOUTH, RANGE 82 EAST AND SECTIONS 33, 34 AND 35, TOWNSHIP 19 SOUTH, RANGE 82 EAST, M.D.M. AND THE SURVEY WAS COMPLETED ON OCTOBER 1, 2004.
3. THIS PLAT COMPLIES WITH THE APPLICABLE STATE STATUTES AND ANY LOCAL ORDINANCES IN EFFECT ON THE DATE THAT THE GOVERNING BODY GAVE ITS FINAL APPROVAL.
4. THE MONUMENTS DEPICTED ON THE PLAT ARE OF THE CHARACTER SHOWN, OCCUPY THE POSITIONS INDICATED AND ARE OF SUFFICIENT NUMBER AND DURABILITY.

PAUL B. CHANDLER
PROFESSIONAL LAND SURVEYOR
NEVADA CERTIFICATE NO. 8680

EXPIRES 12/31/04

LEGAL DESCRIPTION

PORTIONS OF SECTIONS 2, 3, 4, 10 AND 11, TOWNSHIP 20 SOUTH, RANGE 82 EAST, M.D.M. AND PORTIONS OF SECTIONS 33, 34 AND 35, TOWNSHIP 19 SOUTH, RANGE 82 EAST, M.D.M. MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SECTION 33, TOWNSHIP 19 SOUTH, RANGE 82 EAST, M.D.M.; THENCE NORTH 02°20'28" WEST ALONG THE EAST LINE THEREOF A DISTANCE OF 1406.28 FEET; THENCE SOUTH 87°30'12" WEST A DISTANCE OF 422.88 FEET TO A POINT IN THE CALVEY "YAHN FARM", SAID POINT FURTHER DESCRIBED AS THE POINT OF BEGINNING; THENCE SOUTH 01°26'50" EAST A DISTANCE OF 10.00 FEET; THENCE SOUTH 46°28'08" EAST A DISTANCE OF 28.37 FEET; THENCE SOUTH 01°28'50" EAST A DISTANCE OF 88.21 FEET; THENCE SOUTH 51°40'57" WEST A DISTANCE OF 104.95 FEET; THENCE SOUTH 42°31'48" WEST A DISTANCE OF 367.82 FEET; THENCE SOUTH 80°12'40" WEST A DISTANCE OF 539.90 FEET; THENCE SOUTH 05°37'33" WEST A DISTANCE OF 39.36 FEET; THENCE SOUTH 24°22'27" EAST A DISTANCE OF 902.17 FEET; THENCE SOUTH 28°12'12" EAST A DISTANCE OF 58.05 FEET; THENCE SOUTH 55°27'27" WEST A DISTANCE OF 100.82 FEET TO A POINT LOCATED IN THE "PROPOSED WEST OP. BULK STG. COGN." FACILITY AS SHOWN ON SPEC SERVICES' PROPOSED 8" JET FUEL PIPELINE CONSTRUCTION DRAWING No. 3030-A-102; THENCE SOUTH 34°30'06" EAST A DISTANCE OF 74.46 FEET; THENCE NORTH 55°19'02" EAST A DISTANCE 80.83 FEET EXITING THE AFORESAIDMENTIONED "PROPOSED WEST OP. BULK STG. COGN."; THENCE NORTH 87°18'32" EAST A DISTANCE OF 90.73 FEET; THENCE SOUTH 87°43'28" EAST A DISTANCE OF 74.35 FEET; THENCE NORTH 88°16'32" EAST A DISTANCE OF 227.82 FEET; THENCE NORTH 78°18'32" EAST A DISTANCE OF 82.53 FEET; THENCE NORTH 80°18'32" WEST A DISTANCE OF 787.78 FEET; THENCE SOUTH 30°14'21" EAST A DISTANCE OF 283.75 FEET TO A POINT LYING INSIDE NELLIS AIR FORCE BASE LAS VEGAS NEVADA AREA I AS SHOWN ON RECORD OF SURVEY IN FILE 47, PAGE 59, CLARK COUNTY RECORDS, NEVADA; THENCE NORTH 83°45'58" EAST A DISTANCE OF 1487.71 FEET; THENCE NORTH 33°52'58" EAST A DISTANCE OF 1587.07 FEET; THENCE NORTH 59°50'06" EAST A DISTANCE OF 72.72 FEET TO A POINT ON A TANGENT CURVE CONCAVE TO THE SOUTHEAST HAVING A RADIUS OF 785.00 FEET; THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 09°03'58" AN ARC LENGTH OF 124.21 FEET; THENCE NORTH 64°54'04" EAST A DISTANCE OF 20.00 FEET; THENCE NORTH 22°43'40" EAST A DISTANCE OF 74.70 FEET; THENCE NORTH 53°51'30" EAST A DISTANCE OF 608.44 FEET; THENCE NORTH 78°30'20" EAST A DISTANCE OF 696.11 FEET; THENCE SOUTH 13°32'50" WEST A DISTANCE OF 343.70 FEET; THENCE SOUTH 64°54'04" EAST A DISTANCE OF 20.00 FEET TO A POINT ON A TANGENT CURVE CONCAVE TO THE SOUTHWEST HAVING A RADIUS OF 600.00 FEET; THENCE SOUTHEASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 367°14" AN ARC LENGTH OF 488.82 FEET; THENCE SOUTH 20°11'18" EAST A DISTANCE OF 854.00 FEET TO A POINT ON A TANGENT CURVE CONCAVE TO THE NORTHEAST HAVING A RADIUS OF 200.00 FEET; THENCE SOUTHEASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 88°04'29" AN ARC LENGTH OF 233.90 FEET; THENCE SOUTH 80°15'20" WEST A DISTANCE OF 413.49 FEET; THENCE SOUTH 01°44'40" WEST A DISTANCE OF 44.02 FEET; THENCE SOUTH 08°58'12" WEST A DISTANCE OF 258.82 FEET TO A POINT ON A TANGENT CURVE CONCAVE TO THE NORTHWEST HAVING A RADIUS OF 1000.00 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 317°55" AN ARC LENGTH OF 548.28 FEET; THENCE SOUTH 30°14'06" WEST A DISTANCE OF 159.22 FEET; THENCE SOUTH 00°21'00" WEST A DISTANCE OF 735.87 FEET; THENCE SOUTH 03°14'59" EAST A DISTANCE OF 356.33 FEET; THENCE SOUTH 00°23'03" WEST A DISTANCE OF 220.72 FEET; THENCE SOUTH 40°58'41" WEST A DISTANCE OF 2408.33 FEET; THENCE SOUTH 01°26'58" WEST A DISTANCE OF 1110.73 FEET; THENCE SOUTH 80°18'32" WEST A DISTANCE OF 1878.08 FEET; THENCE SOUTH 30°18'32" WEST A DISTANCE OF 200.21 FEET TO A POINT ON A TANGENT CURVE CONCAVE TO THE NORTHWEST HAVING A RADIUS OF 475.00 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 89°25'29" AN ARC LENGTH OF 489.89 FEET; THENCE SOUTH 89°22'02" WEST A DISTANCE OF 428.87 FEET TO A POINT ON A TANGENT CURVE CONCAVE TO THE SOUTHEAST HAVING A RADIUS OF 330.00 FEET; THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 76°34'33" AN ARC LENGTH OF 442.88 FEET; THENCE SOUTH 12°27'29" WEST A DISTANCE OF 42.08 FEET; THENCE NORTH 89°37'00" WEST A DISTANCE OF 1808.18 FEET; THENCE SOUTH 00°00'00" WEST A DISTANCE OF 802.40 FEET TO A POINT INSIDE THE PROPOSED EAST SIDE BULK STORAGE AREA, SAID POINT ALSO BEING THE POINT OF BEGINNING OF 8" JET FUEL PIPELINE; THENCE SOUTH 83°27'15" WEST A DISTANCE OF 59.90 FEET TO THE BEGINNING OF THE PROPOSED 8" JET FUEL PIPELINE; THENCE NORTH 00°00'00" WEST EXITING THE PROPOSED EAST SIDE BULK STORAGE AREA A DISTANCE OF 2187 FEET; THENCE NORTH 87°18'32" WEST A DISTANCE OF 1032.00 FEET TO THE END OF THE PROPOSED 8" JET FUEL PIPELINE, SAID POINT BEING LOCATED IN THE NORTHEASTERLY AREA OF THE EXISTING EAST SIDE OP. STORAGE FACILITY, SAID POINT FURTHER BEING DESCRIBED AS THE POINT OF ENDING.

CLARK COUNTY RECORDERS NOTE:

ANY SUBSEQUENT CHANGES TO THIS MAP SHOULD BE EXAMINED AND MAY BE DETERMINED BY REFERENCE TO THE COUNTY RECORDERS CUMULATIVE MAP INDEX (NRS 278.9695)

<p>RECORD OF SURVEY FOR 8" JET FUEL PIPELINE LOCATED ON A PORTION OF NELLIS AIR FORCE BASE PORTIONS OF SECTIONS 2,3,4,10&11, TOWNSHIP 20 SOUTH, RANGE 82 EAST AND PORTIONS OF SECTIONS 33,34&35, TOWNSHIP 19 SOUTH, RANGE 82 EAST, M.D.M. CLARK COUNTY, NEVADA</p>		<p>NO. Filed at the request of BAUGHMAN & TURNER, INC.</p>
Date	At	Official Records Book
FILE	PAGE	Clark Co., Nevada Records Frances Deane, Recorder
<p>BAUGHMAN & TURNER, INC. CIVIL ENGINEERS LAND SURVEYORS LAND PLANNERS 1210 HENSON STREET LAS VEGAS, NEVADA 89102 PH. (702) 870-8771 Fax (702) 878-2893</p>		<p>File: Deputy</p>

APPENDIX C

**Biological Reconnaissance Survey Results,
Nellis AFB Proposed Liquid Fuel Line Routes**



CH2MHILL

CH2M HILL
2285 Corporate Circle
Suite 200
Henderson, NV 89074
Tel 702.369.6175
Fax 702.369.1107

August 18, 2003

Elisha Back
Kinder Morgan
1100 Town & Country Road
Orange, CA 92868

Subject: Biological Reconnaissance Survey Results, Technical Memorandum

Dear Elisha:

Attached please find the final Biological Reconnaissance Survey (Technical Memorandum). The draft was sent to Kinder Morgan on August 1, 2003 and then to James Campe, Bill Sandeen, and Sheila Amos of Nellis Air Force Base on August 4, 2003. After review, there were no changes or corrections sent back. James Campe suggested that the biological data collected be incorporated into the Environmental Assessment.

If you have any questions, please call me or Fred Turnier at (702) 369-6175.

Sincerely,

CH2M HILL

Bob Turner
Senior Biologist

cc:
Fred Turnier

Biological Reconnaissance Survey Results, Nellis AFB Proposed Liquid Fuel Line Routes- July 28, 2003

PREPARED FOR: James Campe, Nellis Air Force Base

PREPARED BY: Bob Turner, Senior Biologist, CH2MHILL

COPIES: Bill Sandeen, Nellis Air Force Base
Sheila Amos, Nellis Air Force Base
Fred Turnier, CH2MHILL

DATE: August 4, 2003

Kinder Morgan proposes to design and construct a new liquid fuel line from Kinder Morgan's Las Vegas Calnev Terminal northwest of Nellis Air Force Base (NAFB) to the existing NAFB East Side Operations Storage (ESOS) Facility. A new fuel holding facility will also be constructed to the east of the existing ESOS facility. The purpose of the proposed project is to increase the refueling capacity and the reliability of the ESOS facility. The installation of the new eight-inch pipeline and tank storage facility will enable increased turnaround times for the tanker trucks refueling aircraft, enhancing aircraft refueling efficiency.

A biological reconnaissance survey for the proposed new 8" liquid fuel line at NAFB was conducted on July 28, 2003. The areas surveyed for biological resources included the Proposed Action Pipeline Route Alternative A, the Pipeline Route Alternative B and the additional Storage Facility Alternatives located east and northeast of the East Side Operations Storage Facility (Figure 1). The reconnaissance survey was conducted on all the proposed project alternatives by traversing the alignments by vehicle or on foot as appropriate. Visual observations were made on plant and wildlife species present on the project alignments. A review of existing habitat conditions was determined through visual observation of past and present land uses and disturbances, native and exotic vegetation present and indications of urban encroachment.

The Proposed Action Pipeline Route Alternative A parallels an existing paved road for approximately 23,450 feet of its estimated length of 26,700 feet. This portion of Alternative A has been previously graded and is devoid of native vegetation. The remaining length of 3,250 feet of Alternative A occurs along an existing dirt road and fence line in disturbed desert scrub dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Pipeline Route Alternative B parallels the above mentioned paved road for approximately 15,500 feet of its estimated length of 31,950 feet. The remainder of Alternate B, approximately 16,450 feet, occurs along disturbed and graded dirt roads and disturbed desert scrub as mentioned previously. The Storage Facility Alternatives are located East and Northeast of the existing East Side Operations Storage Facility and West of the above-mentioned paved access road that enters onto Nellis Air Force Base. Habitat in this area of

the proposed project alignment is disturbed desert scrub containing bladed dirt roads along property fence lines, abandon gravel pits, past off road vehicle use and old and abandoned area access roads.

During the reconnaissance survey, no federally listed plant or wildlife species were observed on the proposed project alignments. Habitat for the desert tortoise (*Gopherus agassizii*), listed as a threatened species under the Endangered Species Act, does occur on and adjacent to the proposed project alignments. The desert tortoise habitat present on the proposed project alignments is disturbed as a result of past and ongoing off-road vehicle use, previous land clearing activities, established and highly used paved and dirt roads, past water, gas and utility line installations, and infrastructure, and is not within any designated critical habitat for the species. Due to the fact that the proposed project occurs in previously disturbed areas, it is unlikely that direct take of this species would occur due to the implementation of the proposed project.

The Western burrowing owl (*Athene cunicularia hypugea*), considered a Species of Concern by the United States Fish and Wildlife Service and protected by both Federal (Migratory Bird Treaty Act (16 USC 703-712)) and Nevada State (Nevada Revised Statutes 503.620) laws, was observed in the vicinity of the proposed project alignments. The observed bird was seen flying to a large dirt excavation pile located approximately 600 feet northeast of the East Side Operations Storage area (Figure 1).

Other wildlife species observed on the project alignments during the Reconnaissance Survey included Mourning Dove (*Zenaida macroura*), House Sparrow (*Passer domesticus*), Horned Lark (*Eremophila alpestris*) and Antelope Ground Squirrel (*Ammospermophilus leucurus*).

While conducting the biological reconnaissance survey, emphasis was placed on known plant species of concern that may potentially occur in the area of the proposed project alignments. These plant species included the Las Vegas Bear Poppy (*Arctomecon californica*), Yellow Twotone Beardtongue (*Penstemon bicolor* ssp. *bicolor*), Three Corner Milkvetch (*Astragalus geyeri* var. *triquetrus*), Sticky Ringstem (*Anulocaulis leiosolenus*), and the Large Flowered Sunray (*Enceliopsis argophylla* var. *grandiflora*). While conducting the reconnaissance survey, no known plant species considered to be State or Federally listed, sensitive, or of special concern were observed on the proposed project alignments.

Based on proposed project construction activities, proximity to urban development, previous habitat degradation in the project vicinity, and findings of this reconnaissance, the proposed project will not adversely impact native flora and fauna that may occur on or adjacent to the project alignments.